

**The Pedagogical Affordances of Smartphone  
Applications for Collaborative Learning (CL) amongst  
Pre-service Teachers in Kuwait**

**Submitted by**

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# **The Pedagogical Affordances of Smartphone Applications for Collaborative Learning (CL) amongst Pre-service Teachers in Kuwait**

## **Abstract**

Multiple technological tools are used on a regular basis these days, e.g. PCs, laptops, iPads and smartphones. They are constantly becoming faster, reducing in size and offer more and more functions, which encourages their use anywhere and at any time. The portability and ubiquity of smartphone communications technology has encouraged educators and policy-makers around the world to incorporate it into teaching and learning. However, portability and ubiquity are not the only pedagogical affordance smartphones (and apps) offer; e.g. social interactivity, context sensitivity, connectivity and individuality are also represented (Klopfer et al., 2002). In this study, I have discussed some of these; the main thesis focus is on the pedagogical affordances of smartphone apps, especially a smartphone app (i.e. WhatsApp) to support collaborative learning (CL) amongst pre-service teachers under the Kuwait Public Authority for Applied Education and Training (PAAET).

The main research question: 'Is WhatsApp useful in enhancing collaboration amongst pre-service teachers at PAAET? If so, then how and why is it useful?' is divided into several sub-questions on students' perspectives of CL, amongst other relevant issues. The main study approach adopted is qualitative, including several methods (interviews, observation, focus groups, field notes, and Interactional Analysis (IA)), in order to gain insights into M-learning, mobile computer supported collaborative learning (MCSCCL), CL, and participatory simulation (PS). PS involves new roles – the role of a real teacher instead of a pre-service teacher. The participants ( $n=65$  in the first iteration, and  $n=59$  in the second iteration) were successfully engaged in two iterations of design-based research (DBR), where their voices were crucial throughout.

The use of smartphone apps (i.e. WhatsApp) by the students was evaluated, with information on student usage obtained via various channels. The data was analysed using a thematic analysis approach. The findings support the key theory

that unique affordances are offered by smartphone apps (i.e. WhatsApp) for CL, enhancing learning opportunities with the support of PS activities. However, it was found that there are also challenges presented by the integration of technology into PAAET and the Kuwaiti context.

These findings have important implications for both theory and practice and the integration of smartphone apps into the collaborative educational status quo. Furthermore, they should expand our understanding of the pedagogical affordances of smartphone apps for CL in a specific context (PAAET), although there are limitations to the current study and recommendations for further work are ultimately presented.

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*To my Father (Allah's Mercy on him).  
My Mom, Wife and Abdulwahab, and all of my brothers.  
To Wegerif for his patience & Judith for her guidance.*

## Chapter 1: Introduction

### 1.1 Overview

These days, in a fast-changing world, technology is everywhere and constantly evolving. The current generation of students in the developed and most developing countries are surrounded by technological tools, such as computers, personal digital assistants (PDAs), handheld mobiles, smartphones, and wireless networks (Purcell, 2012). According to El-Hussein and Cronje (2010), “The advent of the technology has created new signs, new ways of writing and receiving information, and new ways of transmitting video clips” (p. 15). What is more, Hoppe (2006) points out that technology yields innovative conditions for learning and can also introduce new ways of learning.

Besides the above, learners in different locations and time zones can reach teachers when needed with the use of mobile technology (M-technology) (Ally & Prieto-Blázquez, 2014). Higher education institutions (HEIs) may therefore benefit from the ubiquitous technology that mobile phones offer, providing flexibility in learning (Tsinakos & Ally 2013). Furthermore, this may increase enrolment and contribute to a more substantial student population, since course materials can be accessed anywhere and at any time (Lowenthal 2010). Moreover, learners can use the wireless capability of their mobile devices to access relevant and up-to-date educational resources from the Web, enabling them to communicate with field authorities and other relevant contacts in their studies, since resources and information are thus made available, irrespective of location (Ally & Prieto-Blázquez, 2014; Sutch, 2010).

Nowadays, numerous technological devices are available in portable form and younger users are especially drawn to using them, with the effect that their daily lives are being reshaped in various ways (Huang et al., 2010). As Banks (2008) points out:

“Further studies are painting a picture of today’s youth becoming increasingly comfortable and accepting of their new digital lifestyles, powered by technology such as mobile phones. These phones are enriched by portable entertainment devices such as iPods, digital cameras, Sony PSPs, and Nintendo’s Gameboy. Friendships are made, maintained and lost online often in virtual worlds and on social networking sites such as

MySpace and Facebook. Much of what we are seeing today—generally out of the classroom but increasingly in it—is technology-driven, but this technology is not universally accessible to all” (Banks, 2008, p. 53).

If Banks’ vision holds true, then we can expect more and more academic institutions in higher education (HE) to employ the latest wireless and mobile technologies (M-technologies). However, not everyone embraces state-of-art technology, such as the smartphone, in education (Huang et al., 2010). Sharples (2006) has pondered on the question, “One hundred years ago children travelled to schools to sit in rows and be instructed by a teacher. Today they still do the same. Why is education so resistant to change?” (p. 2). I believe the Kuwaiti educational context is no exception here. To provide further support for the choice of this study area, the research rationale is discussed below.

## 1.2 Research Rational

### 1.2.1 *Personal Motivation*

My personal motivation has driven me to search for new mediating tools to enhance students’ communication, interaction and collaboration, which might reflect positively upon their academic performance. Since working part-time for five semesters between 2008 and 2011 under PAAET, I have witnessed that some of the pre-service teachers’ achievements and final grades (at least, the students I was teaching), were weak and some of my students even failed, while it was basically a theoretical and introductory course (Introduction to Education Technology, see 2.2), consisting of basic information. Personally, I believe that such weakness and failure resulted from specific challenges, e.g. students being passive as opposed to active, a lack of peer engagement, students tend to focus more in memorising as much information as they can only to pass the exams instead of trying to comprehend or analyse such information, and the fact that the teacher’s voice is typically the only one heard in the Kuwaiti education system. Such challenges will be identified, analysed and presented in this study.

Furthermore, I witnessed a lack of communication and interaction between students and between students and teachers both inside and beyond the walls of the lecture hall. Usually, when students (i.e. in this case pre-service teachers) leave the lecture hall, there is nothing connecting them with their colleagues or

teachers. What I mean by this is that there are no channels or means for them to communicate, ask questions, or obtain any new information on their courses, unless they show up again in person in front of their teachers or peers. If they miss these opportunities and therefore the information, they will simply have to wait for the next lecture. This is confirmed by one Kuwait University faculty:

“In the country of Kuwait, as in many other Gulf States, students often lack opportunities to meet freely, to communicate and to collaborate with their peers” (Al-Fadhli, 2008, p. 425).

I was not convinced that this was acceptable or practical, especially in this technological era. Therefore, I first searched for ways of improving the pre-service teachers' success, with an attempt to shift them from passive to active behaviour, getting them to take on more responsibilities and roles and to connect with their peers. The collaborative learning approach was my choice, since it drives group work between students in their problem-solving, task completion and collective production (Smith & Macgregor 1992). Additionally, many scholars/researchers present evidence of CL's usefulness and effectiveness (see Chapter 3, the Literature Review).

Secondly, I thought of using a learning management system (LMS), like Blackboard or WebCT, which I was familiar with. Unfortunately, such costly systems were not available, at least for the purpose of this research at PAAET. Thus, I decided to search for a free open source LMS, such as Moodle or Haiku. After comparing both systems, I found Haiku was more suitable, simply because it does not require the purchase of a domain name, as is the case with Moodle. Moreover, Haiku is easy to use. Regrettably, I was disappointed that most LMSs around the world are in English and to my knowledge, there is nothing good enough available in Arabic. Language differences constitute one of the main barriers preventing the implementation of E-learning in Kuwait (Ali & Magalhaes, 2008).

In addition to the above, I had used Blackboard (available at Kuwait University, but not at PAAET) twice before, but had not found these to be entirely fruitful trials. In actual fact, many earlier E-learning projects have simply replicated traditional methods of teaching and learning in an online environment (Mcloughlin & Lee,

2007). Moreover, according to Masters (2005), significant numbers of students in developing countries struggle to log on to the Internet, or face troubles affording the technology that will permit learning in an E-Learning environment. Unfortunately, recently, Alali and Xanthidis (2014) found more challenges that may prevent or alleviate effective use of E-learning by some of the students at KSA universities (KSA is one of the GCC countries) such as problems in the local telecommunications' and other infrastructure, besides lack of necessarily facilities.

All the above points raise another significant question: Why do some teachers and educators, including myself, insist on only using technology they are familiar with (e.g. LMSs) instead of concentrating on technology that the students prefer? The integration of an LMS like Blackboard, WebCT, or Moodle into a classroom will not in itself guarantee full engagement or acceptance, particularly in the Kuwaiti context, as I have already noted in the past. This is particularly true of new technologies — computers, handheld devices, and software applications — which differ from the more traditional pedagogical technologies branded with specificity (e.g. a pen for writing), stability (pencils and chalkboards have not witnessed big changes over time), or transparency of function (a pen's job is simple and obvious; besides, it is directly related to its function) (Simon, 1969). On the contrary, according to Papert (1980), new technologies are adjustable (can be used for many tasks), unsteady (they evolve quickly), and opaque (not all their functions are well known by users) (Turkle, 1995). Furthermore, it is expected that some barriers will emerge (e.g. social, institutional, or contextual in nature) (Mishra & Koehler, 2007). Mishra and his colleague make me more optimistic when they stress there are no such things as 'perfect solutions', but rather solutions which are suitable for particular situations or environment.

Nevertheless, we need to rethink new tools and new models for teaching and learning, in order to meet the needs of today's students, who are eager for "greater autonomy, connectivity and socio-experiential learning" (Mcloughlin & Lee, 2007, p. 667). While, of course, this does not apply to all students, similar claims are frequently made in the literature (e.g. Prensky, 2001).

New tools promise pedagogical affordances and can be carried in the hand, offering privacy and enabling a connection to other devices and networks at any

time and from any location. Additionally, there are solutions which could be suitable for the Kuwaiti context, such as the more familiar and widely distributed smartphones (i.e. the iPhone, Samsung Galaxy and BlackBerry Messenger).

Every technological tool has its own unique pedagogical affordances and limitations, rendering it more appropriate for certain tasks than others (Bromley, 1998; Bruce, 1993; Koehler & Mishra, 2008; cited in Koehler & Mishra 2009). For instance, according to Koehler and Mishra (2009), email affords asynchronous (e.g. easy storage of exchanges), but not synchronous communication (instant contact), as do phone calls, instant messages, or face-to-face dialogue. Furthermore, email does “not afford the conveyance of subtleties of tone, intent, or mood possible with face-to-face communication” (Koehler & Mishra 2009, p. 61).

PCs, laptops, iPads and smartphones are moreover designed with different purposes in mind and their pedagogical affordances therefore also differ. With PCs, as in a fixed computer, a great deal of data can be down- or uploaded, e.g. curricula, teachers’ schedules, or students’ records of progress and these can be linked with data-show to display text, images and videos within the classroom. They can also store a library catalogue, allowing teachers and students to search for information more easily, as well as teachers being able to motivate their students to engage in computer-based activities (Collins, 1991). With other recent portable technological tools, e.g. laptops, PDAs, iPads and smartphones, all the above pedagogical affordances can be accessed, as well as facilitating mobility; ubiquity; accessibility; connectivity; social interactivity; context sensitivity; individuality, and creativity (Klopfer et al., 2002; Woodill 2010). It is my belief that, once teachers apprehend specific technology affordances and limitations, they will be able to choose the right tool to be incorporated into their teaching methods.

As a result of the above, I decided to change my way of thinking and adhere to what I believe students are already familiar with and can handle, such as their smartphones. Compared to traditional PCs and laptops, mobile phones are cheaper and offer permanent ubiquity (Masters, 2005). Laptops, however, unlike other mobile devices, do not “fit easily into the vision of the mobile device in m-learning: a handheld device that can be used for communication while mobile”

(Nyíri, K., 2002; cited in Masters, 2005, p. 4). Furthermore, accompanying apps, like WhatsApp, Twitter and BlackBerry Messenger are usually free of charge and most students already use them to communicate socially with friends and family.

This shift in thinking has emerged on the basis of social constructivist theory (SCT), where knowledge can be constructed as a social act. “M-learning is a social rather than a technical phenomenon for people on the move” (Vavoula & Sharples 2008, p. 7). However, Maxwell (1996) warns that traditionally, bringing the researcher’s identity and underlying expertise to a study could be considered as bias. In contrary, other researchers reject this idea of excluding previous experience (Mills, 1959; Glesne & Peshkin 1992). Personally, I believe it is difficult to remain totally objective like this and doing so may even cut the researcher off from major sources of insight. According to Glense and Peshkin (1992):

“My subjectivity is the basis for the story that I am able to tell. It is a strength on which I build. It makes me who I am as a person and as a researcher, equipping me with the perspectives and insight that shape all that I do as a researcher, from the selection of topics clear through to the emphases I make in my writing. Seen as virtuous, subjectivity is something to capitalize on rather to exorcise.” (Glense & Peshkin, 1992, p. 104).

Nevertheless, we still have to be very careful when imposing our assumptions and values on a study (Strauss, 1987; Glesne & Peshkin, 1992). It can therefore be useful for researchers to apply the so-called ‘critical subjectivity’ suggested by Reason (1988). One way to do this is to keep a ‘researcher experience memo’, writing in advance about any expectations, beliefs or assumptions brought to a study, in order to remain aware of the danger of bias (Maxwell, 2006). The memo helps researchers examine and critique their expectations, beliefs and assumptions (Maxwell, 2006) and this is what I intend to do here, recording all my ideas prior to and during this study in an attempt to prevent any influence on the results, thus avoiding bias.

### *1.2.2 The Necessity for Student-focused Studies within Higher Education Institutions (HEIs) in Kuwait*

As my thinking shifted towards implementing technology that students seem to prefer and are familiar with, I basically moved from instructional modes based on the teacher-centred pedagogy found in more traditional classrooms, to more

student-centred approaches. In Kuwait, there is a real need for such studies to reveal any ambiguity over what students want in this context (i.e. PAAET), or how they interact, collaborate and communicate. Furthermore, we need to ask, "What kind of learning suits them (students) better in this technological era?" Should we as educators/teachers in HEIs in Kuwait continue using traditional learning methods, or should learning be constructive, collaborative, interactive and contextualised, as Roschelle et al. (2000) recommend?

I believe it is time for us as educators in Kuwait to accept the fact that learning has recently become more situated in a real life context (Traxler, 2009), where it is more personal and collaborative, facilitated and progressed by social interaction and conversation and mediated by tools (Wertsch, 1991). I believe we should stop ignoring students' voices, skills and needs and start conducting studies that are primarily oriented towards investigating students' perspectives and needs. This will allow us as educators to conceptualise students' preferences and requirements, as well as designing plans and strategies to keep students engaged, interested and willing to interact and collaborate with each other, both inside and most importantly, outside the lecture halls. However, this is not simply going to happen overnight. Hopefully this study will fill some gaps and be considered as a student-focused study.

### *1.2.3 The Necessity for Research on M-learning to Support Learning in HEIs in Kuwait*

Litchfield, Dyson and Lawrence (2007) specify gaps within M-learning literature, where they suggest that more studies are really needed in this field. Single-focused attribute studies have dominated and continue to do so, as a quick look at the literature review will tell us. For instance, Ekanayake and Wishart (2014) recently carried out an investigation in Sri Lanka to explore how mobile phones could support science teachers' pedagogical practices. They found that some teachers' personal use of mobile phones differed completely from their use in classroom teaching. The teachers concerned frankly stated that they did not have the suitable training to use mobile phones in teaching. This demonstrates a lack of awareness and skills amongst teachers, especially in some of the developing countries, for the apt implementation of M-learning (see UNESCO Working Paper

Series on Mobile Learning, 2012). This suggests that more training is needed in the M-learning field.

By focusing locally, we find that most of the studies conducted in HEIs in Kuwait and even in other Gulf Corporation Countries (GCCs) are limited to the perspectives and attitudes of students and barriers to E-learning. Most of these studies use comparative analysis, based on quantitative approaches for the interpretation of human-human interaction. In other words, few in-depth investigations have been carried out to interpret human behaviour. In fact, according to Ali and Magalhaes (2008), E-learning projects so far has failed to deliver any benefits in Kuwait and the improvements have rarely matched expectations. This means that Kuwait has yet to adopt contemporary teaching methods which will enable it to compete globally. Personally, I could not agree more with Ebrahim (2012), who argues that we — as Kuwaiti educators — have to challenge students' thinking so that they face and cope with the constantly changing world of science. Furthermore, I argue, we have to help them offer reasoned judgments and creative solutions by implementing new didactic approaches, like M-learning.

In my opinion, in this technological era, it is difficult for teachers and educators not to note the implicit affordances (see the definition of affordances in 1.4.2) that M-technology holds, particularly where devices are small enough to be portable, thus allowing students to utilise them for interaction, information-sharing, accessing expertise, or completing a task collaboratively with colleagues. Moreover, these activities can take place anywhere and at any time. This makes the location irrelevant for students, since such handheld devices offer more flexible opportunities for all by allowing learning to become accessible across time zones (Ally & Prieto-Blázquez, 2014). In one way or another, this development obligates visionary teachers, educators and policy-makers to pay attention to modern technology and try to make use of it, especially wireless handheld devices (e.g. PDAs, tablets, and smartphones), to the extent that they become increasingly popular worldwide and have a major impact on the way humans are able to communicate and access information (Borcea & Lamnitchi, 2008; Sharples et al., 2009).

According to Welsh and France (2012), since 2007, more and more people around the world have acquired a smartphone. Gradually, they are becoming more “affordable and ubiquitous” (Melhuish & Falloon, 2010, p. 4) and are “the fastest-growing [M-technology] sales segment” (Johnson et al., 2011, p. 9). Users of smartphones have the opportunity to connect to Wi-Fi (a wireless connection to the Internet) at home, work, school, and even in cafés and malls, mostly at no additional cost (Welsh & France, 2012). Moreover, nearly all smartphones can connect to a 3G signal (users must subscribe to the services of a telecommunications company in the respective country).

Companies like Samsung, Apple, BlackBerry Messenger, Nokia and Google are constantly releasing new handheld devices (e.g. Samsung Galaxy, iPhone, HTC Desire and others). These companies produce small computers, to the size of a standard mobile phone. In addition, applications (i.e. software packages) are often free or affordable, enabling individuals to personalise their smartphone to fit their own needs (ASTD, 2013). Of course there are countless applications nowadays, but I am most interested in those used for communication (like Twitter, WhatsApp and BlackBerry Messenger), since they are more widely adopted in Kuwait. For instance, WhatsApp supports inexpensive and easy to access group chat, sharing-photo, videos and location information with others; it “has been downloaded more than 100 million times from the Google Play store, and is currently the top-paid app in the Apple App Store” (ASTD, 2013).

At present, according to Ally and Prieto-Blázquez (2014), M-learning is a strategic focus for many education organisations and Huang et al. (2010) believe that in future, it is likely to become one of the most effective means of delivering HE instruction. In fact, both Traxler (2013) and Muir (2013) agree that M-learning holds great potential for developing countries. Nonetheless it needs careful planning to become successful. Moreover, researchers and educators currently believe that we can design learning differently “to create extended learning communities, to link people in real and virtual worlds, to provide expertise on demand, and to support a lifetime of learning” (Sharples, 2006, p. 2). It is important to realise that more than ever, teachers need software tools supported by mobile devices to help them produce lesson plans centred around CL activities, for ease of facilitating tasks (Alvarez et al., 2011). According to Kearney et al. (2012), “M-

learners can enjoy a high degree of collaboration by making rich connections to other people and resources mediated by a mobile device” (p. 10). Liu and Kao (2007) confirm this view and point out that utilising mobile phones for group collaboration could enhance ideal communication patterns and cut out fruitless communication between group members.

However, at the start of the second millennium, the best known attempts to use M-technology by scholars in the teaching/learning field (e.g. Sharples, Taylor, O’Malley, and more) were strongly linked to the device/artefact (Sharples, Corlett, & Westmancott, 2002), and the potential for enabling lifelong learning (Sharples, 2000). With the passage of time and more experience gained, the above scholars shifted their focus from the device to the mobility of the learner and began considering M-learning from the learner’s perspective, defining M-learning as: “Any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of learning opportunities offered by mobile technologies” (O’Malley et al., 2003, p. 6). Recently, researchers like Beckman et al. (2014) have noted that there is little research presenting an adequate picture of students’ perspectives on experiences with learning technology. This indicates a need to understand students’ previous experience before designing any CL activities. Furthermore, students’ (the pre-service teachers) technological preferences and educational needs must be understood beforehand.

### 1.3 Significance of the Study

This study will increase our understanding of the pedagogical affordances of smartphone apps (e.g. Twitter, WhatsApp and BlackBerry Messenger). In addition, it will explore how such apps can enhance collaborative learning activities at PAAET in Kuwait. To my knowledge, there are currently very few systematic investigations regarding the influence of smartphone applications on collaborative learning in Kuwait. Therefore, through this study, I will try to fill the vacuum by focusing on Kuwait in general and PAAET in particular, within the Gulf Cooperation Council (GCCs) region. Ambitiously, this study will present new information on the positive influence of such apps on collaboration, for policy-

makers, educators, and local and international teachers, in an attempt to persuade them to adopt such handheld devices, thus facilitating communication and collaboration between themselves and the learners, and between the students themselves.

Furthermore, this study will shed light on how outdated concepts regarding learning have changed and how new concepts are being exercised in modern society. For instance, educational thinking has shifted from using fixed computers and E-learning to the use of portable handheld devices and M-learning (Wali et al. 2008). This is very important these days, since nearly all students in Kuwait own one or more smartphones. According to Traxler (2010), "We can ignore desktop technologies but not mobile technologies because desktop technologies operate in their own little world while mobile technologies operate in the world" (p. 5). Moreover, this study will present ideas on how to engage students in the process of teaching and learning (e.g. participatory simulation) and how educators in this context (i.e. PAAET) can establish different roles for themselves and their students. This study set out to show that making decisions, expressing preferences, and having discussions with others will enhance students' self-confidence, leading to the development of higher thinking skills and adding to the body of research on M-learning. One way of achieving this will be by recognising the change that smartphones have brought about in the collaborative learning environment at HEIs.

However, if we as teachers, educators or policy-makers try to adopt one of the newest technologies (e.g. smartphone apps), we should link our approach to educational theory, as "learning theories describe, after the fact, how people learn" (Salmons, 2009, p. 13). This will ensure that M-learning stands alone and will not need for other approaches, such as E-learning (there is an argument that M-learning is a sub-set of E-learning, see 3.2.6). In other words, "There is a need to re-conceptualise learning for the mobile age, to recognise the essential role of mobility and communication in the process of learning, and also to indicate the importance of context in establishing meaning, and the transformative effect of digital networks in supporting virtual communities that transcend barriers of age and culture" (Sharples, Taylor & Vavoula, 2005, p. 1). Thus, according to the

research questions, I will discuss the selected theory for this study, i.e. Social Constructivist Theory.

## 1.4 Definitions

### 1.4.1 M-learning

I will review several definitions related to M-learning in order to better conceptualise what scholars mean by the term. Early definitions were concerned more with the utilisation of M-technology. For instance, Quinn (2000) defines it thus: “It’s e-learning through mobile computational devices: Palms, Windows CE machines, even your digital cell phone”. In fact, as soon as students access educational content at their convenience, then learning can be referred to as ‘mobile’ (Quinn, 2000). Later, Trifonova and Ronchetti (2003) argued that M-learning may “employ any device that is small, autonomous and unobtrusive enough to accompany us in every moment of our everyday life” (p. 32). Nevertheless, these definitions are neither clear nor sufficiently precise to enable an understanding of the true nature of this type of learning and its wider context (Sharples, Arnedillo-Sánchez, Milrad & Vavoula, 2009).

Recently, however, the focus has transferred more to the learning context (Wali, Winters & Oliver, 2008, p. 55), with M-learning being defined as “learning that occurs as a result of pursuing learning activities that are directed towards achieving the same objective across multiple contexts (both social and physical)”. Other leading scholars in this field, such as Sharples, Taylor and Vavoula (2007) view M-learning as “the processes of coming to know through conversations across multiple contexts amongst people and personal interactive technologies” (p. 225). As we can see, the later scholars have linked the M-learning concept to the context of the learner and to personal learning (i.e. learning becoming personalised). Many scholars share these thoughts (e.g. Cochrane & Bateman, 2010).

The definition proposed by Sharples and his colleagues is important for portraying the two elements I must consider before adopting M-learning (i.e. the context and personalised learning). Cole (1996) points out that there are two types of context; one that surrounds us and another that comes “out of the constructive interaction

between people and technology” (p. 229). Both are important, but from a constructivist view, the latter is the one I am more interested in. According to Sharples et al. (2007), however, context is not static and we continually create new contexts as we move from place to place. It seems that M-learning supports teaching and learning in transit (e.g. while travelling, in the field, on campus, etc.) and conversation for learning, and in addition it personalises traditional learning (Sharples et al., 2009). This means that teaching and learning is not dependent on teachers being gathered with their learners inside classrooms, but can take place anywhere, at any time and at the convenience of all concerned. According to (Kukulka-Hulme & Traxler, 2005) “It is certainly concerned with learner mobility, in the sense that learners should be able to engage in educational activities without the constraints of having to do so in a tightly delimited physical location.” (p. 1).

#### *1.4.2 Pedagogical Affordances*

First, as a term, ‘pedagogy’ attracts a great deal of attention in educational literature and is superficially portrayed as a synonym for teaching (Loughran, 2013). Where earlier, Watkins and Mortimer (1999) found this term difficult to define, as its boundaries seem blurred, it may vary according to the diverse assumptions made about learning, or suitable styles of teaching, curricula and values (Siraj-Blatchford et al., 2002). However, according to Ekanayake and Wishart, (2014), “Pedagogy is often referred to as the practice (or the art, science or craft) of teaching” (p. 131).

Secondly, when trying to define the concept of ‘affordance’, the names which immediately come to the fore include Gibson (1977), Norman (1988) and Gaver (1991). Gibson (1979) defines affordances as opportunities for action offered to an observer through the provision of an environment. However, there have been many interpretations of Gibson’s affordances and most researchers ignore up-to-date discussions on the concept. Besides, Gibson is an ecological psychologist, rather than being purely interested in learning itself. On the other hand, Gaver (1991) defines affordances as “properties of the world that are compatible with and relevant for people’s interactions” (p. 79). According to Wiredu (2005), an affordance may be “drawn from the psychology of perception” and “is one of the

predominant principles underlying current conceptualizations of the interaction between humans and artefacts” (p. 1). As a concept, affordance is extensively applied to human-computer interaction (HCI) (Norman, 1988; McGrenere & Ho, 2000; You & Chen, 2003; Cairns & Thimbleby, 2008).

In addition to the above, Norman (1988) adopts the term affordances in the context of HCI and replaces Gibson’s definition with the term ‘perceived affordance’. Instead of being subjective or intrinsic in his approach, Norman regards the concept of affordance as relational. This means that the term is no longer merely dependent on the physical capabilities of an individual, but also on his aims, attitudes, plans, values and past experiences.

Affordances can be perceptible, hidden, or false (Gaver, 1991). For instance, for an affordance to be perceptible, students will know their smartphones allow them to take a picture and discuss it with other peers. Where an affordance is hidden, students may not imagine they can use their smartphones for a transaction to buy snacks or something from McDonald’s. Finally, as an example of an affordance being false, smartphone cameras are not designed to create the high-quality videos and photographs that professional quality cameras can (e.g. Canon and Nikon). Returning to Gibson’s (1982) definition, “The meaning or value of a thing consists of what it affords” (p. 407).

Jordan et al. (1998) explain this point: “[a]ffordances are what objects or things offer people to do with them” (p. 98). Based on this definition, the attributes that mobile phones (in this case smartphones) hold — like portability, context sensitivity, social interactivity, connectivity and individuality (Klopfer et al. 2002) — could be called affordances. Apparently, “this sense of affordance is reflected in physical objects of human design such as portable computers — what they afford affects the fluidity or incoherence and clumsiness in our activities” (Cook & Brown, 1999); cited in (Wiredu 2005, p. 1).

One of the examples of what a mobile phone can offer students when engaging in activities in different physical locations can be seen in the work of Gay (2009), where he designed a location-based computing system to enhance social awareness, besides navigating in spaces and extending interaction. I believe that by carrying mobile devices, students can create images, movies, or audio-

recordings and share these immediately with their peers, or later at their convenience. We thus recognise the visual signs that make the affordances of such handheld devices apparent. Facilitating data collection is one of four affordances that Webb (2005) identifies to support learning. Another example can be seen from Mejjias (2005), who notes that “social software [generally defined as ‘software that supports group interaction’ (Shirky, 2003, p. 1)] can positively impact pedagogy by inculcating a desire to reconnect to the world as a whole, not just the social part that exists online” (p. 1). This software may include, but is not limited to, Flickr and YouTube, or even smartphone apps, like Twitter, WhatsApp and BlackBerry Messenger. These instant-messaging applications afford synchronous communication, unlike email, that affords asynchronous communication (Mishra & Koehler, 2007).

Mcloughlin and Lee (2007, p. 3) have identified the following categories of affordance associated with Web 2.0 or social software:

- Connectivity and social rapport
- Collaborative information discovery and sharing
- Content creation
- Knowledge and information aggregation and content modification

However, what exactly is meant by pedagogical affordances? Definitely not pre-defined functionality; taking pictures, recording, typing, or editing are not pedagogical affordances in themselves (these could be called the affordances of tools). Instead, they are enablers of affordances that comprise idea-sharing and interaction (Mcloughlin & Lee, 2007). On this basis, it is a combination of the “imagination and creativity of the individual user as they conceptualize problems or issues in their own environment that the particular tool might facilitate or help solve” (Burden & Atkinson, 2008, p. 122). In other words, a whiteboard, for instance, has technological affordances (we can write and draw on it), but it shifts to pedagogical affordances once it is used for other pedagogical purposes (teachers invite their students to use it; or else groups of teachers, trainees, or students can use it for a discussion or brainstorming meeting), where “it becomes the focal point around which discussion and the negotiation/construction of meaning occurs” (Mishra & Koehler, 2007, p. 2220).

### *1.4.3 Collaborative Learning (CL)*

CL has been practiced since the early 1900s (Wisconsin's Guiding Principles for Teaching and Learning, 1991). Earlier resources illustrate that the collective work of Bloom (see Bloom, 1956), Lev Vygotsky (see e.g. Vygotsky 1981) and John Dewey (Dewey, 1916) on how children/students learn has driven educators to consider approaches which favour a more student-focused learning environment. In particular, Vygotsky asserts that learning is a social act and must not take place in isolation. It is this principle which has become the foundation of CL. Personally, this is the spark that first influenced my decision to look at CL through the eyes of a constructivist teacher and to adopt Vygotsky's viewpoint, which emphasises that learning is a social act.

However, many authors have endeavoured to define the concept of CL. For instance, Smith and Macgregor (1992) consider CL to be an umbrella term for numerous educational methods involving collective analytical effort by students, or students and teachers together; in groups of two or more, normally working together to find a common understanding, meanings and solutions, or to create a product. On the other hand, Dillenbourg (1999) defines it thus: "The broadest (but unsatisfactory) definition of 'collaborative learning' (CL) is that it is a situation in which two or more people learn or attempt to learn something together" (p. 1). According to Thamraksa (2003), collaboration has many benefits, like advancing students' growth, expanding social and learning skills and helping students build their personal knowledge by exchanging thoughts with others.

What is important here is that technology accelerates and facilitates such collaboration, especially handheld devices, i.e. M-technology. According to Salmons (2009), new skills, innovative knowledge and solutions may emerge through collaborative E-learning activities, where learners acquire new knowledge in association with colleagues and peers. This is confirmed by Huang et al. (2010) who highlight how CL opportunities can be afforded by M-technologies. This means that handheld technologies enable and equip both teachers and students to expand their collaboration beyond the classroom walls to another fixed location, or from several different locations. Researchers like Naismith, Lonsdale, Vavoula and Sharples (2004), or Boticki, Looi and Wong (2011) agree that rather than

being in a fixed location, like a classroom, 'mobile networked' technology can permit the acquisition or exchange of all kinds of information, as required. Above, I have permitted a glance at what M-technologies can offer for CL. More explanation of CL will be presented in Chapter 3-The Literature Review (see 3.3.1).

#### *1.4.4 Participatory Simulation (PS)*

Klopfer, Yoon and Rivas (2004) suggest that the origin of participatory simulation (PS) may go back to the 'Beer Game' developed by Jay Forrester in the System Dynamics Research Group at the Massachusetts Institute of Technology (MIT). This game placed players in the role of managers in a beer distribution chain (Senge, 1990); cited in (Klopfer et al., 2004). It embodied participatory simulation "in that individual players in the game follow rules, make decisions, calculate results and share information that leads to a broader systems level understanding" (Klopfer et al., 2004, p. 348). To clarify, PS can be understood as "learning games where players play an active role in the simulation of a system or process" (Yin et al., 2007, p. 289). In their work, Squire and Klopfer (2007) allowed learners to play the role of environmental scientists investigating a simulated chemical spill. In my study, the participants (i.e. pre-service teachers) play the role of real teachers (i.e. in-service teachers). This is to lead them to help each other — scaffold each other, since learning is seen by social constructivists (e.g. Vygotsky) as a social act — and gain some experience of the role of a real teacher. However, most significantly, we need to bear in mind that PS offers sufficient opportunity for the implementation of constructivist principles with M-technologies, "where the learners themselves act out key parts in an immersive recreation of a dynamic system" (Naismith et al., 2004, p. 3).

#### *1.4.5 Blended Learning (BL)*

Blended learning (BL) is a method that does not just depend on E-learning alone, but provides a combination of distance and face-to-face learning. As stated by Wang (2009) blended learning has great potential to improve teacher-based education in terms of both its accessibility and quality. However, the challenges of this method are in finding a skilled teacher with the time and ability to engage in

cumulative and long-term work, in addition to encouraging a learning environment equipped with technology. Only then can BL be considered as a useful method (see 1.4 Personal Motivation).

### 1.5 The Research Question

The driving research questions in design-based research (DBR) ought to be open in nature (Herrington et al., 2007), and start with the conjecture that current practices are insufficient or can be enhanced, so new practices are required (Edelson, 2006). For instance, what alternatives are there to current educational practices? How can these alternatives be established and sustained? (Edelson, 2006). As the literature suggests, technology integration practices at PAAET commonly focus on the use of LMSs, e.g. Blackboard, and neglect handheld devices like smartphones, particularly for enhancing CL among the pre-service teachers at PAAET. Hence, the purpose of this study is to understand how, if at all, smartphones are useful for enhancing teaching and learning at PAAET. This is a broad over-arching question, consisting of one main question with six sub-questions. All these inquiries will focus on aspects of M-learning, such as affordances, collaboration, and participatory simulation. Therefore, the main question is:

Is WhatsApp useful in enhancing collaboration amongst pre-service teachers at PAAET? If so, then how and why is it useful?

This will be captured by first exploring the Literature Review (see Chapter 3). Second, several teachers at PAAET will be interviewed to reveal their perspectives on concepts like M-learning and CL (see Chapter 5). Third, a question and answer session will be initiated with a convenience sample of pre-service teachers at PAAET, in order to become familiar with their perspectives on the above concepts (see Chapter 5). This will be followed by reading and analysing exchanges between students, drawn from WhatsApp during the course (see 6.3.3 and 7.4 Interactional Analysis (IA)) through two iterations (two micro-cycles) of investigation.

The above primary question is followed by six sub-questions:

1. What are the perspectives of students and teachers at PAAET on CL and Smartphone apps?
2. What type of apps do they prefer? These two questions will be captured through a Q&A session, and an informal exploratory technique.
3. Can smartphone apps allow pre-service teachers to take more responsibility and play new roles in achieving productive CL? This will be captured through a triangulation of methods, i.e. observation, field notes and IA.
4. What are the barriers preventing the full integration of technology into PAAET in Kuwait? This will be captured through the Literature Review, the informal exploratory technique, IA and observation.
5. Can WhatsApp overcome obstacles, e.g. contextual, cultural and technical barriers related to Kuwait?
6. What are the guidelines for the successful implementation of smartphone apps in teacher training? The last two questions will be captured through two iterations (two micro-cycles) of investigation.

## Chapter 2: Background

### 2.1 Outline

This chapter will present the study context, as well as highlighting the necessary underpinning theory for an investigation of M-learning and the corresponding theoretical base. Furthermore, some relevant definitions and the structure of the thesis are outlined.

### 2.2 Context of the Study

This study takes place at PAAET, Kuwait. I worked here earlier (2008-2010) as a part-time teacher in the Education Technology Department (ETD), where the participants (i.e. pre-service teachers) were members of this academic institution

and all native Arabic speakers. The course I was teaching was the compulsory Introduction to Educational Technology (IET: 112) for all students of the Basic Education College, equivalent to two credits (three credits for special groups). It required a physical presence of three hours per week, divided over two days (six hours per week during the Summer Semester). This course focuses on theoretical aspects, giving an overview of technology and its uses in modern education. The content includes an explanation of general concepts of educational technology and an educational study of the communication process; it also focuses on technological innovation in the field of education and how to use these as a teacher.

I have noted that a few teachers use an LMS in The Basic Education College at PAAET through what can be described as personal effort, as opposed to institutionally organised work. For my part, I had been unsuccessful in my previous experiences with Blackboard, due to slow browsing speeds and the complexity of some of its components for students. Thus, I decided to replace it with another simpler and faster LMS called Haiku, which offers fewer, but more effective features and is easy to browse and use. What is more, it provides links which display content, syllabi, grades and discussion boards, while also demonstrating pronunciation. Moreover, there is the facility to add other participants, like parents.

A report published by the United Nations (UN, 2009), called 'The National Profile of the Information Society in Kuwait' shows that the State of Kuwait has full coverage of mobile phone wired networks. Furthermore, the Internet market in Kuwait is moving toward high capacity, with broadband, Wi-Fi and digital subscriber lines (DSL) becoming widespread. Two years ago, commercially available facilities for individual use did not exceed 1 Mb/s, but nowadays they are reaching 4 Mb/s. In 2009, the number of Internet users in the State of Kuwait totals around 900,000, which is approximately 34.7% of the total population.

Also in Kuwait, mobile telephone companies have focused on providing mobile Internet services to their customers, having invested heavily in their infrastructure, especially in 3G technology across the entire State. At the level of educational institutions, each school under the Ministry of Education has at least one computer lab and is connected to the Internet. Moreover, all universities and polytechnics

are connected to the Internet and provide this service free of charge to both students and faculty members. Wi-Fi wireless points are available throughout public utilities. However, as the number of public access points has increased, the number of Internet cafes has declined. Wi-Fi has also become widely used in homes; these being the commonest and most widespread access points in the State of Kuwait.

It is worth mentioning here that, locally, there are unique challenges related to setting. One of the most significant of these is the absence of competitive telecommunications markets in the region, which leads to substantial Internet usage fees and limited access to online learning resources (Weber, 2010). For instance, Alzamil (2006) points out that those Saudi students exposed to E-learning have cited "high Internet usage fees" as a crucial issue when deciding to take an online course. Admittedly, in the last five years and with more telecommunications companies entering the GCC markets, Internet usage fees have been reduced to attract more public users. According to Halaoui et al. (2011), there are new trends in the GCC region, with "revenue growth in the telecom sector slowing, competition rising, and consumers increasingly demanding more services and better performance at reduced prices" (p. 1). Nevertheless, I believe these fees are still high for students.

### 2.3 The Necessity for Theory in M-learning

According to Cobcroft et al. (2006), there has been little consideration paid to developing a framework or new theory for M-learning. One of the first attempts at this was made by (Sharples et al., 2005, p. 4), who suggested that a theory of M-learning should be assessed against the following criteria:

- A. Is it significantly different from current theories of classroom, workplace, or lifelong learning?
- B. Does it account for the mobility of learners? Does it cover both formal and informal learning?
- C. Does it theorise learning as a constructive and social process?
- D. Does it analyse learning as a personal and situated activity mediated by technology?

Sharples et al. (2005) are convinced that in proposing a theory of M-learning, the first thing to do is to identify its special features, compared to other types of learning. Sharples and his colleagues specified these differences by pointing out that today's students are constantly on the move. Furthermore, they argue that people learn best when they can apply and develop the ideas they receive in other contexts. Moreover, people learn over time, going back to knowledge gained elsewhere and at earlier points in time, thus building a framework for lifelong learning. Secondly, a theory of M-learning should embrace the substantial learning that takes place outside classrooms, as people initiate and construct their activities to allow educational processes and outcomes to unfold (Sharples, Taylor & Vavoula, 2005).

Other researchers (Naismith, Lonsdale, Vavoula & Sharples, 2004) suggest that, "A conceptual framework for the design of mobile learning should ensure the achievement of learner-centred, highly situated, personal and collaborative mobile learning" (p. 36). This means it is important to find a theory covering the mobility of learners inside and outside the lecture hall and classroom, which will allow them to construct knowledge collectively and socially, as well as enabling them to consider their personal needs. Naismith et al. (2004) reviewed the literature and found six broad theory-based categories of activity (i.e. behaviourist, constructivist, situated, collaborative, informal, lifelong learning and teaching support). However, as there is no ready-made theory or principle that has a consensus, I have selected the Social Constructivist Theory (SCT) for this study. The reasons behind such a choice will be discussed below (see 2.4 Theoretical base - Social Constructivist Theory (SCT)).

I should mention that the theoretical development of M-learning has been briefly reviewed by Winters (2006), who considers that the early work devoted to developing definitions of M-learning focused on the technology and then later on the mobility of the learner. Nowadays, however, M-learning is considered as communication in context, building on reinterpretations of activity theory (Sharples et al., 2005) and Laurillard's conversational framework (Laurillard, 2002). In the last ten years, the understanding of the theory and practice of M-learning has transferred from a 'techno-centric' perspective, focused on the features and affordances of the technology, to a learner-centred perspective, focused on the

mobility of the learner and the respective contexts (Kukulka-Hulme, Sharples, Milrad, Inmaculada Arnedillo-Sánchez, & Vavoula, 2009). Next, I will discuss one of the main theories commonly linked to educational technology.

## 2.4 The Theoretical Base

### 2.4.1 *Social Constructivist Theory (SCT)*

From the 1920s to the 1930s, the Soviet psychologist L.S. Vygotsky and his colleague, L. Leontiev, proposed some interesting theories, building on the work of others (e.g. Wilhelm von Humboldt, Jean Piaget, Max Wertheimer, Wolfgang Köhler, Kurt Koffka, Kurt Lewin and Kurt Goldstein). Vygotsky theories were dismissed in Communist Russia and only translated into English in the late 1950s, long after his death in 1934.

Vygotsky's perceptions and thoughts were based on strong foundations, but were not fully developed due to his illness and death at a young age. His work was therefore left to be deciphered in English, but his theories still gained importance and were accepted in the West. Vygotsky's thoughts had a considerable effect in the US, where one of his works was published as the 'Mind in Society' in 1978.

Vygotsky perceived psychology as a field which had not been extensively developed, despite having deep relevance. He witnessed two predominant schools of thought in psychology, both presenting an illustrative system as sufficient foundation for general psychology (Kozulin, 1990). Vygotsky, however, also elucidated the self-motivated interdependence of the individual and social processes. He formulated distinct concepts and supported development as a revolutionary social activity in the structure of internalised processes. He rejected theories focussing on subjective or internal experience, along with behaviourist approaches concentrated exclusively on external forces. He therefore declined the 'Cartesian dichotomy' between external and internal approaches (John-Steiner & Mahn, 1996).

In 1991, Wertsch minutely analysed Vygotsky's writings and discovered three major themes appropriate for defining this interdependence between social processes and the individual in terms of learning and development. Vygotsky's first theme, the 'genetic law of development' states that higher mental functioning,

along with individual development, originates in social sources: “Any function of the child's cultural development appears on the stage twice, or on two planes, first the social, then the psychological, first between people as an intermental category, then within the child as an intramental category” (Vygotsky et al., 1997, pp. 105-106).

Apprentices, who participate in many cooperative activities and internalise the impact and consequences of joint effort, acquire new knowledge and approaches to culture and the world. Subsequently, relationships and interactions are experienced amongst apprentices with incongruent knowledge levels, such as experts and novices, or else children and their caretakers. In 2003, Tudge and Scrimsher, perceived that Vygotsky was curious about the knowledge brought by others to an interaction and that he sought to understand efforts made by children to draw from or contribute to interactions themselves and to identify how wider aspects of historical and cultural settings are involved in structuring such interactions.

The second theme presented in Vygotsky's writings concerns the way in which semiotics govern the identification of human activities (signs and tools), either on an individual or social plane (Wertsch, 1991). Semiotics comprise diverse symbolic or representational systems, “language; various systems of counting; mnemonic techniques; algebraic symbol systems; works of art; writing; schemes, diagrams, maps and mechanical drawings; all sorts of conventional signs and so on” (Vygotsky, 1981, p. 137). Further semiotics might include: Calculators, paint brushes, computers, and other useful tools (e.g. smartphones), effective for representational activities. Semiotics imply those tools which facilitate the co-construction of knowledge and means which are ‘internalised’ to assist with an upcoming autonomous problem-solving activity. One of Vygotsky's associates, Leontiev (1981), cited in (Newman, Griffin and Cole (1989, p. 63) used the term ‘appropriation’ to describe this process of internalisation:

“[Children] cannot and need not reinvent artefacts that have taken millennia to evolve in order to appropriate such objects into their own system of activity. The child has only to come to an understanding that it is adequate for using the culturally elaborated object in the novel life circumstances he encounters” (p. 63).

The last major theme interpreted from Vygotsky's work refers to the developmental and genetic investigation of the first two themes (Wertsch, 1991). Vygotsky (1978) suggested:

"To study something historically means to study it in the process of change; that is the dialectical method's basic demand. To encompass in research the process of a given thing's development in all its phases and changes—from birth to death—fundamentally means to discover its nature, its essence, for it is only in movement that a body shows what it is. Thus the historical study of behavior is not an auxiliary aspect of theoretical study, but rather forms its very base" (pp. 64–65).

In contrast to the dominant perspectives of his times, i.e. that development is an internal process, while learning tends to be an external one, Vygotsky referred to interdependence and the unanimity of development and learning. He clearly presented his argument against Piaget's theory, where "maturation is viewed as a precondition of learning, but never the result of it" (Vygotsky, 1978, p. 80) and clearly justified that,

"Learning awakens a variety of internal developmental processes that are able to operate only when the child is interacting with people in his environment and with his peers [...] learning is not development; however, properly organized learning results in mental development and sets in motion a variety of developmental processes that would be impossible apart from learning. Thus learning is a necessary and universal aspect of the process of developing culturally organized, specifically human, psychological functions" (ibid., p. 90).

The bottom line here is that Vygotsky's work has shaped the basis of social constructivism in educational settings and highlighted the role of others and the social context in the learning process (Jones & Brader-Araje, 2002). Vygotsky (1978) therefore emphasises that learning is best comprehended in the light of others within an individual's world.

What we can learn from Vygotsky is that knowledge construction should be seen as a social process of creating joint understanding (Derry, 1996). The child's development is simultaneously individual and social (Vygotsky, 1978). According to John-Steiner and Mahn (1996), Vygotsky highlights this dominance of social interaction in human development. Thus, we must think of the social context as a means of co-constructing knowledge. In other words, caregivers (e.g. teachers,

parents, knowledgeable peers and so on) should give the learner the necessary help, advice and support, and/or engage him in group discussion and CL activities.

According to Culatta (2013), Vygotsky's theory is an attempt to explain consciousness as the end product of socialisation. For example, when learning a language, our first utterances with peers or adults are for the purpose of communication, but once mastered they become internalised and allow 'inner speech' (Culatta, 2013). Vygotsky, however, was not just interested in the role of 'inner speech' in the "learning of concepts but also in the role of the adult and the learners' peers as they conversed, questioned, explained, and negotiated meaning" (Fosnot, 1996, p. 20).

According to Vygotsky, full cognitive development involves social interaction (John-Steiner & Mahn, 1996), which may happen in group collaborative activities, where learners can learn from each other and help one another to co-construct knowledge about things of common interest. Reznitskaya, Anderson and Kuo (2007) argue that joining a group discussion will enable the learner to generalise and transfer knowledge from classroom learning and construct a solid foundation for verbally communicating ideas. This can provide learners with opportunities to talk to each other and discuss their thoughts, thereby enhancing their capability to communicate what they believe, increasing their interpretation skills, and empowering them to present their point of view convincingly and respectfully (Reznitskay et al., 2007).

Socio-cultural theory from Vygotsky, has same links with constructivism. Contrary to behaviourism, constructivism first appeared as a theory of knowledge resembling socio-cultural theory. This constructivist theory was the conclusion of the thoughts and research of two theorists, Jean Piaget (1896-1980) and Immanuel Kant (1724-1804). When applied to learning, both theories, i.e. socio-cultural theory and constructivism, demonstrate a concentration on children's learning activities. Nevertheless, socio-cultural theory deals with those learning methods which appear to be an act of enculturation, whereas constructivist theory proposes that "one should attend to the learning and mental representations of the individual" (Scott & Palincsar, 2009, p.4).

Socio-cultural theory has a wider scope than constructivist theory, as the socio-cultural theorist might move towards a broader social system, referring to the type of learning, while drawing interpretations in terms of the individual's thoughts and development. The latter would be founded on his contribution in specific, culturally organised acts, while construing a learning consequence. On the other hand, constructivist theory deals with the individual and approaches which make sense of something by means of a person's method of adjusting experience, with respect to learning and development (Cobb 1994).

Notwithstanding the above, both sociocultural theory and constructivist theory (Bruner, 1986) have helped me understand the significance of the social environment as a facilitator of development and learning (Tudge & Scrimsher 2003). This has in turn inspired me to search for new areas of exploration, such as 'Are smartphone apps (e.g. Twitter, WhatsApp, or BlackBerry Messenger) useful for enhancing interaction and collaboration between pre-service teachers at PAAET in Kuwait?' It is significant to note that Vygotsky and Piaget share some assumptions about how children learn, but the former focuses more on the social context of learning (Cunningham & Duffy, 1996).

#### *2.4.2 The Social Context*

It is considered that Vygotsky's understanding of social context can lead to a broader and more comprehensive understanding of the whole picture of SCT. The notion of context, according to Cornelius and Marston (2009), has been considered significant in recent conceptualisations of M-learning. Sharples et al. (2005, p. 5) depict context as "a dynamic entity, constructed by the interaction between learners and their environment", while Wali et al. (2008) have identified two particular contexts: the physical and the social. The physical context focuses on the environment surrounding the learner, while the social context arises from a constructive interaction between the learner and the technology. This means that the social environment plays a vital role in learners' development, as stated earlier. In this sense, learners combine their thoughts, perspectives and skills to construct learning in specific environments, but are not necessarily restricted by the classroom walls. According to Ashcraft (2007, p. 3) there are four fundamental principles underlying Vygotsky's framework. These consist of:

1. Children constructing their knowledge
2. Development which cannot be separated from its social context
3. All higher functions originating as social relationships.
4. Language playing a central role in mental development.

Bodrova and Leong (1996) suggest three ways of considering Vygotsky's interpretation of social context. First, at an immediate interactive level, there are two applications of social context in learning. On the one hand, we construct our understanding; that is, we acquire knowledge through our interaction with others. On the other hand, according to Brooks (2002), Vygotsky proposes that even when people perform a mental action alone, they are not in fact engaged in an isolated individual mental process. Wink and Putney (2002) illustrate this with the act of reading a book, where the individual constructs his interpretation of the text from a personal experiential base, as determined by cultural, social and historical contexts. Along the same lines, I would expect learners to read a text message received on any technological artefact (e.g. a smartphone) and to start to interpret it based on their cultural, social and historical background. Books as well as smartphone apps (e.g. Twitter, WhatsApp, or BlackBerry Messenger), for example, can become a cultural artefact when people begin to use words and share texts in their cultural practice. Secondly, the structural level encompasses those social structures which sway the students, such as their families or schools. Thirdly, the general cultural or social level would include features of society at large, such as language, number systems and the use of technology.

In this context, it is significant that pre-service teachers could manage to assist each other and through mediated, semiotic negotiation, could construct "a temporarily shared social world, a state of intersubjectivity" (Wertsch, 1985, p. 161). Clearly, however, they would need to change some of their original thinking to accommodate new ideas, which Vygotsky calls 'internalisation', according to Wertsch (1986). Wells (2000) points out that learning can be seen as an "artefact-mediated joint activity, which involves change and transformation of the participants and settings over time" (cited in Brooks, 2002, p. 14). This is evidently the transformative process which takes place in a social context. I therefore hope

that these students can re-construct and modify their original thinking, carrying different social and cultural experiences into this study. Moreover, I would hope they would bring in their own perspectives, attitudes, values and assumptions, based on the influence of those they live with, have lived with in the past (e.g. parents or siblings), or worked with (e.g. teachers and colleagues), thereby illustrating that they are a product of their cumulative past experiences (Brooks, 2002).

#### *2.4.3 Understanding the Learning Process Based on a Social Constructivist View*

Vygotsky (1978) argued that there is a general relationship between learning and development. He viewed learning and development as dialectical in nature, concluding that learning can lead to development and vice versa. This process, as Vygotsky saw it, is carried out via a dynamic 'interrelationship'. Whitcomb (2010) describes this kind of relationship as a beneficial mutual relationship between the student and his peers. Sharples, Taylor and Vavoula (2005) point out that learning "occurs as a socio-cultural system, within which many learners interact to create a collective activity framed by cultural constraints and historical practices" (p. 7).

According to John-Steiner and Mahn (1996, p. 195), Vygotsky utilised the "dialectical method to analyze, explain, and describe interrelationships fundamental to human development". Baharom (2013) suggests that, "besides understanding the social constructivism perspectives on research, it is important to understand the theory's perspective on learning" (p. 111). Hence, from the perspective of socio-constructivism, learning happens through conversation, dialogue and meaning negotiated with others, who have the same or different perspectives, or thoughts, based on their own experiences (Jonassen, 1999).

Engeström (1987) as well as Lave and Wenger (2002), perceive learning as fundamentally situated and socially mediated. Moreover, Kelly et al. (2008) state that learners do not often undertake activities in isolation. Each component of an activity is the result of other activities. From this perspective, M-technology is not perceived as the object of learning, so much as a tool to support learning activities. Vygotsky — in his list of culturally, socially and historically produced artefacts — included visual representations (visual images, graphics, and models) (Brooks,

2002). Thus, in order to assess pre-service teachers' communication and collaborative activities through smartphone, I must introduce the socio/cultural and historical context in which they were constructed (see e.g. Context of the Study).

To apprehend Vygotsky's theories on cognitive development, we have to recognise two elements; the More Knowledgeable Other (MKO) and the Zone of Proximal Development (ZPD). The first theme pertains to any individual (e.g. teachers, parents, peers, etc.) with a better understanding or higher level than the learner himself, regarding ideas, processes, or the ability to accomplish a certain job/task. In fact, an electronic tutor, can provide such assistance/guidance, with some companies supporting their employees' learning by means of "electronic performance support systems" (Agarwal & Nagar 2010). According to Agarwal and Nagar (2010, p. 45), "The key to MKOs is that they should have (or be programmed with) more knowledge about the topic being learned than the learner does".

The concept of the MKO is integrally related to the second important theme of Vygotsky's work, ZPD. This significant notion relates to the difference between what a learner can accomplish autonomously and what a learner can accomplish with guidance and encouragement from an expert/skilled person or a programme:

"What the child is able to do in collaboration today, he will be able to do independently to-morrow" (Vygotsky, 1987, p. 211).

According to Girard (2010) "Full development of the ZPD depends upon full social interaction. The range of skill that can be developed with adult guidance or peer collaboration exceeds what can be attained alone" (p. 255). To understand the MKO and ZPD more clearly, let us look at the four-stage model of ZPD used by Tharp and Gallimore (1988). This model, illustrated in Figure 2.1 (University of North Carolina at Chapel Hill, 2011), was modified by Tharp and Gallimore (1988, p. 35) using a four-stage model of ZPD to show how children develop speech and language:

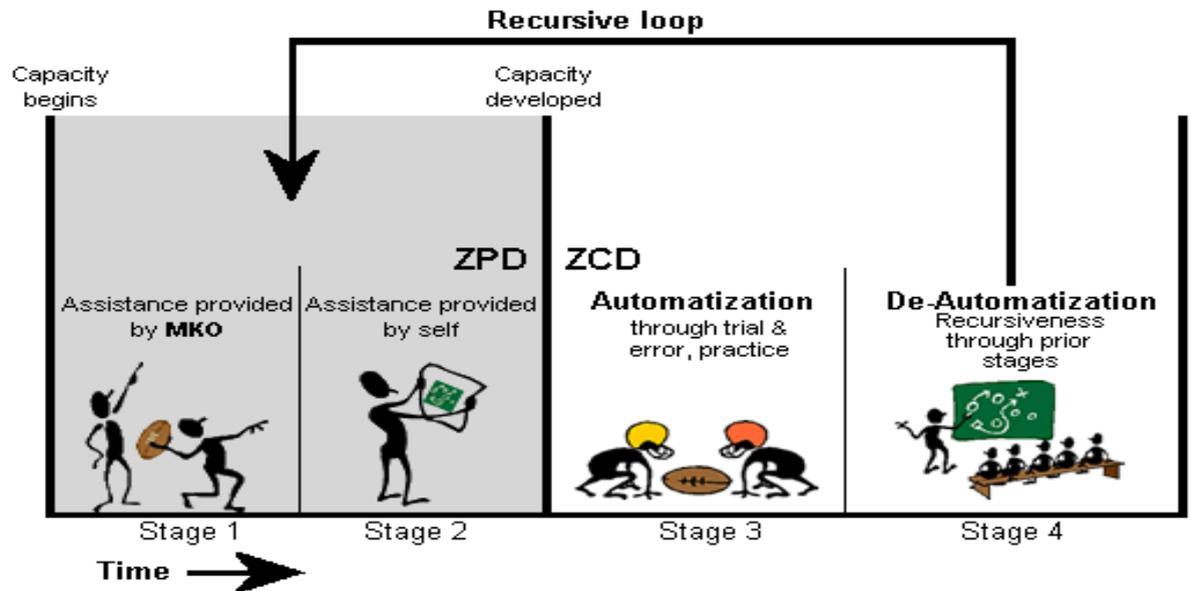


Figure 2.1: ZPD and ZCD

1. Stage 1: Assistance provided by MKOs.
2. Stage 2: Less dependence on MKOs. Learners help themselves by using self-directed speech; assume responsibility for self-guidance and self-regulate their learning.
3. Stage 3: Internalisation, or 'automatisation' through practice. Assistance is no longer necessary.
4. Stage 4: De-automatisation. The learning is forgotten or becomes 'rusty' and needs to be re-learned. The learner re-enters the ZPD and either self-talks through the task or seeks assistance.

ZPD, however, has become synonymous in the literature with the term 'scaffolding' (McLeod, 2012). This term was first used by the psychologist Jerome Bruner in the late 1950s to explain how students are lifted from a lower to an upper stage of development by a supportive 'social other', using dialogue. In other words, the help I give students as a teacher, with the aim of reducing their degree of freedom so they can perform a task by themselves at a later stage, could be considered as 'scaffolding' (Bruner, 1966). According to Mercer (2004), by designing tasks, teachers can act as a 'vicarious consciousness'.

By adopting the notion of scaffolding, I might be able to attain two things: it could take less time for more experienced students to train their less experienced peers

in the use of WhatsApp and at the same time, they will learn what it is take to collaborate with and guide others, especially less experienced students. The more experienced students will therefore play the required role (of in-service teacher) more efficiently, while a great deal of time and effort will be saved for me (as the teacher). It is important to remember that Vygotsky insisted we (as teachers) take into account what students can do with the help of more capable adults, e.g. peers, to achieve effective learning. Additionally, Vygotsky was adamant about teaching being linked more to potential than actual development. In fact he emphasises that "the only 'good learning' is that which is in advance of development" (Vygotsky, 1978, p. 89). Consequently, as a constructivist teacher, I need to encourage my students to "go beyond their existing developmental level" (Gordon, 2009, p. 53).

From another angle, designing an augmented context for the development of learning could be perceived as a possible contribution of mobile phone-based learning. John Cook, in a report from the STELLAR Alpine Rendez-Vous workshop series presented by (Brown, 2010) gives the example that "[o]ne educational problem that mobile learning tries to solve is the design of Augmented Contexts for Development; these place context as a core construct of the ZPD, enabling collaborative problem solving where learners generate their own 'context for development'" (p. 23).

Further to the above, Nystrand (1997) argues that teachers do not usually focus on classroom discussion as an instructional format. Astonishingly, Nystrand's findings from a three year study of 60 classrooms, with approximately 2,400 students, show that classroom teachers tend to allow students to express and exchange ideas with peers and teachers for less than three minutes an hour. This also applies in the Kuwaiti context and it is clear that this is not really sufficient for effective communication or for constructing knowledge. What is more, even in those three minutes of mainly oral discussion, it has been demonstrated that the time is spent on teacher-directed questions with fixed answers (Corden, 2001; Nystrand, 1996).

According to Vygotsky's (1962) theory, language and communication are vital to 'cognitive development', or learning, and "the rate of development must be tailored

to the students and their own communication proficiency and socio-cultural context” (Whitcomb, 2010, p. 6). Vygotsky (1962) explains that language plays two critical roles in cognitive development:

1. It is the primary way in which adults pass information on to children, and
2. Language itself becomes a very powerful tool for intellectual adaptation.

Furthermore, a number of social constructivists have suggested three essential principles necessary for teaching and learning:

1. Treat the discipline with respect;
2. Treat students' ideas with respect, and
3. View the discipline as a “collective intellectual endeavor situated within a community” (Ball & Bass, 2000, p. 197).

From this perspective, D’Angelo, Touchman, and Clark (2009) claim that instruction ought to entail democratic procedures through which the learners and their teacher discuss what does or does not represent openly shared knowledge. Such instruction must focus on openly shared knowledge in order to allow students to build upon what they know, in addition to helping the teacher understand what steps are required to achieve certain goals.

I realised from the beginning of this study that I would have to present what students desire and need and that inherent freedom would lead to a more comfortable, persuasive environment, where students would wish to participate. I therefore present my lessons and explanations within a context, using tools my students can comprehend and appreciate (i.e. WhatsApp). However, going further into analysis or summarising everything related to SCT in more detail is not the intention or focus of this research. SCT is reviewed purely as a means of presenting a foundation for the study, as it is significant for understanding how constructivists view the social context and understand the learning process.

Nevertheless, constructivism and social constructivist learning theories, like any other theories, have witnessed some criticism. For instance, Gordon (2009) questions constructivism and argues that it is not clear what the term actually means, or how the theory’s major tenets are understood. In addition, this theory actually contributes to misleading assumptions, one being that “constructivism

stands for child-centered teaching practices” (p. 40). Gordon (2009) also cites a study by Matthews (2003) to argue that there is no strong evidence to indicate the power of constructivist teaching practices.

Davis and Sumara (2002) defend their argument, stating that most of the time, constructivist discourse is not educational. In fact, they believe that:

"Theories developed in psychology, sociology, cultural studies or elsewhere cannot be unproblematically transplanted into the field of education. As with subject-centered constructivism, social constructivist discourses speak to, but are not necessarily fitted or aligned with, the concerns and projects of education" (p. 417).

I believe this kind of argument is useful because it increased my awareness of SCT before I adopted it.

Gordon (2009), however, warns that some researchers mistakenly assume that teachers who adopt a constructivist theory are not required to possess great expertise in a specific body of knowledge. For example, Baines and Stanley (2000) assume that constructivist teachers start with little formal teaching but merely "set up the learning environment, know student preferences, guide student investigations, and then get out of the way" (p. 330). I do not believe this is acceptable, particularly within the Kuwaiti context, where the students always need the teacher to make a great deal of effort and provide them with constant support. Despite the fact I maintain a constructivist epistemological assumption, I still consider the teacher's role to be essential, as I have explained in the Literature Review.

As a further example, Windschitl (2002) illustrates how, without any kind of working understanding of the concepts of constructivism, "teachers cannot be expected to link constructivist objectives for learning with appropriate types of instruction and assessment or to adapt constructivist principles to their particular classroom contexts" (138). Windschitl sparked some fears concerning the inability of teachers to obtain a full understanding of constructivist theory, which cannot be easily understood; it can be more complex, as well as more unpredictable than traditional teacher-directed instruction. In this respect, I fully agree with the above author, as I have doubts about my own ability to apply a constructivist model correctly, which could be a hindrance. According to Windschitl, even experienced

teachers may find it difficult to put this type of instruction into practice, since there are various difficulties it can pose for teachers, such as handling classroom interaction, becoming familiar with the content, and evaluating learner knowledge. To avoid, or at least alleviate these challenges and fears, I will look for clear and enforceable design principles to apply to the context, namely pre-service teachers at PAAET (in a Kuwaiti environment), which may help balance such a challenging equation.

Whitcomb (2010) does not explicitly express his rejection of SCT, but reminds us about the teacher's duty to avoid increasing pressure on students, i.e. teachers must not forget that students usually have other duties and stresses at home. "In every case, the student must not be separated from his or her sociocultural context; that is Vygotsky's belief (1962)" (Whitcomb, 2010, p. 8). Thus, I have to be cautious and refrain from burdening students any further. I really believe this is achievable, since I will use DBR with two iterations and this approach should enable me to revise and modify my initial plan if any obstacles arise.

What is more, I have to remember that SCT was formulated in Western culture and such an approach mainly depends on interaction and collaboration between students. This could be a new challenge for me, since in Kuwait, "The system of education and teaching was designed to employ traditional (teacher-centered or individualistic) teaching approaches in which the lecture is the primary means of delivering information to the students" (Ebrahim, 2012, p. 294). Ebrahim's comment supports some research from Thailand - another developing country - namely in relation to Thamraksa (2003, p. 62), who asserts that "The students are relatively passive recipients of knowledge, and expect the teacher to be totally in charge of their learning".

Al-hunaiyyan et al. (2008) have confirmed the existence of the abovementioned challenges and point out that some theories and approaches designed in the West might not be fitting for the Islamic context: "Interaction in the virtual realm is faceless and knows no restrictions in terms of race, color, sex, religion etc. A cultural conflict may thus emerge as the interaction patterns cannot be easily controlled between the male and female students" p. 20). Furthermore, informal, self- and peer-assessment, and activities which reject the standard exams and

evaluation found in traditional learning, might not give accurate clues to learners' progress. Moreover, learners might not be able to connect previous expertise with new skills, thus leading to greater confusion (Neas, 2012). Such challenges therefore need to be considered before implementing SCT and as stated previously, I need to search for suitable design principles for this study and context. Nevertheless, in spite of substantial criticism, significant numbers of teachers, researchers and educators have come to see the value of social constructivism as a basis for designing more effective learning environments (Woo & Reeves, 2007). Furthermore, SCT remains one of the most widely used theories applied to information and communications technology (ICT), E-learning, and technology in education, as shown in the work of Wang (2009); Pongsuwan et al. (2011); Kwon (2004); Greenhow et al. (2009); Sargeant et al. (2006); Bronack, Riedl, and Tashner (2006); Al-Fadhli and Khalfan (2009).

According to Biggs (2003), this can be accomplished by 'aligning and mapping' SCT to render it adaptable to learning design. Mayes and De Freitas, (2004) suggests that learning theory should be 'unpacked' to construct a pedagogical approach as a component of the design process. In her dissertation, Baharom (2013) 'unpacked' SCT to generate the desired pedagogical learning principles which would serve as a foundation for designing activities administered by M-learning. The most significant underlying assumption of SCT investigated in this study is that full cognitive development involves social interaction (Vygotsky, 1978), which can be seen one way or another as a collaborative activity involving two or more individuals. From this point of view, participants (pre-service teachers) perform a series of collaborative activities, with social constructivism subsequently being presented as a very suitable theory to support M-learning.

#### *2.4.4 Social Constructivist and M-learning Activities*

Mobile-based learning is a complex and challenging approach to education requiring substantial consideration by researchers and learning designers. The use of mobiles as a learning tool provides a versatile, dynamic, and portable environment for both the educator and student (Naismith, Lonsdale, Vavoula & Sharples, 2004).

“The challenge for the educators and technology developers of the future will be to find ways to ensure that this new learning is highly situated, personal, collaborative and long term; in other words, truly learner-centred learning” (Naismith et al., 2004, p. 36).

In addition, Patten, Sánchez, and Tangney (2006) argue that the usefulness of handheld devices can be maximised through a collaborative, contextual, constructionist and constructivist learning environment. As such, handheld devices (e.g. smartphone apps) can offer a special environment/context where students can collaborate and construct knowledge.

However, Herrington et al. (2009) claim that “adopting more recent theories of learning has the potential to exploit the affordances of the technologies in more valuable ways” (p. 2). Furthermore, Cochrane (2006, p. 144) asserts that “[t]eaching and learning innovations are best implemented when informed by learning theory”. I believe that the social constructivist approach focuses on socio-cultural and historical contexts, in addition to collaboration between learners, in order to collectively construct knowledge that will fit well with the utilisation and integration of M-learning.

The advantage of using a mobile phone as an educational tool lies in its ability to facilitate communication between learners, and between learners and their teachers. Amongst its many pedagogical affordances, its portability is of particular significance. Cochrane and Bateman (2010, p. 3) confirm this, stating, “M-learning provides the ability to engage in learning conversations between students and lecturers, between student peers, students and subject experts, and students and authentic environments within any context”. More importantly, it “facilitate[s] student-centred social constructivist pedagogies” (p. 2).

According to O’Reilly (2005, cited in Cochrane & Bateman, 2010, p. 3), “Web 2.0 or 'social software' tools, share many synergies with social constructivist learning pedagogies. Many educators have harnessed Web 2.0 tools for creating engaging, student-centred learning environments”. Based on my understanding, the idea of adopting SCT as a foundation for this research stems from the fact it is well suited to M-learning. Cochrane and Bateman (2010: p. 3) subsequently declare that M-learning can “bridge pedagogically designed learning contexts, facilitate learner generated contexts, and content (both personal and

collaborative), while providing personalisation and ubiquitous social connectedness, that sets it apart from more traditional learning environments”.

This combination of social interaction and shared task-oriented learning, is considered to be another good reason to adopt SCT in a study on M-learning. According to Comas-Quinn, Mardomingo and Valentine (2009) “learners will be engaged in real (rather than role-played) activities which are meaningful, contextual and situated and this will encourage them to take control and responsibility for their own learning” (p. 100). Thus, learners can construct meaning within their own everyday context by continuing to build and extend meaning via a flexible tool, such as their own smartphones.

I believe it is inappropriate to limit activities to the physical classroom. In this sense, a freer environment could be created using a range of new technological tools, particularly portable devices (e.g. the smartphone). Indeed, “[t]he proliferation of smart mobile devices, such as smartphones and tablets, make them an obvious choice of technology with which to engage students” (Cheong, Bruno, & Cheong, 2012, p. 98).

However, it is important to realise that knowledge is not fixed or external; instead, understanding is obtained via social experiences (Hannafin & Land 1997). Based on Vygotsky's (1978) inter-psychological and intra-psychological concepts, pre-service teachers are encouraged to engage in smartphone app activities which allow them to generate an external structure reflecting on their internal visualisation of the topic. According to Baharom (2013), this is because the link makes sense with the assistance of smartphone apps in a learning activity. According to Lai et al. (2007), M-technology offers instant learning guidance and feedback. Furthermore, “it can also support learners in authentic and seamless learning” (Lai et al., 2007, p. 327). Again, knowledge does not take place in a vacuum; it needs communication and social interactions with others to occur, which can be achieved through the suggested tools (i.e. smartphone app).

McRobbie and Tobin (1997) venture that “a social constructivist perspective on learning [has] highlighted the role of active involvement in tasks associated with making a connection between experience and extant knowledge” (p. 197). This suggests that, before asking students and setting the scene for participation in

their activities (tasks), it is important to know how familiar they are with smartphone apps (extant knowledge), in order to get them connected with the experience of engaging with smartphone apps (i.e. WhatsApp) activities. This would take place here in the planned Q&A session, amongst other issues discussed with the students. “Actively selecting or designing learning activities rooted in authentic situations as well as encouraging learners to discover laws within physical and cultural environments are powerful pedagogical techniques” (Ally, 2009, p. 31).

As previously mentioned, to realise a design for smartphone app activities, some researchers (e.g. Mayes and De Freitas, 2004; Baharom, 2013) have suggested ‘unpacking’ social constructivism as a theory to translate it further into pedagogical guidelines. I have presented an argument for how mobile (smartphone) devices could suit the nature of social constructivism, while also discussing in greater detail how the theory can be interpreted to present two principles (i.e. collaborative learning and participatory simulation ) underlying the M-learning activities.

Many learning principles could admittedly be used with M-learning, but from a social constructivist point of view. For example, Baharom (2013) compares a list of learning principles that underpin SCT, drawn from three researchers, i.e. Jonassen (1999), Fosnot (1996) and Knuth and Cunnigham (1993). As a result, she has prepared a list of social constructivist learning principles appropriate for M-learning (e.g. contextual activities; reflective activities; learning management activities; collaboration; negotiation, etc.). Her work is held as justifiable and the advantage of counting on such prior research is that a researcher can then justify a current design and test his theory (Maxwell, 1996). However, I will only focus on two principles: CL and PS (i.e. playing the role of a real teacher) in this study (in the Literature Review). Other learning activities suggested by Baharom are outside the scope of this study.

## 2.5 Summary

To sum up, despite criticism, the decision to use SCT as a foundation for this work could be considered persuasive, at least for me as a researcher. It is beneficial for understanding the underpinning participatory simulation and collaborative

learning, in order to comprehend how knowledge is constructed by a real (in-service) teacher and where there is collaboration outside the classroom in a process of peer or group interaction, mediated by smartphone apps and structured by both the teacher and the students. On the UCD Teaching and Learning (2014) website, scholars express their conviction that “[c]onstructivist teachers do not take the role of the ‘sage on the stage’. Instead, teachers act as a ‘guide on the side’, providing students with opportunities to test the adequacy of their current understandings”. The same scholars illustrate how, in social constructivist classrooms, CL is a process of peer-interaction, led by the teacher, and “discussion can be promoted by the presentation of specific concepts, problems or scenarios, and is guided by means of effectively directed questions, the introduction and clarification of concepts and information, and references to previously learned material”.

Thus, as I now seek to move towards social constructivism in my teaching, I will change my role from that of the expert who possesses all knowledge, to that of a facilitator, who can provide an environment where students play an active role in their own learning, as “learning from the constructivist perspective is a human meaning-making venture” (Woo & Reeves, 2007, p. 18), seen mainly as a social product brought forth by the processes of discussion, conversation, and negotiation (Confrey, 1995; Ernest, 1995; cited in Woo & Reeves, 2007). I also believe it is important in this technological era, as I have mentioned previously, to create a learning setting which will promote critical thinking and challenge the learners, modifying the process of knowledge construction, as suggested by Thamraksa (2003). In addition, the stimulation of CL enhances students’ growth, improving their learning and social skills and engaging them in an exchange of ideas, where they can construct their own knowledge (Clough et al., 2009).

According to Robinson (2008), students in the State of Qatar feel “comfortable with the high level of communication and collaboration required by their studies, which [suits] their culturally inculcated need for belonging” (p. 80). I emphatically repeat that it is no longer acceptable that our students, especially in HEIs in Kuwait, remain passive and wait to be ‘spoon-fed’ by teachers. I believe it is time to move forward and invite them to participate in decision-making which relates to their own learning. By using mobiles and smartphone technology, we can enhance

the growing shift from a teacher-centred classroom to a constructivist, learner-centred educational setting (Holzinger et al. 2005; Cochrane & Bateman, 2010). I believe that teachers can enhance students' thinking skills through activities which call for reflection, decision-making and problem-solving. Inspiring students to develop critical thinking skills in HEIs has in fact turned out to be an important issue in recent times (Grafstein 2007). According to Al-Fadhli and Khalfan (2009), "Current trends in education give more attention to fostering students' critical thinking" (p, 530) and Chaffee (1988) states that critical thinking represents "our active, purposeful, and organised efforts to make sense of our world by carefully examining our thinking, and the thinking of others, in order to clarify and improve our understanding" (p. 29).

Frequently, educators highlight the significance of developing thinking skills for use in daily life. In Kuwait, Al-Fadhli and Khalfan (2009) argue that it is unreasonable in this technological era to assume that HE students will only develop critical thinking skills by attending classes, listening to lectures, participating in classroom discussions, or taking tests and completing regular course assignments. I agree with them; it is no longer acceptable that our students in schools and HE in Kuwait passively memorise the information they receive from teachers to answer exam questions. Our roles as teachers and educators, as well as the students' role, go beyond this and so the development of students' thinking must involve successfully nurturing critical thinking skills (Halpern 1998).

In other words, teachers and educators need to focus on effective assessment to guide and motivate students towards becoming better critical thinkers (Facione 1990), assessed by identifying their level of skill in this area, with consequent feedback, ongoing encouragement, and teachers being updated on their success in facilitating this process (Ennis 1993). Noticeably, there is a shared belief between scholars that critical thinking can be better fostered in constructivist, E-learning settings (Al-Fadhli & Khalfan, 2009). Thus, SCT is a justifiable approach, due to the reasons outlined above.

## 2.6 Structure of the Thesis

As we can see from Table 2.1, this thesis consists of three phases and nine chapters. Phase 1 consists of five chapters, Phase 2 consists of two chapters and Phase 3 also consists of two chapters.

Table 2:1: Structure of the thesis

<p><b>Preliminary phase</b></p>	<p>To gain insights into the existing problem and the possibilities for improvement and innovation, specifying the desired tentative features of the intervention (tentative design principles) and how these can be developed (Herrington et al., 2007).</p>
<p>• <b>Chapter 1:</b> Introduction  <b>Chapter 2:</b> Background (definitions, context and significance of the study and the theoretical base).  <b>Chapter 3:</b> Literature Review  <b>Chapter 4:</b> Methodology (DBR)  <b>Chapter 5:</b> (Including methods) Informal exploratory technique with teachers and Q &amp; A session with students, resulting in <b><i>Design Framework 1 - Conjectures on the framework.</i></b></p>	
<p><b>Prototyping phase</b></p>	<p>Development of a sequence of prototypes to be trialled and revised on the basis of formative evaluations (Plomp, 2013).</p>
<p>• <b>Chapter 6:</b> Designing the Intervention - Development of solutions informed by existing design principles and technological innovations (Herrington et al., 2007).. Theoretical (initial impetus, the classroom activities). Implementation of the Intervention - <b>Iteration 1:</b> The trial, participants, methods, analysis, practical evidence - Reflection and revision, resulting in <b><i>Design Framework 2.</i></b>  <b>Chapter 7:</b> Re-implementation of the intervention - <b>Iteration 2:</b> The trial, participants, methods, analysis, practical evidence - Reflection and revision, resulting in the final design principles <b><i>Design Framework 3.</i></b></p>	
<p><b>Reflection phase</b></p>	<p>To produce 'design principles' and enhance solution implementation (Herrington et al., 2007).</p>
<p>• <b>Chapter 8:</b> Discussion: Go back over all the evidence to show how the answers to the questions relate to and extend the literature.  <b>Chapter 9:</b> Conclusion: Summary of the study and its significance; contributions to knowledge:  1) Affordances - WhatsApp - Enhance Collaboration (refer to the evidence in Sections 6.5.1 &amp; 7.4.1)  2) Methodology - Improved DBR with Literature Reviews in the iterations.  3) Practice - a) The effectiveness of WhatsApp for PS (role play), and b) The final local design principles (Design Framework 3). Recommendations for teaching and research in Kuwait; further research, and limitations of the research.</p>	

First of all, the motivation for this thesis is to enhance collaboration inside and outside lecture halls among pre-service teachers in PAAET in Kuwait. In addition, it examines the potential for using smartphone apps (e.g. Twitter, WhatsApp and BlackBerry Messenger) as communication tools or channels for enhancing and facilitating such collaboration. Therefore, after the Introduction (Chapter 1) and with the provision of a background chapter (Chapter 2), I will present a review of

the literature (Chapter 3) to help determine whether smartphone apps are useful for enhancing CL, and to guide my initial conjectures (Design Framework 1).

This will be followed by the methodology (Design-based Research) used for the research (Chapter 4), with Chapter 5 as the Consultation chapter, where I will interview a number of teachers from PAAET (see 5.3 Informal Exploratory Technique), as well as initiating a Q&A session with a convenience sample from PAAET (see 5.4 Q&A session), in order to explore their perspectives on concepts like M-learning and CL and to identify some of the challenges involved. Moreover, it was important to check whether my proposition was accurate, namely that there is a lack of collaboration between pre-service teachers at PAAET. It also enabled me to explore their preferences and perspectives, while also determining some new roles, responsibilities and rights. This Chapter (i.e. chapter 5) contributes to forming the initial conjectures (Design Framework 1).

In Chapter 6, I will discuss the development of draft principles to guide the design of the intervention. I will also describe the proposed intervention and first iteration (methods, data analysis, findings), ending with a discussion of the results of the first iteration. This will help establish the development of the second draft principles (Design Framework 2), guiding the second iteration in the subsequent chapter (Chapter 7). Furthermore, I will begin the second iteration (methods, data analysis and findings) and finish by presenting the final design principles (Design Framework 3) in this study. This is will be followed by presenting the discussion chapter (Chapter 8), before reflecting on the design principles to be produced and the enhancement of solution implementation. This is in addition to the contribution of the study to knowledge and a discussion of its limitations in Chapter 9. Ultimately, I will make recommendations for further study.

## Chapter 3: Literature Review

### 3.1 Chapter Outline

I believe that the current generations – Oblinger (2003) and Friedrich et al. (2010) call them the 'NET or C generation' - look for and need a new kind of learning that is more connected to their personal lives and which satisfies their needs better than traditional teaching methods, where the teacher/lecturer's voice is often the

only one heard in classrooms and lecture halls. According to Kukulska-Hulme and Shield (2008) “[L]earners are increasingly motivated by their personal learning needs, including those arising from greater mobility and frequent travel.” (p. 271). Further, Duncan-Howell and Lee (2007) believe that students’ “digital expectancy needs to be incorporated within meaningful learning scenarios” (p. 223). In other words, our educational objectives as teachers and educators, in addition to the challenges presented for schools and HEIs (universities) should concentrate on constructing a learning environment that incorporates technology and brings up the skills necessary to empower students. Any type of technology (e.g. audio, dynamic visual formats, computers, or the Internet), if integrated correctly, will enhance the learning environment (Thamraksa 2003). New learning approaches (see 3.2.1) can be associated with technology to offer new teaching and learning opportunities (see 3.2.2) and overcome some of the local challenges (see 3.3.7). Furthermore, there may consequently be better chances for collaborative learning (see 3.3.2) and new roles adopted by students (see 3.3.8 Participatory Simulation (PS)).

However, the problem becomes the selection of the right technology to use, in order to be able to offer such opportunities. Generally speaking, most of the focus at PAAET and in Kuwait is on using the Blackboard LMS, or Moodle (see 1.2.1) and most attempts to integrate any type of technology into lecture halls tend not be completely successful, including two attempts of my own, due to the various challenges mentioned earlier (see 1.2.1).

For that reason, I am suggesting the use of technology that most students are familiar with and already possess, especially within the Kuwaiti context, i.e. smartphones and their accompanying apps (e.g. Twitter, WhatsApp and BlackBerry Messenger). This is for many reasons (see 3.3.3, 3.3.5), particularly the pedagogical affordances of this technology and apps (see 3.3.6). Indeed, this technology, i.e. smartphones, also presents certain challenges (see 3.4).

Significantly, this chapter, together with chapter five (the informal exploratory technique and Q&A session) is part of the DBR – an initial phase - which contributed to the first design principles (Design Framework 1) for this study. Therefore, I collected evidence from the literature review about the use of mobile

learning in education. Additionally, exploring relevant concepts e.g. CL, PS, MCSCCL and identifying gaps. However, the literature review will not merely be used in this chapter (Chapter 3) to explore relevant concepts or identify gaps for research questions. It will be used when needed in other chapters (see e.g. 6.2.4). According to Jan van den Akker (personal communication, 04/05/2015) “focused literature searches may be useful in later stages in order to address emerging specific questions.” Jan van den Akker, “support[s] [my] view on the (ongoing) function and (more distributed and flexible) timing/place of literature review.”

## 3.2 Issues Framing the Literature Review

### 3.2.1 What Do we Mean by ‘New Learning’? How Does it Differ from ‘Old Learning’?

New learning can mean many things; for instance, it can be seen as learner-centred, highly situated, personal and collaborative (Naismith et al., 2004). From a social constructivist view, new learning should be constructive, collaborative, interactive and contextualised (Roschelle et al., 2000). New learning can also be seen as a “move away from a conception of ‘learner as sponge’ toward an image of ‘learner as active constructor of meaning’” (Wilson & Peterson, 2006, p. 2). According to Wilson and Peterson (2006), recent generations of psychologists have focused more on the critical role of social groups in the development of understanding (e.g. discussion, debate, social conversation and joint work). Simons et al. (2000) link new learning to outcomes which should be “durable, flexible, functional, meaningful, generalizable and application-oriented” (p. 1), and to new types of learning processes, as well as new instructional models needed by society (e.g. teachers, parents, politicians and company representatives).

New learning can be achieved when it is based on training people to think, read critically and express themselves persuasively and explicitly, in addition to enabling them to acquire the ability to resolve complicated situations (Bransford, Brown & Cocking, 1999). A European-led research and development project entitled ‘MOBILearn’ (see, O’Malley et al., 2003; and Taylor et al., 2006) indicated that it is difficult to separate learning from other everyday activities that can be shifted into the context of learning and new resources, such as reading, talking to

others, or watching television. Thus, new learning can be seen as an inclusive concept covering any learning occurring inside or outside the classroom.

Personally, I believe that new learning should be built on the principle of teaching a man to fish, rather than giving him a fish to eat. It is therefore a lifelong process. When asked about the best thing they could offer their students, most college teachers in one study (Wirth & Perkins, 2008) stated, “the desire and skills for lifelong learning” (p. 3). This emphasises how new learning should take place these days. To cope with this era, students need new learning that offers different curricula, allowing them to analyse and evaluate any information they receive and to use what they learn in real life and its various situations (Miller & Doering, 2014).

Conversely, old learning focused on the acquisition of literacy skills: Simple reading, writing and calculation (Bransford et al., 1999), where individual learning was the main focus for many psychologists (Wilson & Peterson, 2006): “Textbooks are filled with facts that students are expected to memorize, and most tests assess students’ abilities to remember the facts” (Bransford et al., 1999, p. 9). I believe that this old style of learning mainly involved the teacher or instructor lecturing, talking about, or presenting the information and knowledge. It is the teachers who were considered to hold the truth and in most cases — at least in developing countries like Kuwait — there was no interference from the students, or shared decisions or discussion. Students were merely passive (e.g. see Sharples, Taylor & Vavoula, 2007). Unfortunately, with some teachers in HEIs in Kuwait, this role resembles a Muslim *Imam* at Friday prayer, just talking and preaching, with fellow worshippers just listening. It is not out of disrespect or disengagement that those attending fail to respond to what the *Imam* is saying, but it is simply that they cannot engage with the discourse or comment on it.

### 3.2.2 Technology Transforms Teaching and Learning and Offers New Learning Opportunities

Researchers like Wilson and Peterson (2006) argue that:

*“Many students have difficulty when they encounter fraction problems in school. Lacking real understanding of the concepts involved and experience in finding solutions, they are confused about which procedure to apply or why it is relevant” (p. 4).*

Personally, I concur that this is mostly true, particularly in Kuwait (e.g. see Ali & Magalhaes, 2008; Al-Fadhli & Khalfan, 2009); collaborative learning activities are missing or most often neglected in that context. Fortunately, it seems that innovative technology could fill the gap and offer new opportunities for learning, helping both teachers and students to solve problems and co-construct new knowledge (Sharples, 2006). To understand the ways in which technology can help students, let us assume, for example, that a number of students are conversing face-to-face about something they have studied, but they have not made notes about what was discussed. It is to be expected that some important statements and ideas would be forgotten.

In fact, even if a conversation is noted down, it is likely that some of the words, insights, or significant phrases could be lost or forgotten for any number of reasons. For instance, it is difficult to transcribe every word spoken by a group of people, since it is usually difficult to hear each voice if everyone is talking at the same time. It is also difficult to describe every action or expression in writing and what they might have meant at the time. Such conversations probably would not permit parallel speech. In contrast, the new technology allows us to record everything, giving us the chance to grasp any conversation or action expressed. Consequently, if we as teachers and educators use certain technological tools, like computers, it will give our students the chance to connect with each other, discuss and analyse, without the fear of losing any information, since everything would be written/recorded. Therefore, all details and ideas could be recalled more easily.

Significantly, technology can be useful for teaching and learning. For instance, in the local context, namely Kuwait, Al-Kandari and Al-Mousa (2012) used multimedia technology to present a single lecture on water conservation for a number of Kuwait University (KU) students. The results show a positive effect of the multimedia technology on increasing students' knowledge about water conservation in the State of Kuwait. In the same context, Alayyar, Fisser and Voogt (2009) tried to find solutions for a number of pre-service teachers at PAAET, who faced realistic problems during in-school training e.g. lack of ability to consider the interactions between content, ICT and pedagogy, besides lack of skills, experience and knowledge necessary to incorporate ICT efficiently in their

forthcoming practice. They found that by offering a blended learning (BL) package (e.g. access to an on-line portal with diverse tutorials and examples and the possibility of contacting different experts at any time they wished), pre-service teachers' understanding of topics addressed in class was enhanced as a result of the increased communication, exchange of ideas and depth of classroom debate.

Moreover, with new communication technologies, like Web 2.0, or even the latest Web 3.0, "it is about representing meanings, connecting knowledge, and putting them to work in ways that make our experience of internet more relevant, useful, and enjoyable" (Naik & Shivalingaiah, 2008, p. 499); they can offer numerous new affordances for dialogue (Wegerif & Yang, 2011). In addition, they can accelerate access to information and facilitate communications. Most importantly, technology can help us redesign the curriculum (at least the curriculum that teachers use at PAAET), by converting the text and images in available books into a more attractive layout and expanding single sources of information to multiple resources for students to use; for instance, blogs, the Internet, social networks, e-books and e-articles and smartphone apps, such as Twitter, WhatsApp and BlackBerry Messenger.

Furthermore, it's more likely that the way students accomplish tasks will subsequently change; instead of writing reports, completing homework and tasks, or commenting on topics in handwritten text, they will type on a computer, on tablets, or on a smartphone, which can help them enhance their spelling, design, calculation and so forth (e.g. in Microsoft Office), besides allowing them to focus on more challenging and subject-focused tasks (Cox et al., 2003). Moreover, freeing students from the classroom and making didactic content ubiquitous could increase the educational potential of all tasks (Miller & Doering, 2014).

However, the focus in this study will mainly be on the pedagogical affordances of the newest, most portable, ubiquitous, smallest and most powerful handheld computer devices, such as smartphones and their accompanying apps for CL, e.g. Twitter, WhatsApp and BlackBerry Messenger — as we will see in more detail in the next sections. Hence, there are a few questions that need to be answered, such as what makes CL so important and why? What is mobile computer support

collaborative learning (MCSCL)? And what technology can be used to enhance CL amongst Kuwaiti pre-service teachers?

### 3.3 The Literature Review

#### 3.3.1 Collaborative Learning (CL)

I have in fact already defined the term ‘collaborative learning’ or CL (see 1.4.3). Here I will focus on what makes it so important and why. I have made this assumption that CL is important in the Kuwaiti context, but I am not entirely sure it will be suitable for Kuwaiti students in HEIs. This is particularly relevant since students in Kuwait have followed just one pattern of traditional teaching and learning since primary school (Ebrahim, 2012). Even so, Alansari (2006) found that about 75% of teachers in the Center for Community Service and Continuing Education at Kuwait University believed that CL had been successfully implemented. Nevertheless, this does not mean that the students themselves are comfortable with such approaches to cooperation (i.e. “a particular set of classroom techniques that foster learner interdependence as a route to cognitive and social development”, e.g. accountability, teamwork, roles) (Oxford, 1997, p.443) or CL (i.e. “collaborative learning has a “social constructivist” philosophical base, which views learning as construction of knowledge within a social context”, e.g. ZPD or scaffolding) (Oxford, 1997, p. 443).

From a socio-constructivist perspective, sharing ideas and co-constructing knowledge can benefit students. For instance, Mercer (2013) links improved learning outcomes to a teacher’s ability to bring about a greater interchange of ideas amongst learners, with enhanced mutual support between students. Earlier, Mercer (1995) argued that a more dialogic classroom pedagogy is needed to allow students to express their thoughts aloud; bringing to light what they do or do not understand, asking questions and exploring ideas, without the teacher immediately evaluating them as ‘wrong’ or ‘right’. Mercer and Littleton (2007) carried out a series of ‘Thinking Together’ intervention studies, concluding that children on the Thinking Together intervention programmes began to use much more ‘exploratory talk’ and pursued group activities more cooperatively. According to Naismith et al. (2004);

“Learning can be even more effective when learners can converse with each other, by interrogating and sharing their descriptions of the world. We can say that the two people share an understanding if Person A can make sense of B’s explanations of what B knows, and person B can make sense of A’s explanation of what A knows. Thus, it is through mutual conversation that we come to a shared understanding of the world. Learning is a continual conversation; with the external world and its artefacts, with oneself, and also with other learners and teachers.” (Naismith et al., 2004, p. 15)

It would therefore seem that classroom education needs to offer students opportunities to think collectively: co-constructing knowledge and solving problems together (Mercer, 2013). It seems that CL approach is one of the ways to facilitate the co-constructing of knowledge and sharing of ideas amongst students. According to Naismith et al. (2004), CL potentially facilitates the most successful learning, with exchanges, debates, and negotiation of ideas within groups, thus enhancing students’ interest in learning. Furthermore, we understand the world around us through exploration, conversation and collaborative knowledge-building (Sharples et al., 2009). Moreover, CL shifts the responsibility for learning to the student, as the latter takes on the role of ‘researcher’ and self-directed learner (Dooly, 2008). Therefore, the focus in this study is more on pre-service teachers at PAAET carrying out CL activities outside the lecture hall and so the CL requires a means of facilitating such activities. Fortunately, “Mobile technologies, if employed effectively, can support social constructivist approaches to learning” (Cobcroft et al., 2006, p. 25). For more discussion on this point, i.e. M-technology enhancing CL, see next section: Mobile Computer Supported Collaborative Learning (MCSCCL) (3.3.2).

Nonetheless, online access for the purpose of collaboration is not education per se (Beetham & Sharpe, 2013). From a constructivist perspective, education is a more comprehensive process that includes teachers, learners, curricula and the learning process. It needs to be compatible with learners’ socio-cultural context and to provide constant support in the achievement of intended learning outcomes. Thus, some teachers and educators wrongly assume that if we simply engage learners in collaborative learning activities, mediated by the new technological tools, they will automatically obtain an ‘education’.

However, I remember when I was a pupil in school and even when I was at university, I was usually able to understand what my teachers were talking about, especially on theoretical topics, like History, Religion and Arabic language. Furthermore, I understood scientific topics, like Maths and Science, as well as Geography without collaborating with my peers. Sometimes, I visualised certain things that were discussed, without actually ever having seen them, e.g. giraffes, Saturn, or Mars. Humans are surely endowed with the ability to compare, measure and analyse things. People can in fact apply their minds to many different circumstances. According to Wilson and Peterson (2006):

“Students can learn while they absorb new information (indeed, just because children are sitting still and quiet does not mean that their minds are not racing), just as they can learn through being more active. Similarly, activity does not mean that learning is taking place” (p. 3).

Nonetheless, is this enough? Is what I understood in the classroom the same as what my peers understood? The answer is definitely ‘No’! Otherwise, we would all have had the same grades and this simply was not the case. People have different levels of ability when it comes to remembering or analysing various things (see Mayer et al., 2008; Deary, 2012). Hence, it is not unusual that a group of students taking the same module/course with the same teacher will get different grades or acquire different levels of skill. Furthermore, in this era of ubiquitous new technologies, with the massive amount of information we receive (e.g. via newspapers, books, the TV, social networks, etc.), we, as teachers, cannot count on the ability of students to accurately and effectively understand, analyse, or perceive. Therefore, there is a need to blend students with each other in a real sense and in real (authentic) environments, using methods like CL, since such an approach offers an opportunity for students to gain a more accurate understanding and to enhance their critical thinking (Gokhale, 1995).

One example demonstrates the need for CL, which as a concept is significant for gathering students to work together and benefit from each other. How can this happen? For instance, it is like riding a bus: When one gets on the bus, he feels like a stranger and that everyone is looking at him, checking him out. Once he takes a seat, he quickly blends in with others and no longer feels like a stranger. The funny thing is that he starts to look at new passengers as strangers, until a

few moments pass and they also blend in with the others. This situation is reminiscent of the CL concept; it helps students blend in with their peers, overcoming barriers such as shyness and hesitation. In addition, it drives students to play a bigger role in supporting themselves and others to obtain new knowledge and expertise. Thus, CL seems to carry true and crucial value for co-constructing knowledge.

Collaborative learning requires the active participation and coordinated effort of each and every member of the group. These members are governed by certain predetermined rules and obligations. Wood and O'Malley (1996) contend that the influence of social interaction on collaborative activity is very important, in addition to participants' learning results. Social interaction and motivation are also vital for the success of CL, where members of the group have to encourage each other, query each other, justify their stand on any issue, and reflect on what they have acquired (Zurita & Nussbaum, 2007). This view has been supported by many research scholars. For instance, Dillenbourg (1999) suggests that social interaction between students in a group is essential.

The concern here is that CL as a concept does not guarantee success if it does not take into account specific success factors, such as clear purposes, effective interaction, and a valid environment, as well as superior support and encouragement from colleagues and teachers. Mercer et al. (2007) found in their study that the participating children did not discuss their work very much or seem to be learning from each other. On the contrary, it usually appeared that just one child took the initiative and his or her peers passively observed, or else "children adopted a competitive style and did not collaborate at all" (p. 3). However, I hope that this does not also apply to adult learners in Higher Education Institutions (HEIs) (in this case PAAET), since they are expected to be self-motivated.

What is more, Facer and Selwyn (2010) point out that even students with a positive view of using the Internet to support their learning may be reluctant to collaborate with others, because they do not wish to construct knowledge in public. Thus, they are actually interested in accomplishing what they called 'familiar school activities'. Facer and Selwyn quote Luckin et al. (2008):

“learners seem cautious about other values associated with the Web 2.0 initiative, such as the shared construction of knowledge in a public format” (cited in Facer & Selwyn, 2010, p. 36).

Facer and Selwyn (2010) further claim, based on the findings of Luckin et al. (2008), that the exchange of information and knowledge does not necessarily lead to the desired level of collaboration. They talk about the term Crook (2008, cited in Facer & Selwyn, 2010) uses to describe such a situation: the ‘low bandwidth exchange’ of information and knowledge. Here, this kind of information and knowledge is, “more accurately described in terms of co-operation or co-ordination between individuals than true collaboration and knowledge building” (p. 36). Nevertheless, the difficulty of attaining full collaboration amongst students is sometimes justified, as Thomas, Schott & Kambouri (2003, p. 178) write:

“In her review of educational electronic multiplayer games McGrenere (1996) expanded on Grudin’s ‘paradox of collaboration’, pointing out ‘we interact with other people continually and usually rather effortlessly, but designing computer support for collaboration is very difficult because we have to actually understand how groups and organizations function. Collaborative activities fail because designers don’t understand the fundamentals of group behaviour’.”

Therefore, the role of educators and teachers is significant and needs to lead students to collaborate as much as possible and to eliminate difficulties to collaboration (Kukulska-Hulme, 2004). Kouzes and Posner (2010) explain this step, saying: “[a]s paradoxical as it might seem, leadership is more essential—not less—when collaboration is required” (p. 243). This also includes more experienced and knowledgeable students. Leadership skills are required to make CL fruitful - e.g., “[B]est students can be used to coach other students” (Kukulska-Hulme, 2004, p. 277), with knowledge being co-constructed between caregivers and peers. Suggesting new ways of learning will demand some role changes for both teachers and students. According to Beetham and Sharpe (2013, p. xvii), “learners need a teacher ... [and] Pedagogy puts the onus on the teacher to guide the learner’s journey to a particular and productive end”.

In this technological era, teachers are no longer the sole suppliers of information (Thamraksa 2003). I certainly believe that their job these days exceeds their former role and has transferred from lecturing in classrooms to facilitating

students' acquisition of various kinds of information both inside and outside the classroom. A traditional 'one-size-fits-all-students' technique, which concentrates on the transmission of information between an active teacher and passive students, is no longer acceptable (Ebrahim, 2012). Yang, Crook and O'Malley (2013) argue that the teacher must conceptualise students' interests and prospective attitudes beforehand, taking action to mediate their social networking activities. However, as I am interested more in discovering the various aspects surrounding the integration of M-learning inside and outside the lecture hall, I will focus on the role of the teacher in terms of technology and what is expected from them. This will help me personally in identifying my role before the trial begins.

By using principles of scaffolding, teachers can help students not to be isolated or separated from the interactive and collaborative process with colleagues and peers, where online courses are designed with social, collaborative activities (Salmons, 2009). According to Windschitl (2002) and Kukulska-Hulme (2004), with knowledge being co-constructed between caregivers and peers, our job as teachers is to offer significant and related activities, problem-based settings or constructive tasks, where more knowledgeable students can support less knowledgeable peers.

This means that we as teachers and educators must dispense with some of our old ways of teaching and encourage CL amongst students, in particular when trying to integrate new innovation, such as mobiles and smartphones. This does not mean, however, that we should put extra pressure on the more knowledgeable student, or even on the less knowledgeable one. On the contrary, we need to take care not to exert too much pressure at school, university, or in the home. Moreover, as educators and even sometimes as instructors, we should encourage critical thinking and reflection (Salmons, 2009). However, it is important that we are aware of how the student's previous experiences and socio-cultural or historical context could impact their individual or group success, as Salmons (2009) asserts. Furthermore, before starting any experiments, all students must receive guidelines on collaboration (Boticki, Looi & Wong, 2011), in addition to being briefed on the advantages of collaborating with others, e.g. peers.

The above paragraphs merely concern the teacher's role in general. Accordingly, it is time to discover what the teacher's role is in the case of using or integrating new innovation, especially mobiles and smartphones, into the classroom. In order for teachers to be able use handheld devices and learning tools to meet course objectives, Faux et al. (2006) highlight the importance of them understanding exactly how to do so. For example, they state "when it is, and is not, appropriate to use the technology and might usefully include consideration of ways in which technical difficulties might hinder classroom practice and how this can be avoided" (p. 3). Here, Faux et al. (2006) recommend that teachers:

- A. Be clear on the exact learning goals they expect to achieve using handheld technologies.
- B. Avoid attempting to use handheld technologies in all lessons; it is more likely that there are particular activities that are appropriate for their use.
- C. Be aware that not all students will benefit from using handheld technologies at all times and that some may prefer more conventional activities (p. 4).

Koh, Loh and Hong (2013) conducted research to examine smartphone-enabled implementation, and argued that if the teacher has not established an essential understanding of the concepts to be taught, then the students will not be capable of self-direction. They add that students can exploit the advantages afforded by the smartphone with a basic conceptual understanding and pedagogical guidance. Thus, it is important to acknowledge that there are many considerations teachers need to bear in mind before using and integrating any kind of technology, referring mainly to mobiles and smartphones. These considerations might include the students' experience in using technology, ethical issues, technical and health barriers, etc., which will be discussed in the following paragraphs.

As for the Kuwaiti context, Ebrahim (2012) emphasises that Kuwaiti educators must take on board the obligation to challenge students' thinking, in order for them to be able to face and cope with the constantly evolving world of science. This consists of carrying out instructional methods which will enhance the aptitude of

students to offer coherent judgments and original solutions. These changes must take place in the unique context of a wealthy oil-producing country like Kuwait, which maintains particular traditions, prospects and structures (Ebrahim, 2012). Therefore, substantial encouragement and support are needed from teachers, educators and policymakers, specifically in Kuwait, to convince both teachers and students at all levels to accept and use their mobiles and smartphones within the teaching and learning process, if such handheld devices are available. If not, schools and universities must supply their tutors and students with them, just as they once offered computers and laptops.

It is important, however, to bear in mind that even with the use of the latest educational technology, the teacher remains central to the educational process; without a proficient teacher who can create a learning environment suitable for meeting students' needs, involving them in decision-making and directing them towards collaboration with each other, the intended learning outcomes will not be achieved. Recently, in the Kuwaiti *Al-Naba*-newspaper, the Kuwaiti Minister of Education (Al-Mulaifi, 2014) emphasised that the teacher is the basis of the educational process, adding, "do not say curricula and equipment, all of these things [are] in support of the role of the teacher". Sutch (2010) added, "It is unwise to assume that access to "information" reduces the importance of teachers' subject knowledge.' (p. 4).

As noted above, teachers' roles in this technological era have and must evolve to keep pace with the requirements of the times and students' needs, rather than being static and ineffective. For my part, I must consider the socio-cultural and historical context. Thus, I look forward to adopting the Social Constructivist Theory in this study (the reasons and aims for using this theory can be found in section 2.4). However, the question remains: What part do the students play in all of this? In other words, what are they supposed to do to promote the success of their learning? Moreover, what are their responsibilities?

Understanding the roles and responsibilities of the student can facilitate the teaching and learning process. Students who do not recognise or completely understand their role are generally passive as opposed to active and will fail to learn adequately. This is a joint process between the teacher and the students,

where the teacher is supposed to clarify the student's role on every course. They also need to seek to identify what is required from them. According to Cunningham, (1992; cited in Laru, 2012) “All constructivist approaches share the idea of making students aware of their own role in constructing knowledge” (p. 18).

As I am interested in integrating new innovation — smartphone applications — I believe it is very important to involve students in the process of selecting the application which suits them best. Furthermore, learning is viewed by some as an active process, in which the “learner uses sensory input and constructs meaning out of it. The more traditional formulation of this idea involves the terminology of the active learner (Dewey’s term) stressing that the learner needs to do something; that learning is not the passive acceptance of knowledge which exists ‘out there’ but that learning involves the learners engaging with the world” (Durbin, 1996, p. 31).

Based on my own beliefs, the students need to modify their role to fit the new learning process (e.g. combining formal and informal learning). They need to be more active and to engage in activities both inside and outside the classroom. This can be achieved if I remind them from the beginning that it is not suitable these days to view themselves as vacant containers waiting to be filled. As an alternative, they need to change their traditional beliefs and understand it is no longer acceptable for knowledge to be exclusively transmitted by teachers, but rather that knowledge needs to be constructed by the learner, as Thamraksa, (2003) illustrates. Hence, students, especially in HEIs in Kuwait, should be aware that they have new roles and are responsible for constructing their own personal knowledge. What is more, meaningful objectives need to be set for undertaking educational activities and taking on more responsibility for achieving them, with progress being monitored in order to determine whether the strategies used have been effective (Glasgow 1997). Moreover, students on my courses must work collaboratively, not just individually with their peers, and play a supportive role in relation to each other (i.e. scaffolding each other). This is not going to be an easy job, since I expect some resistance, particularly when asking students to use their own smartphones for educational purposes (Johnson et al., 2011).

I believe that there is a need for a collaborative learning approach to engage the pre-service teachers at PAAET with each other, particularly outside the lecture hall, in the hope that they will have more chances to collectively solve their course tasks, benefit from each other, and support less knowledgeable peers. Technology, as many of the abovementioned scholars illustrate can enhance such collaboration inside and outside the classroom and lecture hall. The question is what type of technology to choose. By referring back to (section 1.2.1), we can see that focusing on using M-technology and the accompanying apps (e.g. Twitter, WhatsApp, or BlackBerry Messenger), instead of on what has often been used in HEI's in Kuwait (i.e. the Blackboard LMS or Moodle) can be justifiable. As a constructivist teacher, I concur that, "constructivist instructors must offer a suitable environment in which to transform learners from passive recipients of information to active constructors of knowledge" (Naismith et al., 2004, p. 12).

What is more, many recent studies portray the upcoming generations as "comfortable and accepting of their new digital lifestyles, powered by technology such as mobile phones" (Banks, 2008, p. 53). In addition, as stated by Kukulska-Hulme and Traxler (2005, p.1), "[t]hese devices can be carried around with relative ease and used for communication and collaboration, and for teaching and learning activities that are different from what is possible with other media". This perception was confirmed by Chaiprasurt, Esichaikul and Wishart (2011): M-Technology can stimulate learners motivation and enhance their interaction. Naismith et al. (2004) further illustrated that "[b]eing mobile adds a new dimension to the activities that can be supported, both because of the personal and portable nature of the devices themselves, and because of the kinds of interactions they can support with other learners and the environment" (p. 9). Further exploring this idea, El-Hussein and Cronje (2010) contended that, if such technologically driven education is now in practice, institutions will have little choice but to embrace and accommodate the emerging wireless methods of learning.

To sum up, my theoretical framework or understanding of learning was influenced by Vygotsky, who viewed learning as something which was socially constructed. In other words, knowledge is constructed via a social process. This corresponds to my chosen definition of CL (section 1.4.3), whereby I consider the CL approach to be an effective teaching method for me as a teacher, as well as being an

effective means of learning for students, in that they can also learn from each other (Mercer, 2013). Consequently, students can teach, support, guide and help their peers to reach a level of understanding and acceptance of the topics being studied. In turn, they also teach me things, while at the same time naturally learning from me, as their teacher. To a great extent, the students in this study comprehended that by adopting a CL approach, they were not only responsible for their own learning, but also for their peers' learning. Most acknowledged they would not have been successful without scaffolding their peers, in order to reach an equivalent, or at least convergent level of knowledge and to co-construct new knowledge in that shared experience (see the description of students' responsibilities and roles in sections 6.2.2 and 7.2). It is a collective mission that can bring mutual benefits for all participants, including for me as the teacher. The chosen definition of CL in this study, which focuses on advancing students' growth, expanding social and learning skills, and helping students to build their personal knowledge by exchanging opinions with others, could be highly appropriate for a social process of knowledge construction.

However, we have to keep in our minds that many still resist the use of M-technology in schools and HEIs (e.g. teachers, students, parents) and fail to acknowledge its potential and imminent role in learning (Thamraksa, 2003; Teo et al., 2007). This is a serious threat to the success of any attempt to integrate technology into the classroom and lecture hall. Thus, what are the perspectives of the students and teachers at PAAET on CL and smartphone applications? This is one of the sub-questions of this study (see answer in section 8.4). Next, I will discuss the link between CL and M-technology by exploring the concept of MCSCCL and later, I will discuss how participatory simulation (see 3.3.8) can be useful for enhancing CL amongst students.

### *3.3.2 Mobile Computer Supported Collaborative Learning (MCSCCL)*

During different periods, starting from the 1960s and continuing until 2002, many paradigms relating to information technology (IT) emerged (Koschmann, 1996), such as computer-assisted instruction (CAI), intelligent tutoring systems (ITSs) and the Logo-As-Latin paradigm, before computer-supported collaborative learning (CSCL) emerged as a new paradigm. Perspectives of social constructivism, Soviet

socio-cultural theories and situated cognition offered the intellectual heritage that helped CSCL to emerge (Stahl, Koschmann & Suthers, 2006). Koschmann (2002) defined the CSCL domain as:

“a field of study centrally concerned with meaning and the practices of meaning-making in the context of joint activity, and the ways in which these practices are mediated through designed artefacts” (p. 20).

I believe that in 2002, the turning point came when many leaders of this CSCL community gathered at the ‘Computer Support for Collaborative Learning: Foundations for a CSCL Community’ conference. The proceedings were edited by Stahl (2002) and addressed critical social issues associated with learning in the information age. Leaders in the CSCL community, such as Timothy Koschmann and Yrjö Engeström, offered keynotes like ‘Meaning and the practices of meaning-making’ (see Koschmann, 2002) and considered the larger social contexts in which groups interact with other groups to produce learning.

In general, the experts listed above rejected the ‘yesterday’s concepts’ mentality in which CL refers to student learning improving solely through participation in small groups. According to Stahl (2002), knowledge is a product of the collaboration process arising from the interaction of diverse perspectives, where groups themselves learn together. Stahl (2002) also points out that “knowledge is not static or other-worldly; it lives and is situated both locally and historically in groups, teams, organisations, tribes, social networks and cultural flash points” (p. 1).

Knowledge is live and connected with students’ socio-cultural and historical context and this view matches my personal epistemology. Therefore, I could not resist the temptation to develop a constructivist learning environment supported by smartphone apps, in order to allow students to construct their own knowledge while working collaboratively in a reflexive process, which I was expected to direct as a teacher. The question remained, however, whether I could achieve and enhance collaboration among Kuwaiti pre-service teachers at PAAET, both inside and outside the lecture hall walls.

Since I am interested in integrating and using technology at this time and within the Kuwaiti context, I thought it would be suitable to use a technological tool as

mediation for collaboration. However, I — like Koschmann (1994) and Crook (1994) before me — was wondering how technology could support CL. In the above-mentioned conference in 2002, Lipponen and Hakkarainen (cited in Stahl, 2002), illustrated how “CSCL is based on the idea that computer applications can scaffold and implement advanced socio-cognitive processes for knowledge sharing and knowledge building” (p. 24). I believe it is undeniable that computers and the Internet have changed and, in one way or another, enhanced the way we communicate, play and learn. This is confirmed by Stahl et al. (2006), who also emphasise that technology in itself cannot lead to altered practice. In order to enhance forms of practice, we need more “multifaceted forms of design”; for instance, design that addresses curricula, resources, participation instructions, tools and context.

Noticeably, schools and HEIs around the world face a major challenge to the effective integration of technology into the classroom (Cortez et al., 2004). These words, combined with my own personal beliefs, tell me that at this present time, the ‘NET or C generation’ as Oblinger (2003) and Friedrich et al. (2010) describe them, are constantly looking for something new to interest and attract them to effective engagement and participation. According to Sharples et al. (2009), “We are in an age of personal and technical mobility, where mobile devices, including phones, MP3 players and PDAs, are carried everywhere” (p. 234).

This is one of the reasons that drive me in this research to think of using a new artefact as an alternative to the cumbersome desktops and heavy laptops, which are already insufficient and out-of-date at PAAET. In other words, based on what I have witnessed, I find myself compelled to search for the latest devices distributed amongst students and which may be easily used. Moreover, this is equipment that students are mostly familiar with and at least want to use to socialise with friends and family members. It appears to me that these are devices which keep them constantly connected to the Internet and can be carried everywhere they go. At this current time, I cannot honestly think of or find anything better than the widely distributed smartphones amongst pre-service teachers at PAAET, or even in Kuwaiti society in general, which can be used to enhance interaction and collaboration amongst students within and most importantly, beyond the lecture hall walls.

Integrating mobiles or smartphones into teaching/learning methods, instead of computers, demands a shift from a CSCL paradigm to MCSCL. Although, I have not found a precise date at which researchers transferred from investing in CSCL to Mobile-CSCL, I estimate this as having started during the first years of the second millennium. In this period, there were efforts scattered here and there, but perhaps the most remarkable attempts are presented in two published papers, by Cortez et al. (2004) and Zurita and Nussbaum (2004).

Zurita and Nussbaum (2004), for instance, address the benefits of face-to-face CL activities inside classrooms to support teaching, with a specific educational objective. This was fulfilled via a coordinated and shared activity, achieved through social interaction. The papers explain how such interaction was necessary for meeting the required learning aims. The above authors were convinced of the advantages of collaborative learning, but expressed some fears that CSCL activities may have some weaknesses and might fail to achieve the goals of CL; for example, weaknesses in coordination; communication; the organisation of materials; negotiation and interactivity, with a lack of mobility. As a result, they shifted to MCSCL, since they believed that all these weaknesses could be addressed in this way. The authors experienced two different CSCL and MCSCL activities and reached the conclusion that MCSCL activities are more engaging and collaboratively effective. According to Zurita, Nussbaum and Salinas (2005):

“In MCSCL environments using handhelds, group members can move freely, allowing flexibility in social interactions and the formation of groups” (p. 151).

Likewise, Cortez and his fellows in (2004) found that students and teachers responded very favourably to what they called an MCSCL system and the experience also had a strong social impact outside the classroom. It seems that the MCSCL system offered a highly motivating learning setting that transformed classroom dynamics and upheld collaboration between students. The system was tested during a five-week experiment in a high school physics class. The authors, however, held the same view as former researchers (Zurita & Nussbaum, 2004), which was that most CSCL applications support collaboration in settings where the students are seated behind a computer. However, such computer-based settings have certain weaknesses. For instance, they may isolate students,

keeping them behind the computer most of the time and not allowing face-to-face interaction. In contrast, handheld computers, according to Cortez and his fellows, allow the creation of a natural mobile collaboration setting with face-to-face interaction. Furthermore they can help the teacher transmit his knowledge more easily to the students, besides helping students to maintain direct contact with their teacher.

Additionally, Yaslam and lahad (n.d.) believe that, CSCL can offer new potential “for achieving more effective and attractive learning activities” (p. 78), due to advancements in technology. More importantly, with the emergence of new handheld devices, CSCL has shifted to MCSCL and more problems have been overcome (e.g. constraints of time and place). Yaslam and his partner conclude that “the MCSCL's activities support collaborative work and strengthen the social interaction among students and encourage the member mobility” (p. 84).

Both papers, alongside what is stated by Yaslam and lahad (n.d.) and (Boticki et al., 2013), mention how the advent of M-technology has made collaborative learning more personal, dynamic and flexible and this might be the reason behind some researchers deciding to shift from CSCL to MCSCL. Furthermore, the need to integrate constructivist environments into pedagogical practice, as Zurita and Nussbaum (2004) describe, permits students to construct their own knowledge, while working together in a reflexive process, directed by the teacher. However, critical thinking raised an important question: Why M-Learning?

### *3.3.3 Why M-Learning?*

According to Miller and Doering (2014), what renders M-learning innovative are technology and context. Technology is concerned with the mobile device itself and its accompanying tools to capture, manipulate, measure and transmit information, or perform actions during the course of the learning. Context, on the other hand, is concerned with the fact that such handheld devices are always portable, offering an opportunity to expand learning outside the classroom and lecture hall to support 'on-demand' access to educational content. “Mobile technologies present [...] a means of bridging the gap between formal and informal learning” (Duncan-Howell & Lee, 2007, p. 229).

Even though the above elements, technology and context, comprise the essential features of any M-learning environment, they are inadequate in themselves for producing innovative learning (Miller & Doering, 2014). Students' mobile phones (e.g. smartphones) are most commonly seen as devices that help to develop 21st century skills, embracing "the ability to learn quickly by cultivating knowledge networks that support information-gathering practices in authentic environments, applying mental filters to find, sort, and extract information, using that information to solve problems, and evaluating the result of one's own work" (Miller & Doering, 2014, p. 12). Nevertheless, it is only when students possess the skills to find the required information, analyse it, evaluate it and share it with others in a process of co-constructing knowledge that it can really be called 'innovative learning' and we see why M-learning is important.

The emergence of M-technology offers better opportunities to engage students in CL activities inside the classroom and most importantly, outside the classroom and lecture hall (Milrad, 2003; Thornton & Houser, 2004). Such handheld devices present the challenge to redefine and transform our educational paradigm (Mehdipour & Zerehkafi, 2013). This concept has found acceptance by Traxler (2009), who emphasises that "Mobile learning technologies clearly support the transmission and delivery of rich multimedia content" (p. 17). These encouraging words are one of the reasons driving me to investigate the pedagogical affordances of the latest handheld devices, namely smartphone applications for collaborative learning amongst pre-service teachers in PAAET, Kuwait.

M-learning, according to Cochrane and Bateman (2010) can help engage students and teachers in learning conversations and between peers, as well as between students and subject experts within authentic settings. Cochrane and Bateman (2010) believe that M-learning has the potential to bridge pedagogically designed learning contexts and also to ease student-created contexts and content in a personal and collaborative way. They also add that M-learning can maintain personalisation and 'social connectedness' everywhere. Bryant (2006) perceives M-learning as a tool to "expand discussion beyond the classroom and provide new ways for students to collaborate and communicate within their class or around the world" (p. 61). I believe he means here that M-learning can transcend more formal ways of learning to include new informal methods. Khaddage and Lattemann

(2013) confirm this by stating that M-technologies and their accompanying applications can play a significant role in an informal learning environment, because such new innovations can be used for many purposes; for instance, collaboration, communication and the gathering and sharing of information between students and their teachers.

In one developing country, namely India, Kumar et al. (2010) carried out a 26-week study to investigate the extent to which rural children voluntarily make use of cell phones to access educational content. They found that cell phones offer an ideal opportunity to facilitate informal learning outside the school environment, “so as to complement formal schooling” (p. 743). Duncan-Howell and Lee (2007) point out that M-technologies could be considered as a means of bridging the gap between formal and informal learning. These days, learning exceeds the formal educational setting to include informal contexts. According to Sharples et al. (2005), students with access to M-technology can extend their classroom learning to homework, field trips and museum visits. Thus, it is justifiable for us as teachers and educators, especially in developing countries like Kuwait, to try and integrate M-technologies, since they bridge the gap between formal and informal learning, or at least support learning and collaboration outside the classroom walls. However, we should also be cautious that “education in the mobile age does not replace formal education, any more than the worldwide web replaces the textbook; rather it offers a way to extend the support of learning outside the classroom, to the conversations and interactions of everyday life” (Sharples et al., 2005, p. 23).

Regardless of the above statement, by counting on M-learning, the control and management of learning can be distributed across learners, teachers, technologies and resources (Sharples et al., 2005). For instance, in most situations, teachers assign roles and tasks, choosing groups on the basis of what they believe is best for their students and deciding on the way in which they deliver content (e.g. books, printed summaries, or electronic artefacts). Even worse, they sometimes even act as regents for their students and start to make decisions and judgments based on what they believe is best for their students, without consulting them. For example, until very recently, officials in the Ministry of Education in Kuwait unilaterally decided to replace laptops with iPads in all schools in Kuwait. According to the Anbaa (2015) newspaper, these officials decided in 2010 to buy

the latest technology, i.e. laptops, and due to legal and technical problems in the contract, as well as constant changes at the Ministry of Education, amongst those who supported the project and those who were dismissive of it, the supply of such devices was delayed. Now, in 2015, the laptop has become old technology in contrast to tablets and iPads. I believe that this has led to confusion amongst Ministry officials as they are not sure whether to fulfil the old contract for laptops, or go back to the drawing board for a new cycle. This is a clear example of confusion and a lack of involvement of students in selecting appropriate technology.

Fortunately, M-learning, according to Sharples and his colleagues, allows responsibilities to be distributed between teachers and students. Furthermore, students are able to choose the group they wish to participate in and the times and places they want to share, at their convenience. Due to ubiquitous nature of mobile technology access to resources also becomes flexible.

Related literature endorses M-technologies supporting student engagement in creative, critical, collaborative and CL activities (Cobcroft et al., 2006). Nowadays, mobiles and smartphones are widely used in daily life. For example, “Of the world’s seven billion people, six billion have mobile phones” (United Nations News Center 2013), hence it is important to take advantage of the ubiquity of mobiles and smartphones, but it is also extremely important to be aware that the widespread use of mobile phones does not necessarily mean all users are familiar with their many functions and applications (Cheon et al., 2012).

Furthermore, we have to be careful as teachers and educators not to rush in or be excessively thrilled about these new innovations, since planning to use students’ smartphones to enhance CL activities is not the same as using them for delivering content or increasing social communication. I believe this is a task that requires robust planning, patience and ongoing modification, as needed, together with flexibility. In other words, although there are advantages/benefits (as seen earlier) and pedagogical affordances (as indicated below), there are also many challenges and concerns (to be discussed later in this chapter). For instance, authors such as Naismith, Lonsdale, Vavoula and Sharples (2004, p. 4) raise some of these concerns, emphasising that in order to rely on technology to

facilitate education, especially M-technologies, it is important to consider the following key issues:

- A. Context: Gathering and utilising contextual information may clash with the learner's wish for anonymity and privacy.
- B. Mobility: The ability to link with activities in the outside world will also provide students with the capacity to 'escape' the classroom and engage in activities which do not correspond to either the teacher's agenda or the curriculum.
- C. Learning over time: effective tools are needed for the recording, organisation and retrieval of (mobile) learning experiences.
- D. Informality: students may abandon their use of certain technologies if they perceive their social networks to be under attack.
- E. Ownership: students want to own and control their personal technology, but this presents a challenge when they bring it into the classroom.

Another example is that schools in developing countries, including Kuwait, do not always have the resources or authorisation to purchase such devices or allow students to use them to collect data from field trips. As far as I know, there are no national criteria, studies, or clear initiatives for integrating and implementing these handheld devices in teaching. Additional challenges which teachers or educators may face when trying to integrate technology into classrooms or lectures halls will be discussed in section 3.4. At present, more distinguishing features of M-technologies shall be reviewed. I believe they possess features (i.e. ubiquity, ease of use, privacy and novelty) which are relevant to learners (i.e. enhanced motivation and self-evaluation, as well as familiarity) and fortunately, most of these features possess pedagogical affordances (as we will see later on in this chapter). In the following Tables (3.1 and 3.2), I will present these features, the authors who discuss them, and what they consist of.

### 3.1: Features influencing the use of smartphones

<b><i>Features influencing the use of smartphones</i></b>	<b>Authors</b>	<b>What the authors say</b>
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<i>Ubiquity</i>	Naismith, Lonsdale, Vavoula and Sharples, (2005); Kukulska-Hulme and Traxler (2005)	Benefits university students; enhances the capability for rich social interaction, enhances context awareness and Internet connectivity.
<i>Ease of use</i>	Traxler (2010); Welsh, K. and France (2012), (2012); Donohue (2010); Mehdipour and Zerehkafi (2013)	Most of the necessary technological knowledge is often already instilled in the student user simply because M-technologies are now, “woven into all times and places of student lives” (Traxler, 2010, p. 5). The mobile version of Evernote is very simple to use and requires no more knowledge than a smartphone user would have already.  When a learner searches for new technological tools and apps for himself or to integrate into classroom he will choose something which is free and easy to use.  M-technologies should be easily comprehended and navigated by people with no previous experience of using them.
<i>Novelty effect</i>	Ekanayake, T. M. S. S. K. Y., & Wishart (2014); Moura & Carvalho (2009); (Banks (2013).	As a result of novelty effects, mobile phones can attract students’ attention to, e.g. a science lesson.  There is some novelty in integrating mobile devices as tools to support learning activities.  Everyone is still excited by the potential of the mobile.
<i>Privacy</i>	Raftree (2014); (Zheng & Ni 2010)	Mobiles or tablets can actually create an opportunity for privacy.

		Privacy, identity and anonymity are not guaranteed with M-technology.
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Table 3.2: Features related to people

<b>Features related to people</b>	<b>Authors</b>	<b>What the authors say</b>
<i>Familiarity</i>	ASTD (2013); Raftree (2014)	By now, most of the youth are familiar with apps for games, social networking, work and personal productivity tools. However, there are still people who are not yet familiar with smartphones and tablets, which can lead to shyness and rejection of such technology.
<i>Enhanced motivation</i>	Clough, Jones, McAndrew and Scanlon (2009); Al-Shehri (2011); Moura & Carvalho (2009).	Our findings show that mobile phones were largely used to motivate learners, among other things. Using informal social media like Facebook can motivate students to implement contextual elements from their own environment. The mobile phone used as a mediating tool for learning, allowing students to ask questions, can increase their motivation in the school subject.
<i>Enhanced self-evaluation and self-direction</i>	Traxler (2009);(Koh, Loh and Hong (2013); Sha, Looi, Chen, Seow and Wong (2012)	Mobile learning uniquely supports spontaneous reflection and self-evaluation. The academic achievement and self-directed learning of students was affected by a smartphone-enabled curriculum.

As we can see from the two Tables above, there are many features that M-technologies possess, particularly for educational purposes. Most importantly, M-learning is more likely to be appropriate for assisting collaboration and communication (Farooq et al., 2002; Zurita & Nussbaum, 2004). However, there is a need to know how scholars categorise M-learning.

#### *3.3.4 Is M-learning a Sub-Set of E-learning?*

From the moment M-learning emerged, there was a big debate between scholars about how to categorise it; for example, was it a new concept, or just a sub-set emerging from E-learning? Earlier, Quinn (2000) asserted that M-learning was an E-learning activity undertaken using portable electronic tools. It is also an essential component of E-learning. This view did not endure for very long and evolved after other researchers cast their opinions.

M-learning is mostly situated within the E-learning framework, yet it links directly to the model of flexible learning: “Just enough, just in time, just for me,” which can be adapted to suit individual learning needs (Peters, 2007, p. 116). Peters distinguished between M-learning and E-learning, specifying one of the most significant features of M-learning, which is individuality. This is also confirmed by Shepherd (2001), who points out that since M-learning is not just electronic, but also mobile, it differs from E-learning. Later, Hoppe et al. (2003) considered M-learning as a natural evolution of E-learning: “M-learning is E-learning using a mobile device and wireless transmission” (p. 255).

A year later, Sharma and Kitchens (2004) emphasised that mobile devices can make learning even more broadly available and accessible; they are a natural extension of E-learning. The difference between M-learning and E-learning is discussed and demonstrated by Mehdipour and Zerehkafi (2013), who argue that E-learning can be real-time or self-paced, synchronous or asynchronous, as well as tethered (connected to something) with a formal structure. In contrast, M-learning is usually self-paced, informal and un-tethered. Education scholars have implicitly differentiated between E-learning and M-learning with the passage of time, which alludes that M-learning is largely not a sub-set of E-learning. In the next section, however, the pedagogical affordances of M-technology (i.e. smartphones) will be discussed.

### *3.3.5 The Pedagogical Affordances of M-technology*

In the opinion of Cobcroft et al. (2006), the latest literature shows that M-technologies present substantial advantages and affordances for constructing and backing up critical, collaborative, creative and communicative capabilities within learning settings. Further, Moura and Carvalho (2009) found that M-learning offers new learning opportunities (Tables 3.1 and 3.2). However, if we focus on the pedagogical affordances of M-Technology in this study, we will find that many authors and researchers make specifications in this regard. For example, Woodill (2010) identifies seven main affordances of M-learning: “Mobility, ubiquity, accessibility, connectivity, context sensitivity, individuality and creativity” (p. 530).

Other researchers (Clough et al., 2009) implicitly identify both similar and different pedagogical affordances, such as the portability, storage capacity, computing power and convenience of mobile devices. Furthermore, Geddes (2004) demonstrates two significant pedagogical affordances of M-learning, one being its appeal for students and the other, students' increased satisfaction, which is also expected to increase their motivation. According to Cochrane and Bateman (2010), learning with handheld devices like mobiles and smartphones has pedagogical benefits, the most important being student-centred learning, besides the ability to turn any space into a learning space. In recent years, with the growing presence of smartphones, this is largely true. In my humble opinion, anyone can learn from others at any time and from any location, while both parties are carrying portable devices.

I could argue that mobiles and smartphones with the accompanied apps possess numerous undeniable pedagogical affordances. For example, by using Dropbox (other software available for smartphones), students can access stored files and folders from their smartphones, enabling them to open and adjust documents when they are away from a desktop computer, as Welsh and France (2012) illustrate. Welsh and France (2012) illustrated that smartphones offer students the opportunity to take geo-tagged photographs, write notes, or record short videos or audio-clips, which may then be synchronised between them. This is due to the portable nature and size of smartphones. They are therefore suitable for use on a field trip. Furthermore, the built-in camera can record video and audio-input almost up to DVD quality, which enables students to record events and interviews, and

to share what is recorded with peers and friends. For educational purposes, students may be asked to reflect on a field trip and combine any data collected. They would then use videos/audio-clips to refresh their memory of the field trip. This kind of reflection could enhance their understanding of the issues under study, in addition to expanding collaboration. This is exactly why m-technology (e.g. smartphone) are believed to have pedagogical affordances, since they can help enhance learning in the field and the co-construction of knowledge (Park, 2011).

In addition to the above, Traxler (2009) found in the literature that the affordances of M-learning are “personal, spontaneous, opportunistic, informal, pervasive, situated, private, context-aware, bite-sized, portable” (p. 13). Additionally, Chu, Lin, Tan and Liu (2012) propose eight actual educational affordances provided by the ubiquitous learning environment, which they observed on a natural science learning course. They include unconstrained knowledge accession; real-time evaluation; individuality; diverse interaction; arbitrary data collection, ubiquitous game play; authentic context-awareness, and vivid immersion.

Pea and Maldonado (2006), in addition to affordability, have identified seven features that form the pedagogical affordances of handheld devices utilised in schools and elsewhere, such as:

“(1) size and portability; (2) small screen size; (3) computing power and modular platform; (4) communication ability through wireless and infrared beaming networks; (5) wide range of available multipurpose applications; (6) ready ability to synchronise and back-up with other computers; and (7) stylus driven interface” (p. 4).

Some of these features, however, are interwoven with the pedagogical affordances identified by Klopfer, Squire and Jenkins (2002), who argue that “A powerful handheld learning environment might capitalize on the portability, social interactivity, context sensitivity, connectivity, and individuality of ubiquitous devices to bridge real and virtual worlds” (p. 95). These five pedagogical affordances are amongst the most frequently cited affordances (Laru, 2012) and originate in real experiments, called ‘environmental detectives’, carried out earlier by (Klopfer et al. 2002). To conclude, after reviewing many pedagogical

affordances, I hope to produce a contribution to knowledge by adding a new pedagogical affordance at the end of this study.

### *3.3.6 The Advantages of Smartphone Apps*

In the following paragraphs, I will focus on what other researchers have said about the advantages of using smartphone apps from a technological standpoint. To start with, Donohue (2010) compares smartphone apps to a Swiss Army® Knife in one article, saying “There’s an app for (almost) everything.” He described it in these terms: “Do you remember the first time you saw a Swiss Army® Knife with all of those tools and gadgets hidden inside that sleek red shape? Well, smartphones are the Swiss Army® Knife of the digital generation” (p. 40). He added that smartphones (e.g. iPhone, Google Android and BlackBerry Messenger) — and tablets, in my opinion — are great “examples of the convergence of hardware, software, and apps into one powerful, handheld digital device” (p. 40). He claimed that nearly all smartphones offer a similar range of features and apps, such as telephone and email functions, Internet browsers, text messages, calendars and contact tools, with accompanying clocks, notes, calculators, maps, weather reports, photo storage, cameras and music/video players. Moreover, Donohue (2010) points out that smartphones represent all three trends in one small handheld package: Convergence (where a phone is more than a phone), mobile devices and social media. Donohue, who is a leader in the innovative use of technology and distance learning methods, argues, “When a cell phone is ‘smart,’ it becomes a powerful tool for living, learning, and working, not just for communicating. And it’s fun to use!” (p. 41). Nevertheless, using it for teaching and learning is another matter. For instance, “meaningful learning will not occur unless it is anchored in an authentic task where the learner can experiment, make mistakes and learn” (Geddes, 2004, p. 2).

However, what extras do smartphones hold to support this selection? (i.e. using smartphones and the accompanied apps for teaching and learning purposes). According to Attewell (2005), mobile devices can encourage independent and CL experiences and indicate areas where students require support and help. Attewell (2005) found that mobiles can alleviate resistance toward using ICTs and new innovation, engage hesitant students and allow students to stay more focused for

longer periods. They can even promote self-esteem and self-confidence and self-confidence is a very important element for sharing, interacting and collaborating with others. Al-Shehri (2011) found that hesitation and a lack of confidence lead to reduced interest among students when it comes to collaboration. In another paper by Koh, Loh and Hong (2013), which examines smartphone-enabled implementation with a snapshot approach, they found that in contrast to a worksheet-based curriculum, the students attained higher academic achievement with a smartphone-enabled curriculum. All of the above suggest that the smartphone can have a positive impact on students' achievement, collaboration and interaction, as well as improving students' self-confidence.

Besides the above, Ngaleka and Uys (2013) believe that M-technology can be useful for both teachers and students if exploited properly, offsetting the lack of computers in laboratories, which, for example, afflicts some universities in South Africa. In their work, Ngaleka and Uys (2013) asked a group of third year undergraduate Information Systems students to use WhatsApp for collaborative research work. They adopted a technique where students' conversations were analysed (i.e. discussing their project, meeting times and even irrelevant issues). It seems that WhatsApp promoted conversation amongst the students outside the classroom and reduced the influence of the lecturer on what they chose to discuss and how they collaborated, learned or accomplished their own tasks. Further, Bere (2013) used an online questionnaire with 196 participants at a university of technology (UoT) to identify the variables influencing student choice over the use of WhatsApp. The results show that there were many variables leading to their choices e.g. ease of use, usefulness, convenience, and more.

Recently, Arab Social Media – (TNS, 2015), carried out an investigation - a qualitative research module and quantitative survey - with 7000 participants from 18 Arabic countries, measuring their perceptions of social media and describing their habits regarding social media usage. The findings show that WhatsApp is one of the most commonly used and favoured social media channels across the Arab world. However, instant and text messaging via WhatsApp or other apps, like BBM may have a negative effect on learning English (Salem, 2013). The latter researcher found that students' use of "instant and text messaging shortcuts in the formal writing task [can] distort the Standard English that is the official form of

teaching and learning [and] affects badly the way students use language; its vocabulary, spelling and grammar” (p. 68).

Nevertheless, such apps have the potential to introduce the user to new people, expose them to new ideas and expand their network (Donohue, 2010). Hence, I believe it is important to allow pre-service teachers at PAAET to use WhatsApp, or similar apps, to remain connected with each other and their instructors at all times, especially outside the lecture hall. The question is whether such smartphone apps (e.g. Twitter, WhatsApp, or BlackBerry Messenger) are useful for enhancing CL amongst pre-service teachers at PAAET. This is the main question of this study, where little is known in Kuwait about the potential influence of smartphone apps on CL in this context. It also raises two significant sub-questions worth investigating: Which smartphone communication apps (i.e. Twitter, WhatsApp, or BlackBerry Messenger) do students favour? And what guidelines may be set out for the successful implementation of smartphone apps in teacher training? For more details about the last two questions see section 1.5.

### *3.3.7 Challenges and Barriers to M-Learning*

I believe that there is nothing in the world that consists exclusively of either advantages or disadvantages; there is always a combination of both and online technologies are no exception. Above, I have reviewed the advantages of using and integrating new innovation into classrooms, especially smartphones and their applications. I will now review the literature that discusses the challenges and disadvantages of such technologies, hoping to gain insights into the disadvantages and avoid making the same mistakes as other researchers and educators.

According to the literature, barriers to the adoption and implementation of M-learning relate to a multitude of issues. I have categorised most of these into three main classifications: General (organisational barriers to M-learning and E-learning), contextual (social, cultural and educational challenges), and technical.

General challenges (i.e. organisational challenges) include:

“lack of time available for training; cost versus value; lack of appropriate content related to specific needs; language barriers as most of the content is delivered in English; difficulties in measuring e-learning effectiveness; lack of strategic planning and direction,

particularly when there is no alignment with business objectives; lack of e-learning awareness; lack of incentives; and finally, lack of management support” (Ali & Magalhaes, 2008, p. 41).

Moreover, smartphones are generally expensive and may distract students. Besides, the “text-based message lacks inflection, lacking interactive multimedia, interaction can be clumpy and stilted, everything has to be short and small making meaningful interaction difficult” (Kukulka-Hulme & Pettit 2009, p. 148) and there are certainly worries about health problems, such as backache and eye strain (see Baldwin-Evans, 2004; Mehdipour & Zerehkafi, 2013; Rekkedal & Dye, 2007; Richardson, 2013).

What is more, there is no demographic boundary interference with students' personal and academic lives. Additionally, in most countries around the world there are teachers who resist new methods and technology due to insufficient knowledge and expertise, or a lack of confidence and training. Therefore, “as with all change management projects, gaining institutional support for the m-learning approach is critical. Areas to be addressed include cost, compatibility, equity of access, security, privacy and ethical concerns” (Traxler & Bridges, 2005; Mobile Learning Group, 2004, cited in Cobcroft et al., 2006, p. 25). There is also the potential issue of a lack of policy support, governmental investment and interest/awareness from stakeholders. More importantly, current E-Learning materials would need to be modified for mobile platforms. How can a realistic and persistent virtual context (physical and social) be presented? (See Cornelius & Marston, 2009; Traxler & Bridges, 2005; Mobile Learning Group, 2004; Mehdipour & Zerehkafi, 2013; Ekanayake & Wishart, 2014).

In order to look at more challenges in detail, let us review one project carried out by Kharade and Thakkar (2012) to create learning situations for selected school students and pre-service English language teachers. In this project, the authors found that students complained about working with large, time-consuming projects. Students also felt it would not be practical to constantly conduct their classes like this. Moreover, in the event that a teacher tried to use social media with his students, he would need to ensure his students were kept safe from the risks associated with social media use (Brooks, 2014a). Additionally, Brooks emphasises the significance of the privacy of students and their families when

using webcams to communicate, as well as the need for public M-technology policies to be put in place and enforced.

In addition to the above, Brooks (2014b) mentions another technology issue facing educators who embrace social media in the classroom: so-called cyberbullying. She presents several tips taken from Stopbullying.gov to protect students from cyberbullies. Educators must:

- 1- Remain aware of what children are doing online.
- 2- Establish rules related to Internet use.
- 3- Stay tuned-in to school policies regarding online interaction.

One of the criticisms facing M-learning these days is that the entertainment options available on mobile devices exceed those specified for education. According to UNESCO (2012), this is what drives policy-makers to dismiss M-technology as distracting or even antithetical to education. Furthermore, there has been no reliable or acceptable evaluation of such options until now (Traxler, 2009). Besides, deploying digital games in education calls for cautious planning and consideration. According to Bate, MacNish, and Males (2014), “There are still pedagogical challenges facing teachers in terms of using digital games to stimulate higher-order cognitive processes, better managing ICT-rich classrooms and minimising distractions emanating from gaming” (p. 19). Moreover, Sharples et al. (2007) believe that generally, children do not want school to interfere with their private lives. Thus, it is a new challenge that calls for consultation with the students themselves before pushing them to use their own devices in schools or even in HEIs.

Maniar et al. (2008), who investigated the effect of mobile phone screen size (1.65 inches–2.75 inches) on video-based learning, argue that most of the previous challenges and barriers could be solved with advances in technology, except for screen size. I tend to agree with the above authors. Screen size is one of the biggest challenges and it cannot be either resolved or ignored by educators because “the human visual perception is limited to the level of small detail they can see which also affects their attention span” (Maniar et al., 2008, p. 51). However, Maniar et al. (2008) were convinced that by zooming in on the screen

to make videos (and images) bigger, such problems could be overcome. This is because they found that students lean towards an overall positive attitude to M-learning and watching videos can significantly improve their knowledge of the subject area. In the latest smartphones and tablets, we only need to rotate the screen to the right or left to see videos in full screen.

Despite this, I believe it is inadequate for disabled or even fully able bodied individuals who have to read from a small screen to have to zoom in and scroll a screen from left to right to read content or watch a video. We, as teachers, educators and policy-makers, must acknowledge that such barriers exist and refrain from delivering lessons that contain overly long videos or videos that require a high screen resolution. In other words, we need clear pedagogical objectives before using any technological tools, besides a clear understanding of the relationship between such pedagogical objectives and the capabilities of technology.

Salaberry (2000) exemplifies the relationship between pedagogical objectives and the capabilities of technology tools, which might guide the implantation of new pedagogical activities. He points out that, while the instructor can use a word processor which is particularly designed to achieve a learning objective by depending on innate aspects of the tools (e.g. a spelling and grammar checker or thesaurus) he may fail to undertake specific pedagogical activities (e.g. writing composition). The instructor may also benefit from the apparent drawbacks of the word processor for designing other pedagogical activities. For instance, the word processor sometimes offers unreliable responses (e.g. unclear translation or thesaurus). This can be used to challenge the students' competencies and awareness and drive them to search for more accurate and reliable meaning from other resources (e.g. dictionaries, Google). Thus, the relationship between pedagogical objectives and the capabilities of technology is obvious, where "a change implemented at the procedural level may generate distinct pedagogical outcomes without needing to rely on approach or methodology" (Salaberry, 2000, p. 31).

According to Levy (1997), it is necessary to find a fit between the capabilities of the technology and the requirements of the learning objectives. Therefore, "this

implies early consideration of the technology to be used” (Levy, 1997, p. 53). Significantly, with my intention to use smartphone apps, it is important to consider the drawbacks of such handheld devices and also the accompanying applications (Twitter, WhatsApp, or BlackBerry Messenger (BBM)). For example, the drawbacks of smartphone camera resolution is that it may prevent students from capturing sharp, clear pictures (at least not like a digital camera), which would help them to make sense of the phenomena/case under study. However, this drawback may force the teacher (in this case, me) to design pedagogical activities that require more collaborative learning, where students have to work together to define and present a set of pictures they have collected from various locations.

In this sense, I should design a learning activity that plays to the strengths of the technology, not to its weaknesses. I could argue that certain types of activities may not be best suited to mobile phones, but others, which require quickly looking things up, or perhaps communication between participants, are more appropriate. More details about the activities designed for this study can be seen in the Methodology Chapter.

Returning to explore more challenges, M-learning may not always suit all students or all situations (Kukulska-Hulme & Traxler, 2005). Besides, not everyone owns a smartphone (Traxler, 2009) and it is not an excuse to disadvantage some students, simply because they do not have a smartphone (Welsh & France, 2012).

There are in fact other factors that can have a negative impact on the full adoption of M-learning by instructors, teachers and educators and this is also true of the Kuwaiti context. For instance, the age and skills of the teacher, the cost of offering handheld devices to students and staff and infrastructure - changes in large educational institutions are normally slow (Chan 2012). Finally, such handheld devices “are not designed with the education market in mind” (Peters, 2007, p. 131).

A small-scale project carried out by Wishart (2009) involved all teachers and trainee teachers in one secondary school being given a handheld PDA for the academic year. Wishart (2009), found that some of these teachers were not convinced about PDA use. It seems that they regarded such new ways of learning as a threat to their established teacher-centred paradigm (Thamraksa, 2003). This

is a clue to teachers' resistance, where "some teachers resist changing their old beliefs and usual teaching practices. Such resistance may occur from the deeply rooted 'righteous guru' or 'impartor of knowledge' image fixed in their head" (Thamraksa, 2003, p. 66).

Students also sometimes resist using technologies; for example, Beckman, Bennett, and Lockyer (2014) are persuaded that different students have varying preferences for the kinds of technology they use and sometimes, they might not wish to use any. What is more, there is some resistance to using student-owned smartphones in education (Johnson et al. 2011). Some students, according to Thamraksa (2003), reject such new approaches since they are not interested in just having clues to something they are being taught. Thamraksa (2003) justifies this by saying that some students and teachers adhere to the notion that knowledge must be transferred, so they wait for teachers to spoon-feed them.

This is evidently a complex situation, but I believe the advantages of teachers and students using mobiles and smartphones outweigh the disadvantages, particularly if we recognise these constraints and try to mitigate and neutralise them. I believe it is inevitable that such modern, portable devices will be used at some point because of their important educational benefits, as discussed earlier.

### *3.3.8 Participatory Simulation (PS)*

According to Naismith et al. (2004), PS gives rise to "the most compelling examples of constructivism in learning through M-technologies" (p. 12). Expert researchers in the field of M-learning have indicated that through their own PS, learners play key roles "in an immersive recreation of a dynamic system" (p. 13). Thus, every student with a smartphone device can be a "part of the dynamic system they are learning about". Naismith et al. also explain, "they do not just watch the simulation, they are the simulation" (p. 13).

Tansey and Unwin (1969) declared that simulation takes learning out of the area of abstraction and makes it a participatory skill. Bruner (1963) believed that constructivist learners are participatory learners as they learn by doing and this is of particular benefit "where human reactions, interactions, and emotions are

involved” (p. 25). Thus, it seems that learning by doing is one of the issues that portable devices such as smartphone apps can be useful for.

Naismith and his colleagues illustrated the aim of such an approach by highlighting the need “to move the simulation away from the computer screen and more into the tangible world that students can interact with” (Naismith et al., 2004, p. 13). By making themselves part of the simulation itself, they become more engaged in the learning process and can instantly see the effect of their actions on the whole system. Thus, the activities of my students (pre-service teachers at PAAET) can be applied to the role of real teachers and guide supporters and peers to determine their effectiveness and impact on others. More likely, playing a simulation role (of a real teacher) and peer collaboration can help build a sense of meaning, followed by constructing knowledge. In addition, it may help students remember information.

Confirmation has also come from Saunders et al. (1988, p. 10), who points out that “simulation games and role plays emphasise relevance and they value the importance of personal experience through participation”. Saunders continues, emphasising the enhanced motivation, retention of information, independent discovery, revisiting of previous lessons and results amongst participants. Furthermore, Saunders et al. (1988) highlight the significance of simulation and role-play approaches, saying, “[s]imulations and games should be used to stretch students; there is no limit to make the activity interesting, to give it life and make it memorable” (p. 15).

Again, as with any approach, criticisms have emerged. Naismith et al. (2004) argues that although some studies have showed positive responses from participants, there are still concerns about whether learning from PS is transferred to other contexts. They point out that such questions remain without explicit answers.

However, as the main focus of social constructivism is that participants are active, not passive, I expected my students to be more active and to take responsibility for their own learning. One of the aims of this study is to explore the use of smartphone apps to enable rich and interactive learning experiences, where the pre-service teachers play the role of, and hence learn how to be, a real teacher

and guide. The PS approach involves learners playing active roles in games where “a dynamic system or process” is simulated. The “key challenge” in this is to ensure that “the technology is unobtrusive, so that it facilitates rather than hinders interactions between the learners” (Naismith et al., 2004, p. 22).

Adopting such a principle – PS - in the real sense of a word game or role-play can be a big challenge for many reasons, including the theoretical nature of the course I intend to teach, the large number of students who usually enrol on such a course (e.g. normally between 45 and 65 students). Furthermore, I will be the teacher, among other things (e.g. researcher, technician for the LMS and WhatsApp) and time will also be limited. There is also the possibility that students will drop (withdraw) from the course due to the extra activities and work which are associated with social constructivism, especially as similar courses are available with different teachers and less cumulative work. As an alternative, students will assign an effective role related to their concern (their course), which is the role of a real teacher (in-service teacher), responsible for asking, answering and responding to questions, as well as helping colleagues by presenting different kinds of knowledge through links, images and videos related to their course of study at any time and from anywhere via their smartphones. This responsibility will be shared equally amongst them and they will all be encouraged to act as in-service teachers, providing guidance for others.

The students will be instructed to freely choose and enact the role as they wish, following unstructured rules. This is to prevent any sense of workload, as they will be asked to play this role, bearing in mind that not all may be at the same skills level. Furthermore, even though education is a serious activity it can also be fun and something to be pleased about (Society for the Advancement of Games and Simulations in Education and Training, 1988).

In fact, the idea behind employing participatory simulation in this study is to achieve more than one purpose, such as measuring smartphone apps’ capability to facilitate the in-service teacher’s role and motivate students by playing a role that interests them. “Motivation is an intrinsic part of games and this contributes greatly to engaging the student’s interest” (Matheidesz, 1988, p. 72). Furthermore, pre-service teachers can gain teaching experience before entering the teaching

field. A good relationship exists between this principle and CL principles as the simulations offer chances for collaborative learning (Colella, 2000). This is also a good reason to choose this principle (i.e. PS) as it can lead to CL, which is one of the main investigations in this study. Furthermore, activities based on PS could enable me to apply – Vygotsky’s ZPD. Therefore, one concern here involves understanding whether smartphone and the accompanied apps allow pre-service teachers to take more responsibility and play new roles to achieve productive CL.

### *3.3.9 Challenges and Barriers in Kuwait*

The question deserves to be answered now concerning the barriers to the full integration of technology into PAAET in Kuwait. Locally, one of the biggest challenges for HEIs in Kuwait is the large number of students and shortage of staff (Al-Ali 2010). However, this does not apply to schools, where there is one teacher for every 11 students in Kuwait, which is better than the average rate of one teacher for every 17 students in Economic Cooperation and Development (OECD) countries (for Tony Blair’s vision for education in Kuwait, see the Arabic Society For Academic Freedom, 2009). Unfortunately, a sufficient number of teachers will not offset inadequate numbers of computers. According to Alkhezzi and Abdelmagid (2011), publicly funded schools in Kuwait suffer due to a shortage of computers in classrooms.

The second challenge is contextual (i.e. social and educational challenges), which may include:

- A. Accessibility and the cost of technology.
- B. Assessing outdoor learning or learning support across a range of contexts.
- C. Developing an appropriate theory of learning for the mobile age (Sharples, 2000; Sharples et al., 2007; Moore, Oussena & Zhang, 2009).
- D. Explaining how to manage issues of content security and plagiarism.
- E. Describing exactly how to preserve personal content and private information (Masters & Ng’ambi, 2007; Duncan-Howell & Lee, 2007; Crescente & Lee, 2011).

#### F. Specifying how to keep up with the constant evolution of handheld devices models/technologies and functionality.

The theme of cultural factors comprises many challenges; for instance, cultural and social values, religion, politics and the dominance of traditional teaching methods. According to Al-Fadhli (2008), in Kuwait, cultural and social values are commonly centred on gender segregation and norms in Kuwait lay down many boundaries as regards female students, particularly if they are married or raising children (Al-Ali, 2010). This often leads to a lack of interaction, self-confidence, or opportunities to meet people of the opposite sex in order to exchange ideas (Al-Fadhli, 2008). If we focus on the GCC context, for instance in Qatar, we may find that children might not enrol due to parental anxiety, where they feel vulnerable about Internet use (Weber, 2010).

Noticeably, approaches like E-learning or blended learning may not be desirable for all teachers (e.g. at Kuwait University, some sessions combine both male and female students), because they may cause a conflict of culture and norms, given that it would become difficult to control the patterns of interaction between male and female students (e.g. interaction through the discussion board in an LMS) (AL-Huwail et al., 2008). In such a culture (namely in Kuwait), Al-Huwail et al. (2008) point out that religion and politics are sensitive issues which need to be considered by instructors when trying to adapt E-learning.

A major challenge in the Kuwaiti context is the dominance of traditional methods of teaching and teacher-centred approaches, even in this technological era. For example, at PAAET, the students are familiar with learning via a teacher-centred approach on the teachers' preparation programme (Alayyar, Fisser & Voogt, 2009). Here, methods of teaching and assessment are still dedicated to indoctrination and discourage dialogue, discussions, or active learning among students in schools and HEIs in Kuwait (Ghaith 2013).

Furthermore, a huge number of students, combined with a shortage of faculty members at PAAET, for example, represent another major challenge. The expanding number of students has put the facilities, e.g. classrooms, computer

labs, libraries, etc. under high pressure. Workload and a shortage of time, especially once teachers want to manage virtual classrooms, are two of the many problems faced in the Kuwaiti context. Since public HEIs, e.g. Kuwait University and PAAET, already suffer from a lack of faculty members, it is expected that these faculty members will also suffer as a result of excessive workload and will reject extra tasks, like planning to use or integrate technology (Al-Ali, 2010; Ali & Magalhaes, 2008). Even if they do plan to use technology,

“The Kuwaiti distance learning project does not suggest any pedagogical model or raise any pedagogical issues concerning the e-learning environment. It is left to the faculty members to find out 'what to do' and 'how to do'” (Al-Ali, 2010: 6).

This shows that both teachers and students can suffer as a result of insufficient administrative support (Almutairi 2014). Kuwaiti administrators fail to realise that teaching and learning in a virtual classroom is in itself a challenge to both teachers and students (Al-Ali 2010). Changes to teaching and learning methods need to be coupled with and supported by a management change in order to be fruitful (Al-Sellemi 2010). Insufficient administrative support raises yet another challenge, which is the fear of change (Ali & Magalhaes, 2008). According to Al-Ali (2010), faculty members at ETD, PAAET, who are supposed to use and encourage others to use technology, fail to do so. This bizarre finding confirms the need for more investigation in order to understand the reasons behind their attitude and how to encourage technology use.

Shyness and a lack of self-confidence are further issues in the Kuwaiti context. The dominant traditional teaching method does not help students to be self-reliant or to become critical or creative thinkers. Such traditional methods isolate students, increase shyness and isolation and decrease self-confidence. One of the reasons behind the failure of some of the projects run in this context is the elimination of faculty and student voices (Al-Ali, 2010).

In addition to the above, poor English language proficiency increases resistance among students and even some teachers to technology, particularly in schools, especially as the most effective LMSs or educational tools are English-medium (Al-Fadhli, 2008; Al-Hunaiyyan et al. (2008); Ali and Magalhaes 2008). A total of

700 undergraduate students from the College of Education (COE) at KU have asked for more Arabic-medium courses (Safar 2012).

A fear of change, amongst other challenges discussed earlier, will also increase resistance to using technology amongst both teachers and students. For instance, Al-Ali (2010) found that a few teachers have resisted using technology or engaging in E-learning projects due to suspicions about hidden agendas, while Alayyar et al. (2009) allude to the amount of time it consumes to create effective blended learning (BL) environments as a crucial factor in the rejection of technology.

Students' reasons for resisting the use of technology in education are sometimes similar to those cited by teachers; for instance, a fear of change and excessive workload, combined with the amount of time and effort expected. However, reasons for resisting technology use are sometimes unique to the individual; for example, the choice of boring or irrelevant technology by officials in schools and HEIs will increase such resistance (Fullan & Langworthy, 2014).

The third challenge is technical; for instance, connectivity and battery life, key size and screen size, which may inhibit video-based learning (Maniar et al., 2008). Moreover, as with PCs, viruses may spread through handheld phones and memory is often limited (Elias, 2011). Authors like Xing et al. (2011), Dagon et al. (2004), Ekanayake and Wishart (2014), Crescente and Lee (2011), Rekkedal and Dye (2007) and Yang et al. (2013) have summarised most of the technical challenges, such as the ongoing risk of sudden obsolescence, a lack of data input capability, standardisation, or unavailability of Wi-Fi in many locations. There may also be the problem of low bandwidth and screen resolution, limited interoperability and processor speed. Files may even be lost. All these problems could drive teachers to believe that such handheld devices are unreliable. Technical challenges of this nature may therefore have an undesirable influence on their use and acceptance (Facer, Faux, & McFarlane, 2005).

There are in fact many technical challenges that have led to unsuccessful attempts to integrate technology into education in Kuwait. For example, accessibility, usability, convenience, slow Internet speed, a lack of infrastructure and the unavailability of computers have all been found to be contributing factors as regards teachers' and students' perceptions of the use of technology in education

(Al-Ansari, 2006; Alfajjam, 2013; Ali & Magalhaes, 2008; Alkhezzi & Abdelmagid, 2011). In actual fact, Al-Fadhli (2008) found that more than 55% of students (from a small sample size: Information Systems students at Kuwait University) had technical problems accessing the LMS provided for one course. What is more, All 175 participants involved in the investigation carried out by Safar (2012) in the COE at KU emphasised that it is important to develop and maintain the system (the online training system) on a regular basis in order to reduce technical errors.

If we look at the term 'E-learning', it is relatively new in education, especially in GCC countries and only a limited number of local suppliers offer E-learning systems (Al-Fadhli, 2008; Ali & Magalhaes, 2008). Regrettably, after seven years (i.e. up to 2015), the situation remains the same. Searching for suitable and easy to use LMSs that fully or partly support the Arabic language is still difficult. Thus, many E-learning projects in schools or HEIs in Kuwait have failed. In fact, this is not the only technical reason for unsuccessful attempts to integrate technology into education; for instance, there is also a lack of consideration for teachers' and students' voices, a lack of clear pedagogical vision (Al-Ali, 2010) and a lack of understanding of what it takes to transfer printed materials to an online format (Al-Hunaiyyan et al., 2008).

In addition to the above, there is the problem of limited time being available for training (Ali & Magalhaes, 2008), combined with a shortage of well-trained teachers, an absence of instructions on how to use ICT in the classroom (Alkhezzi & Abdelmagid, 2011; Al-Sharija, Qablan & Watters, 2012) and a lack of supplementary materials, e.g. no recorded online lectures and no supporting CDs (Sharafuddin & Allani 2012). I could add that there are no demonstration videos on how to use some of the suggested websites or technological tools presented by teachers or officials in HEIs in Kuwait, particularly in Arabic. Moreover, there is a lack of technical support and resources (Alkhezzi & Abdelmagid, 2011).

In two Kuwaiti public elementary schools, Alkhezzi and Abdelmagid (2011) found that,

"Despite the fact that computer labs are present, teachers face some challenges in using them with their students due to 1) the lack of connection reliability, 2) the lack of frequent computer maintenance, 3) insufficient number of computers for each student, and 4) the

lack of electrical jackets that allow all computers to be connected” (Alkhezzi & Abdelmagid, 2011, p. 11).

In the end, the question is; ‘can smartphone and the accompanied apps actually overcome some of the above challenges (e.g. contextual, cultural and technical) at PAAET and in the Kuwaiti context? This is what will be explore next.

### *3.3.10 Can Online Tools (e.g. Smartphones) Overcome Barriers, Namely Cultural and Contextual Barriers?*

Online tools in the hands of Kuwaiti students, especially smartphones, may overcome certain cultural barriers. For instance, Heble (2007, cited in Weber, 2010) - an educator at Sultan Qaboos University in Oman (from the same GCC region), asserts that female students can be encouraged to overcome their traditional reticence in mixed-gender groups if online tools are used. Heble states:

“The use of on-line tools certainly seems to have encouraged [my female Omani students] to formulate and express their opinions and to communicate with their male counterparts at a level that would probably be unthinkable in a face-to-face educational situation” (cited in Weber, 2010, p. 5).

However, in Saudi Arabia (KSA), another country in the same region (a GCC country), Al-Jarf (2005) found that the virtual environment may not be considered by Saudi female students. Al-Jarf noted that her female students were shy, more anxious and hesitant to register in the LMS she had implemented (i.e. Moodle). Furthermore, others sought to hide their “identity by registering using a male’s name, using their first name and initials, deleting their e-mails, or using ‘anonymous’ instead of their real names” (Al-Jarf, 2005, p. 19).

The difference in the results of the two studies, although the two countries are located in the same region (GCC), is apparently due to the difference in culture, norms and customs in each country, especially in the extent of male and female segregation. For example, despite the lack of accurate official data, as far as I know in KSA, the separation between male and female students is at 100%. In Kuwait, it reaches roughly 50%, but in Bahrain, the percentage drops to 10% or less. These results and challenges warn us, specifically as teachers in this region, not to be too excited or overly eager to adopt any type of technology, without

consulting the end-user (the student) and being aware of the surrounding socio-cultural circumstances and educational environment.

The above findings call for the use of smartphones and their application in education. In particular, smartphones encourage students to dig deeper and advance their learning, as they consequently have ready access to various sources of information on the Internet (Koh et al., 2013). However, it is very important to recognise that our role as teachers and educators is not simply to use the latest technological tools in order to be thought of as 'good teachers'. Our role clearly goes beyond that. Teachers these days can be mentors, supporters, collaborators, or facilitators in the education process. Even though promising outcomes have been observed from the integration of M-learning, there are many unknown and possible risks which must be assessed (Xing et al. 2011).

To sum up, after reviewing some relevant background information, I believe it is quite explicit why the smartphone is useful in enhancing learning; that is to say, it holds various pedagogical affordances. Further, "new technologies may have a role in reducing cultural and communication barriers" (Kukulska-Hulme, 2007). However, to my knowledge, no study at PAAET in Kuwait has yet tried to discover the potential of smartphones and their accompanying apps with regard to overcoming cultural barriers, or as alternative to an LMS, e.g. Blackboard.

### 3.4 Summary

I believe that in order to better understand how things work and how people interact, particularly if we are using smartphone apps, a qualitative methodology is more appropriate (e.g. case studies, action research, DBR, grounded theory, etc.), with qualitative methods being implemented (e.g. interviews, Q&A sessions, on/off-line field notes, focus groups, etc.) as a means of interpreting trials. This may provide a clue to some student behaviour, ways of interacting, acceptance and rejection, as well as what really goes on during a trial, the types of barriers teachers and students normally face in this kind of trial, and the socio-cultural and historical influences upon them.

Unfortunately, most of the studies conducted in the GCC region and Kuwait have focused on employing E-learning, but few have focused on M-learning. Moreover,

most have applied quantitative methods (e.g. surveys), without going deeper and trying to understand how students interact with the suggested tools and their peers. For instance, Rouibah, Abbas and Rouibah (2011) investigated the intention to use and accept the use of camera phones prior to retail purchase in a collectivist culture, where social groups affect individual decisions. They unexpectedly found that the contribution of social norms to the intention to use camera-mobile phone (CMP) was weak and less than its usefulness. I believe that these results are to some extent unreliable, since they merely count on using a survey to collect data and statistical software, SPSS, to analyse it. In addition, the sample was not representative, focusing only on students from the College of Business Administration at Kuwait University.

In fact, Beckman et al. (2014) assert that from the students' standpoint, there is limited research offering in-depth understanding of students' experiences with technology and there are strategic factors we must remember before integrating M-learning into HEIs (Traxler, 2009). For instance, there are social, cultural and organisational factors that must be addressed, such as human resources, finance, expertise, physical estates, institutional reputation and intellectual property. Furthermore, there are the institution's practices, values and procedures, as well as the teachers', students', and stakeholders' standards and expectations (Traxler, 2009).

I believe these factors are generally neglected or cannot be managed by many researchers, because M-learning is a new approach and most studies which have attempted to implement it have been on a small scale. Wishart (2009) recommends that the role of M-technology in supporting collaborative and constructivist learning must be investigated in future research. Thus, I must address and consider these social, cultural and organisational factors before implementing smartphones in this context, namely PAAET in Kuwait, in order to avoid repeating the mistakes I made when investigating the impact of WebCT on Kuwait University students. In the above trial, I focused on using an LMS (i.e. WebCT) and neglected students' desires, needs, background and organisational, socio-cultural and historical factors. I believe that in developing countries, particularly in GCC countries, many authors and researchers face the same prospect of failure due to a misunderstanding and neglect of these factors.

In Kuwait, for example, the influence of E-learning has so far often failed to deliver benefits and developments to match expectations (Ali & Magalhaes, 2008), whereas in Bahrain, E-learning faces a lack of educational quality assurance in the E-learning arena (Moussa & Moussa 2009). Even in KSA, Al-Shehri (2011) used M-learning technologies to create authentic learning conditions, where he found that in their previous learning, students had not used mobile Facebook. What is more, in her investigation in Qatar, Robinson (2008) pointed out there was very little research on the culturally specific needs of Arab distance learners, Qatar being a GCC country. Robinson (2008) did not find any research on distance learning which referred explicitly to Qatar and in her opinion, this was a big challenge for the government and educators there. I believe that to a large extent, the situation is similar in the other five GCC countries. A lack of research into E-learning, distance learning (D-learning) and M-learning will have a negative influence on the decisions of educators and policy-makers over whether to employ these learning approaches.

Thus, one of my initial reasons for carrying out this investigation relates to my belief that we, as educators, researchers and teachers in this region (i.e. GCC countries) and especially in Kuwait, must carry out research that focuses on investigating the pedagogical affordances of M-learning and create or follow systematic criteria for M-learning implementation in our specific context. I also believe it is important to transfer our focus from smartphones as mediating tools to student-centred learning that considers students to be the focus of the learning process, as Thamraksa (2003) illustrates. In addition, we concentrate on encouraging students to work collaboratively on pre-designed pedagogical activities to construct their knowledge. "Collaborative scaffolding is provided by the designed mobile collaborative technology, students' existing personal relationships and the teacher's facilitation" (Boticki, Looi & Wong, 2011, p. 190).

There are more reasons that have encouraged me to investigate the pedagogical affordances of smartphone applications for CL. For instance, in theory, M-learning is quite good as a new approach to learning, but there is little evidence about its actual impact upon changing curricula, motivating participants and encouraging policy-makers to adopt it (Traxler, 2005; Towards Maturity Report, 2013; Lightfoot, 2012). Thus, up-to-date research must focus on understanding not only what

works, but why diverse approaches like M-learning are effective (Higgins 2009). Very often, as many studies have demonstrated, the use of technology by students will raise more questions than answers (Bennett & Maton, 2010; Crook et al., 2013, cited in Beckman et al., 2014).

I believe that understanding the real influence of such new artefacts like smartphones cannot be achieved or comprehended unless I apply them in a real setting (i.e. here, within the Kuwaiti context). This is especially the case because “Students in today’s schools have ever-increasing differences in thinking abilities, social skills, prior knowledge, and achievement” (Ebrahim, 2012, p. 299). Moreover, there is a gap in the literature on smartphone-related research, particularly in Kuwait. In addition, M-learning could be considered as a means of bridging the gap between formal and informal learning (Duncan-Howell & Lee, 2007). Furthermore, with mobiles, students can extend their classroom learning to homework, field trips and museum visits (Sharples et al., 2005).

Therefore, I am keen to investigate the pedagogical affordances of such technology (smartphone apps) on the one hand, and on the other, to ensure that some of the abovementioned claims are accurate. In other words, I need to test those assumptions which claim that M-learning possesses pedagogical affordances and how much learners appreciate incorporating M-learning into their own learning. For example, Al-Fahad (2009) carried out a study in KSA to investigate how M-learning could be most effectively used to enhance the retention of Saudi female students seeking a bachelor’s degree. The results of his survey show a high ratio of satisfaction with M-learning amongst female students, attaining 95.3%. This encouraging result needs more investigation to discern whether it is solely confined to this context and to female students, or if it can be generalised to other contexts and a different gender. The current research is an attempt to study M-learning in Kuwaiti settings and this paper endeavours to extend the body of knowledge on the pedagogical affordances of smartphone apps for CL amongst pre-service teachers at PAAET.

Based on an analysis of the LR, there are many other gaps and questions which need to be addressed in this study. For instance, researchers and educators in Kuwait might not be familiar with this kind of paradigm (e.g. DBR). Besides, there

is no evidence of a systematic investigation having taken place into the impact of smartphone apps on communication, interaction and learning outcomes, or on enhancing collaboration. Furthermore, what are the perspectives of the pre-service teachers and teachers at PAAET on CL and smartphone apps? And what type of apps do they favour? Moreover, can smartphone apps allow pre-service teachers to take on more responsibilities and play new roles to achieve productive CL? What is more, what are the barriers that prevent the full integration of technology into PAAET in Kuwait? Can smartphone apps overcome certain obstacles, e.g. context, cultural and technical related to PAAET and the Kuwaiti context? Finally, what are the guidelines for the successful implementation of smartphone apps in teacher training?

Hence, in order to understand what differences such applications can make in enhancing students' communication and collaboration, I will endeavour to fill the vacuum and integrate smartphone apps into PAAET. Hopefully, this will ultimately enhance collaboration between students and subsequently, academic performance, in a move towards the use of mobile phones in the service of education in the Arab region in general and in Kuwait in particular.

## Chapter 4: Methodology

### 4.1 Outline

In this chapter, I will discuss related concepts, such as the research paradigm, my methodological choice and the process of design-based research (DBR). In addition to trustworthiness and generalisation. I am suggesting a new version of DBR for PhD students and provide an example of how to implement it.

## 4.2 Research Paradigm

To understand what the word 'paradigm' actually means, we can look at how experts have defined such a word. Chalmers (1982, p. 90) defines paradigms as being "made up of the general theoretical assumptions and laws and techniques for their application that the members of a particular scientific community adopt". Chalmers (1982, p. 91) further argues that a paradigm has five features:

1. It explicitly states laws and theoretical assumptions
2. It standardises ways of applying fundamental laws to a variety of situations
3. Its Instrumentation and instrumental techniques bring the laws of the paradigm to bear on the real world
4. General metaphysical principles guide work within the paradigm
5. It makes general methodological prescriptions for how to conduct work within the paradigm

Thus, a paradigm is a worldview or framework that guides research and practice in the field (Willis et al., 2007). It can therefore help, as the researcher, comprehend the world. Thomas (2009) describes a paradigm as the way in which we think and study the world. To offer other, more comprehensive definitions of the term 'paradigm', Thomas refers to "shared ideas in a particular community of inquiry—thinking habits of researchers—and rules of procedure" (p. 72).

My ontological assumptions are derived from my belief that things are more complicated than they initially appear and there are always different angles on understanding a problem or situation. I simply see myself as a member of a community, not isolated on my own island. I therefore have an effect on and am affected by the world around me.

Furthermore, my epistemological assumptions in acquiring knowledge in social sciences can be arrived at through interactions with others. Feeling, listening, seeing, touching and playing can provide more meaningful experiences and enable me to discover things in the social sciences (Thomas, 2009). Therefore, I will rely on DBR as a pragmatic paradigm to explore how participants interact and

collaborate with each other. I especially expect to deal with people who have expertise, thoughts, ideas and beliefs which differ from my own.

I have described social constructivism from a theoretical perspective in the literature review. The social constructivist theory (SCT) associated with Vygotsky's work, is applied in my study to improve understanding of how knowledge can be collaboratively constructed among students. In other words, this theory has helped me generate a broad understanding of the pedagogical affordances of smartphone apps to support pre-service teachers at PAAET, in order to communicate and collaboratively construct knowledge through various activities. Next, I will talk about DBR and demonstrate why I have selected this methodology.

#### 4.2 Methodological Choice (DBR)

This study uses a DBR approach, based on continuous cycles of design, enactment, analysis and redesign (Collins, 1992). When implementing studies involving technical issues likely to be related to practical and social phenomena, it becomes important to find a flexible model. I believe such flexibility can be found in an approach like DBR, as demonstrated in the following paragraphs.

Both O'Donnell (2004) and Bowler and Large (2008) emphasise the significant role of studies conducted by Brown (1992) and Collins (1992) in this area. Brown (1992, cited in Bowler & Large, 2008) points out that DBR was initially referred to as a design experiment, explaining that:

“[t]his name has changed due to problems resulting from the misinterpretation of 'experiment,' a word that suggests a controlled environment and therefore connotes a different intent. Design-based research is not to be confused with the design of research. Nor is it the same as a design study — research that creates new products in a formative manner but does not necessarily contribute explanatory models or theory” (p. 39).

O'Donnell (2004) illustrates that "the changing nature of theories of learning created a press for better methods to study higher-order processes and instructional methods for how to promote such processes" (p. 256). She further adds that the interest of many researchers and educators in enhancing the way

we understand complex learning and instruction has increased. In addition, a growing concern which has emerged is for research to be educationally relevant, contributing to the development of education.

In his book chapter entitled 'No Significant Differences Revisited', Reeves (2005) discusses the 'No Significant Differences' phenomenon, pointing out that educational researchers have conducted media comparison studies since the earliest days of technology's introduction into education. Reeves (2005) claims that, for many years, such media comparison research studies have usually led to results indicating 'no significant differences'.

It is likely that this situation has occurred again in this context (PAAET, Kuwait) because, in general, many researchers seems neglect the importance of the social and cultural contexts underlying the studies. They may also fail to consider essential factors which could affect the results of a study. For example, issues such as the important role of the participants and their perspectives on using new technology, stakeholders, the division of labour and rules could be neglected. Reeves (2005) claims that comparative research designs have been applied to each new educational technology in the development process, including programmed instruction, instructional television, and more recently, computer-based instruction.

However, Reeves (2005) points out that "Fortunately, there are better ways to do research to advance the state-of-the-art of online learning" (p. 300). For example, he justifies the urgent need for what has been called design research, to provide design guidelines for developing and implementing effective on-line teaching and learning environments, or alternatively, development research (Van den Akker, 1999, cited in Reeves, 2005, p. 300). In contrast to media comparison studies, design/development research:

1. Focuses on broad-based, complex problems critical to education;
2. Involves intensive collaboration among researchers and practitioners;
3. Integrates known and hypothetical design principles with technological affordances to render plausible solutions to these complex problems;
4. Conducts rigorous and reflective inquiry to test and refine innovative learning environments as well as to reveal new design principles;

5. Requires long-term engagement that allows for the continual refinement of protocols and questions, and
6. Maintains a commitment to theory construction and explanation while solving real-world problems.

The above encouraging benefits presented by Van den Akker (1999) and others persuaded me to adopt a DBR methodology in this research. However, since educational research in this field (i.e. mobile learning, or M-learning) is still evolving and the picture has not sufficiently matured, with uncertainty dominating in most cases, unpredicted issues might be revealed. In addition, by utilising mobile devices and more sophisticated smartphones, “the scope of use expands to fulfil emergent needs” (Gilbert, Sangwan & Ian, 2005, p. 207). This unpredictable nature of mobile and smartphone devices, besides the expanding scope of use, without doubt requires a flexible methodology, such as DBR. In particular, DBR is pragmatic, since it can help solve existing problems by designing and enacting interventions, extending theories, and refining design principles (The Design-Based Research Collective, 2003).

What is more, I believe that via DBR, my research questions enquiring into participants’ perspectives, various pedagogical affordances and constraints, the design of learning activities using smartphone apps (WhatsApp), together with an exploration of the issues emerging from an intervention based on an actual setting could be answered. Discovering how things happen and why in real life situations (e.g. interaction and collaboration between students) is one the aims of this investigation. Brown and Campione (1996) and Collins (1999) illustrate that DBR is grounded in real-world contexts, where students interact with each other and within design settings, instead of being isolated from daily practice in a laboratory setting.

Further reasons for adopting DBR include addressing practical subjects in order to uphold a crucial understanding of design, learning and teaching and this is one of the things that educational researchers endeavour to do, as Orrill, Hannafin and Glazer (2003) point out. Additionally, I prefer to work with actual practitioners (e.g. the three teachers in this study) and participants (e.g. the pre-service teachers) to determine the nature of the problems and find appropriate solutions. According to

Cobb et al. (2003; cited in Wang & Hannafin, 2005), “Design-based research stresses collaboration among participants and researchers throughout the processes” (p. 9). Nevertheless collaboration with practitioners and participants in this sense can be a double-edged sword; on one hand, it can offer more ideas, new thoughts and solutions, but on the other, responsibilities and tasks may be interwoven. Next, I will talk more about DBR and the model I have chosen.

### 4.3 The Process of Design-Based Research (DBR)

This section reviews and follows the phases of DBR as depicted by Reeves (2006) (see Figure 5.1).

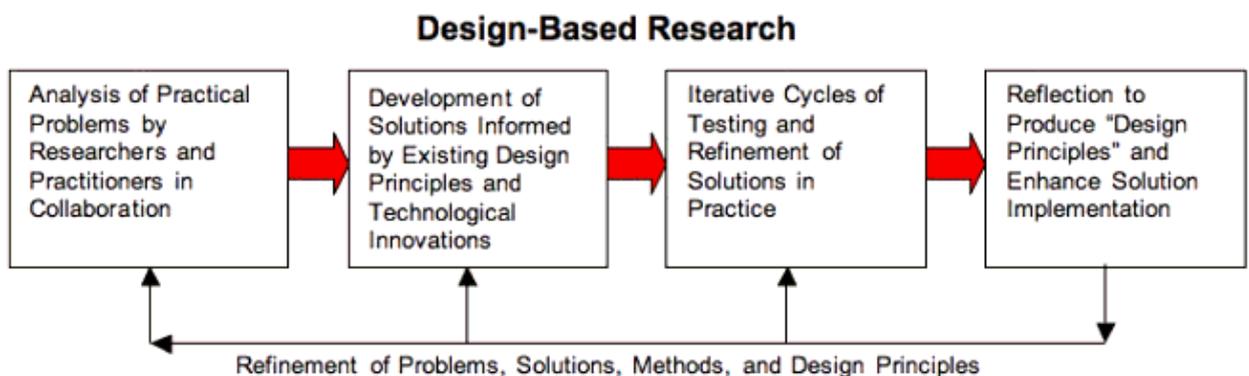


Figure 5.2: Design-based research (Reeves, 2006, p. 59)

Reeves (2006) outlines three cornerstone principles of this research framework: first,

“addressing complex problems in real contexts in collaboration with practitioners; second, integrating known and hypothetical design principles with technological advances to render plausible solutions to these complex problems; and third, conducting rigorous and reflective inquiry to test and refine innovative learning environments as well as to define new design principles” (p. 58).

Reeves’ (2006) design is the basic guide for mapping out this study, it — along with Herrington et al. (2007) — tells us exactly where to start. The first step is to

analyse the problem with practitioners, although this step has been criticised by Dede (2004), who wonders, “Do we as scholars start with what practitioners identify as a problem (e.g. how can an unqualified reading teachers be trained to use a didactic teacher-proof approach to compensate for their weaknesses), or with what we believe are theoretically promising interventions that would require transformation of the current system to effectively implement?” (p. 113). The second step is to initiate the development of solutions by relying on known or hypothetical design principles from previous studies, personal experience and participants’ perspectives. Third, there are the iterative cycles refining the location of the design. The final stage is a reflection, aimed at producing design principles and solutions.

Herrington et al. (2007) suggest that DBR methodology can be practicable for PhD students only if they amend it to suit the context and accompanying conditions and challenges. They suggest a systematic, clear, adaptable and flexible model for PhD students, but advise that “doctoral students should be encouraged to vary these sections as required to suit their own purposes, and the nature of their research” (p. 4092). Another reason is the flexible nature of DBR (Van den Akker et al., 2006; Wang & Hannafin, 2005).

#### 4.4 Using DBR in This Study

Nieveen and Folmer (2013) point out that there are two reasons for using DBR. The first of these involves finding answers to complex questions brought up in education, which may require high-level, research-based interventions. The second major reason for using DBR is to obtain a clear and well-structured set of design principles (Linn et al., 2004; Van den Akker 1999), applicable for many different purposes and used by various actors (researchers, future users, instructional designers, and policy-makers).

Nieveen and Folmer (2013) also suggest that design researchers carefully combine and link design and research activities, in order to achieve the desired end (high-quality intervention and design principles). In the book entitled *Educational Design Research*, Plomp (2013), as well as Nieveen and Folmer (2013) suggest starting with a preliminary phase, followed by a prototyping phase

and finishing with a formative evaluation phase (see Table 4.1). Furthermore, Reeves (2006) and Herrington et al. (2007) propose another tag for the final phase, referred to as the ‘reflection phase’.

However, I have used a combination of suggested DBR designs from various researchers (e.g. Reeves, 2006; Herrington et al., 2007; Plomp, 2013; Nieveen & Folmer, 2013; Hilliard, 2013) to produce a practical version of DBR, since the pragmatic nature of the DBR approach is one of its strengths (Oliver, Herrington & Mckenney, 2011).

Table 4:1: The revised version of DBR for this study

<b>Phase Tag</b>	<b>Phase Aims</b>	<b>Phase Questions</b>	<b>Phase Activities</b>	<b>Phase Methods</b>	<b>Phase Production</b>
<b>Preliminary research phase</b>	To gain insights into the existing problem and the possibilities for improvement and innovation; to specify the desired tentative features of the intervention (tentative design principles) and how these can be developed.	The core question is: Which educational problem does the intervention need to address? A preliminary theory of how best to address this problem.	Analysis of the user’s practice (needs and context analysis) and an exploration of the scientific knowledge base (Literature Review (LR) and expert appraisal).	LR + semi-structured interviews with 3 teachers at PAAET; a Q&A session with <i>n</i> =65 students.	A first set of tentative design guidelines and an accompanying design proposal for the intervention are in place (Framework 1).
<b>Prototyping phase</b>	Development of a sequence of prototypes to be tried out and revised on the basis of formative evaluations (Plomp, 2013). To produce the ‘design principles’ and	What successful design principles should we follow (when using CL and Smartphone apps for communication)?	Participants engage in collaborative activities in two iterations (micro-cycle research) outside the classroom via LMS-Haiku and WhatsApp.	Focus group, field notes, observation and interactional analysis.	Frameworks 2 and 3.

	enhance solution implementation.				
<b>Reflection phase</b>	Reflecting on the findings in relation to the overall research questions and the initial LR in order to bring out contributions to knowledge, methodology and practice.	What practice and theory are suitable for this context?	The researcher reflect on the prototyping phase to achieve its aims.	Writing the Discussion and Conclusion Chapters.	Design principles, designed artefact(s), and professional development.

#### 4.4.1 Preliminary Phase

By conducting the preliminary phase, design researchers search for “solutions for complex problems in educational practice or to develop or validate theories about processes of learning and teaching” (Plomp, 2013, p. 18). This begins by analysing the educational needs of certain individuals or groups (e.g. teachers, students and policy-makers) and their perspectives in a specific setting, so as to be able to determine what will or will not work, as well as to discern how to make it work. Additionally, the problems of the respective education context/setting must also be explored and analysed.

Plomp (2013), as well as Nieveen and Folmer (2013) suggest asking a set of questions to clarify some of the most important issues before starting the study, e.g. What is the user’s environment like? In terms of the needs and capacity of those concerned, what is the scope of the innovation? This could range from the participants’ readiness to welcome change, to the resources and facilities of the school involved. It is also necessary to ask whether there is room for collaboration and to enquire about the practical resources needed for development, such as time, funding and personnel. This is done by implementing a set of methods to collect such answers, e.g. through semi-structured interviews with 3 teachers at PAAET (in order to analyse their perspectives on the challenges in this context), a Q&A session with  $n=65$  students (to analyse their needs, abilities and

perspectives) to address similar problems, fill in gaps and prescribe solutions. These strategies are intended to help me make valid decisions before starting the main study.

In fact, many other questions should be asked in this phase, e.g. concerning the type of educational research outcomes and insights from various disciplines, which can be applied to the design. Moreover, appropriate and feasible interventions should be identified and drawn upon to inspire the study and finally, we need to observe the impact of such tools and theory and learn lessons from their implementation.

Moreover, it is very important to consult practitioners (Reeves, 2006) and constantly refer to the Literature Review, in order to be able to construct an insightful, state-of-the-art knowledge base (Nieveen & Folmer, 2013). Van den Akker (2013) argues that without consulting practitioners, it is impossible to gain an explicit understanding of an anticipated problem in curriculum implementation (except, as I believe, if the researcher is also a member of the relevant academic community and can use her/his own expertise to evaluate such problems). The participation of practitioners (teachers, subject or pedagogical experts, instructional designers, etc.) is one of the crucial features of educational design research (Nieveen & Folmer, 2013).

Additionally, “[A] focused and thorough LR [literature review] is needed as one of the inputs for designing the first prototype of an intervention” (T. Plomp, personal communication, May 1, 2015). However, it is very important that this phase ends up with “[A] first set of tentative design guidelines” (Nieveen & Folmer, 2013, p. 157). Therefore, after visiting the literature review and applying an informal exploratory technique, as well as a Q&A session in this phase, I will use my conjecture to create a set of tentative design guidelines (Design Framework 1).

#### *4.4.2 Prototyping Phase*

This phase starts by describing a proposed intervention based on the refined Design Framework 1 (a broad description of the future intervention in which there is consideration of its functional parts). “[U]sually, this ‘sketch’ is written based on preliminary research results, including needs and context analysis and a review

of relevant literature” (Nieveen & Folmer 2013, p 159). This is then followed by the implementation of the intervention (Herrington, 2007), consisting of two iterations (Plomp, 2013 calls these ‘micro-cycles of research’). The first iteration should include a description of the participants, the data collection methods, an explanation of how the data will be analysed, and the empirical evidence. This will help revise decisions for developing the second (improved) iteration and thus produce refined design principles (Framework 2). However, it can only happen if the researcher carries out a formative evaluation (Nieveen & Folmer, 2013) (see, e.g. Table 4.1: The revised version of DBR for this study).

The design principles which are expected to emerge (i.e. Design Framework 2) are intended to guide the second iteration, where again, the participants, data-collection methods and data analysis approaches will be presented. The empirical evidence needed to help produce a ‘high-quality’ and completed intervention will consequently be obtained, as well as the final local design principles (Design Framework 3). However, it is not possible to achieve these two outputs (high-quality intervention and final local design), without once more undertaking a formative evaluation.

A formative evaluation must accompany the prototyping phase, in order to reveal the drawbacks and enhance an item while it is being developed. It is in fact a means of identifying ways in which it may be improved (Nieveen & Folmer, 2013). According to the above-mentioned researchers, therefore, formative evaluation must be embedded in every iteration with one or more research question(s), in order to identify best solutions for complex problems.

“[W]e define formative evaluation in the context of educational design research as a systematically performed activity (including research design, data collection, data analysis, reporting) aiming at quality improvement of a prototypical intervention and its accompanying design principles.” (Nieveen & Folmer, 2013, p. 159)

Nieveen and Folmer (2013) suggest some steps for design researchers to follow when carrying out a fruitful formative evaluation. For instance, they need to adopt quality criteria for interventions (relevancy, consistency, practicality and effectiveness), formulating research questions for each development stage, selecting appropriate methods and a suitable sample (participants that can

answer the question(s)). Finally, Nieveen and Folmer (2013) emphasise the significance of the researcher's role in carrying out such formative assessments, e.g. when personally engaging in the research process, involving other practitioners in the research and inviting external evaluators.

#### *4.4.3 Reflection Phase*

The reflection phase is significant for producing 'design principles' and enhancing the implementation of the solution (Reeves, 2006; Herrington et al., 2007). This phase is useful for deciding if the 'realised outcomes' obtained after the formative evaluation are sufficiently close to the intended outcomes (Plomp, 2013). In other words, Plomp suggests that at the end of a piece of educational design research, the researcher might have "developed design principles or a 'local' (intervention) theory for the context in which he/she works" (Plomp, 2013, p. 34). According to Van den Akker et al. (2006) and Herrington et al. (2007), DBR should present three types of outcome: Design principles, curriculum products/designed artefact(s) and the professional development of the participants. I believe that these outcomes are the researcher's contribution to existing knowledge. Also worth mentioning is the following equation, suggested by Plomp (2013, p. 34):

[I]n context Z the intervention X (with certain characteristics) leads to outcomes  
Y1, Y2, ..., Yn.

In the concluding chapter of this educational design research, I will discuss the extent to which the above equation is relevant here. In other words, the final intervention proposed, based on the practical evidence expected to result from data collection, will only be successful if certain contextual characteristics are considered (see 9.2).

#### *4.4.4 Trustworthiness*

Discussion and presenting validity and reliability in any research is very important as they hold the objectivity and credibility of the research (Golfshani 2003). Even that there were some arguments that this is not the point in qualitative research. Still, others like (Lincoln & Guba, 1985; Leininger, 1994; Rubin & Rubin, 1995; Morse et al., 2002) emphasised on the significant of validity and reliability in qualitative research. In particular that there are criticisms and questions directed

towards the lack of standard procedures to ensure the validity of the research in qualitative researches.

Therefore, in the 1980s, Guba and Lincoln suggested adopting new and different criteria than that used in quantitative research (see Table 4.2). This is to ensure rigor in qualitative enquiry. “Without rigor, research is worthless, becomes fiction, and loses its utility.”(Morse et al., 2002, p.2). Words like (truth value, applicability, consistency, and neutrality) have to be included in all researches to be considered worthwhile (Guba and Lincoln, 1981). I believe that a rigor qualitative research can be obtained by following clear criteria. Guba and Lincoln (1980) replaced reliability and validity with the similar concept of “trustworthiness”. Such word “trustworthiness” according to Guba and Lincoln has four aspects (criteria’s): credibility, transferability, dependability, and confirmability.

Table 4:2: Lincoln and Guba’s translation of terms

<b>Conventional inquiry</b>	<b>Naturalistic inquiry</b>	<b>Methods to ensure quality</b>
Internal validity	Credibility	Member checks; prolonged engagement in the field; data triangulation
External validity	Transferability	Thick description of setting and/or participants
Reliability	Dependability	Audit – researcher’s documentation of data, methods and decisions; researcher triangulation
Objectivity	Confirmability	Audit and reflexivity

**Table4.2: Adapted from Lincoln & Guba (1985), and (Ballinger 2006)**

It is worth noting that Lincoln and Guba later admitted, “the issue of quality criteria is not well resolved, and further critique is needed” (Guba & Lincoln, 1994, p.114). Morse et al., (2002) offered a rational justification of what Guba and Lincoln stated. They, Morse and his fellows, pointed out that, it is rational to follow some strategies of trustworthiness to evaluate rigor, but unfortunately such strategies do not in themselves ensure rigor. They argued (Morse et al., 2002) as standards are helpful for assessing relevance and utility, they do not in themselves guarantee relevant and useful research.

For that reason, Morse and his colleagues proposed verification strategies that ensure rigorous research. They defined verification as “the process of checking, confirming, making sure, and being certain” (p. 17). Instead of focusing on ‘what the contribution’ of such strategies, they focused on ‘how to do’ such strategies. They (Morse et al., 2002) argued that the verification strategies will improve researcher’s responsiveness to data and always remind them to be proactive, and take responsibility for rigor. The suggested verification strategies included the “methodological coherence, sampling sufficiency, developing a dynamic relationship between sampling, data collection and analysis, thinking theoretically, and theory development” (p. 18). I believe that following those verification strategies will allow me to evaluate/assess the quality of my research in a suitable way.

#### *4.4.5 Generalisability*

A lack of generalisability is a problem in most qualitative research. As each study is conducted to serve a specific situation or investigate unique phenomena and provide findings grounded in special contexts and environments with unique individuals, groups, or institutions, it is difficult to generalise findings. According to Myers (2000), “small qualitative studies are not generalisable in the traditional sense, yet have redeeming qualities that set them above that requirement”.

According to (Kvale, 1996; Silverman, 2001) generalisability, or external validity have a different character in qualitative research, compared to quantitative research, but most quantitative (experimental) researchers make a huge effort to generalise their results and claim that their findings are adaptable to other situations with different participants. Qualitative researchers, however, are less interested in generalising their findings, but mainly focus on discovering relationships, patterns, interactions and discourse in a specific context.

Walsham (1995), for instance argues that, to some extent, generalisation is achievable for qualitative research, as it forms concepts which can provide precise implications or rich insights. Furthermore, Hammersley (1992) clarifies how we can make generalisations if other studies confirm the findings. He adds that a single case study may be used for inferential generalisation. This means a researcher providing a thorough description of the phenomenon under study and

its context, so the findings may be applied to similar settings. Moreover, Yin (1994) illustrates that the results of single case studies may be generalised to existing theory. This refers to theoretical generalisation and not populations. It means that if patterns found in a single study can be replicated by others, then the theory derived from the original case study will be rendered robust. Naturalistic generalisation is another way of generalising from a small case study. According to Stake (1980), naturalistic generalisation more commonly ensues from a single study to a similar one, than from a single study to a population.

However, in this research, I am not interested in generalising findings or replicability, but rather in gaining rich and deep insights into how pre-service teachers interact and use their smartphone apps to communicate, collaborate to construct knowledge, and play a real teacher's role with their peers in a specific context. Interpretivists — according to Davies (2007, p. 146) — “certainly do not seek to obtain a random or a representative sample,” because interpretivists ask different questions. It is worth mentioning that in general, this study fills a gap and offers some insights into pre-service teachers' perspectives and preferences that might be very useful for both teachers and policy-makers at PAAET in Kuwait and for future investigations.

#### *4.4.6 Procedures to gain validity and reliability (trustworthiness)*

Generalising findings of this study was not a priority or a target for me as discussed earlier (see section 4.4.5). However, I tried to seek validity and reliability, or what Guba and Lincoln (1980) label as 'trustworthiness', to ensure rigour and render this qualitative study worthwhile. Therefore, I adopted Guba and Lincoln's (1980) criteria (see Table 4.2) and precisely the verification strategies suggested by Morse et al. (2002), i.e. “methodological coherence, sampling sufficiency, developing a dynamic relationship between sampling, data collection and analysis, thinking theoretically, and theory development” (p. 18).

Initially, I will start with methodological coherence, where there is a focus on congruence between the selected methods and my research questions. In other words, the questions match the methods, data and analytic procedures. To some extent, I believe I have presented a coherent study, relating my research questions to the data collection methods applied (e.g. see section 1.6), although not all the

questions remain the same, as I had to add new ones and modify or eliminate others during the course of the study. I also chose a flexible methodology that helped me greatly in redesigning and modifying my plans at any time and wherever I thought it appropriate. This was DBR with two iterative cycles. Morse et al. (2002) perhaps support such a strategy in that they hold qualitative research to be iterative rather than linear. Therefore, effective and productive qualitative research works constantly between design and implementation, bringing about and maintaining congruence in the formulation of questions and in the literature, sampling, selection of all participants, data collection and analysis. Furthermore, the social constructivist theory with the two principles I used (PS and CL) was compatible with my ontological and epistemological assumptions, since I perceive reality to be dynamic and changing and embedded within people's socio-cultural and historical lives.

Secondly, Morse and his colleagues emphasise that the sample needs to be suitable, consisting of participants who best stand for or are familiar with the research topic. Conveniently, the sample I chose and the number of participants (n=65 male in the first iteration and n=59 male in the second iteration) was sufficient and presented valuable and largely adequate data (for more detail, see section 2.2). This convenience sample represented my research purposes, since the participants were pre-service teachers in the context I intended to investigate at PAAET. Furthermore, most of the participants were aware of the nature of investigation. They knew what to do, and were able to do it (e.g. using their smartphone apps to collaborate with peers, and play the role of in-service teachers or to offer guidance). Besides, they were familiar with the kind of technological tool they had been asked to use (smartphone Apps). I did not include any new participants at any stage of this investigation, neither in the first, nor the second iteration. Sometimes, however, I felt that interviewing more than three teachers (see section 5.3) and conducting another focus group with the participants, in addition to including new pre-service female teachers, would have led to deeper and more extensive understanding and insight.

Thirdly, Morse et al. (2002) recommend collecting and analysing data at the same time. In other words, the data must be analysed parallel to the data collection. Fortunately, this is what I have done (see section 6.4). I followed the advice of

Ezzy (2002) who pointed out that data analysis commences during data collection in most qualitative research and it is essential to begin analysis while collecting data, as this step will help me gain insight into important issues and plan the first implementation of the first iterative. This iterative interaction between data and analysis is at the core of reliability and validity, according to Morse et al. (2002). Once the data had been collected, I felt more confident that a complete picture had emerged of what was happening with respect to how WhatsApp could be useful for enhancing CL with the participants in a specific context, namely PAAET.

Fourthly, Morse et al. (2002) recommend theoretical thinking, as “Ideas emerging from data are reconfirmed in new data [and] this gives rise to new ideas that, in turn, must be verified in data already collected” (2002, p. 18). Therefore, the data collection and analysis for this study were constantly weighed up against theory, as Thomas (2009) also recommends. While concepts emerged, they were then reconfirmed by earlier data and the literature review and were then checked against subsequent data. For example, I compared the data (i.e. ideas, thoughts, and perspectives) collected using the informal exploratory technique with data collected from participants (the Q&A session) and vice versa, to check for similarities, differences and further concepts. Additionally, I made comparisons with the literature review. However, my data was coded and subsequently grouped into categories via NVivo10. I continually reflected on how some aspects fitted together and focused on checking and rechecking various aspects, allowing me to piece together theoretical concepts, see how they worked together and use them to contribute to the final design principles (see Design Framework 3) in a solid and consistent way.

Fifth, theory may be developed in a very deliberate way, moving from a micro-perspective of the data to a theoretical macro-understanding. Therefore, two processes of theory development are applied; one being the product of the research, as opposed to an imposed framework for guiding the analysis, and the second being “a template for comparison and further development of the theory” (Morse et al., 2002, pp. 18-19). This aspect is compatible with the methodology I used (DBR) as it aims to reflect in detail on the data itself, with a broader understanding of the theory. DBR thus seeks to understand the bigger picture via two micro-iterations, leading to the theory being refined and advanced. This is

because the objective of design/development research like DBR is rigorous and reflective enquiry for testing and developing “innovative learning environments”, while also revealing “new design principles”. More significantly, it remains committed to the construction of theory and providing explanations in the process of “solving real-world problems” (Reeves, Herrington & Oliver, 2005, p. 103).

At micro-level, I tried my best to read and examine each participant’s data and told that story, gave that perspective and presented those beliefs. Furthermore, I tried to show the conflicts/disagreements and agreement/harmony between each of the participants’ stories. To a very large extent, this allowed me to construct a theory of what was happening in this context (i.e. PAAET), how participants were using their WhatsApp smartphone app and why such an app was useful for enhancing CL. The research outcomes, as shown in Chapter Seven (section 7.8) were a set of local design principles (Design Framework 3) that could be used by future researchers as guidelines when trying to integrate smartphone apps into the Kuwaiti context, or similar contexts, e.g. GCC countries.

To sum up, when using any criteria to evaluate research, particularly qualitative research, these criteria must be prepared in advance, if we are eager to establish a rigorous qualitative enquiry. According to Morse et al. 2002, “These strategies, when used appropriately, force the researcher to correct both the direction of the analysis and the development of the study as necessary, thus ensuring reliability and validity of the completed project.” Also according to Morse et al., “The verification strategies incrementally and interactively contribute to and build reliability and validity, thus ensuring rigor” (2002, p, 19). However, it seems to me that even if we are well-prepared in advance for applying such verification strategies, we still might not be able to use all aspects, especially if we adopt different methodologies that are not flexible enough.

## Chapter 5: Consultation with Students and Teacher (Informal Exploratory Technique, and Question and Answer (Q&A) Session)

### 5.1 Outlines

In the previous chapter, I discussed the research paradigm, my methodological choice and the DBR process. In this chapter, I will interview three teachers from PAAET and initiate a Q&A session with 65 pre-service teachers, also from PAAET, in order to reveal some of their perspectives on relevant concepts, like M-learning and collaborative learning (CL). I am also seeking to identify challenges and verify whether my proposition that there is a lack of collaboration amongst pre-service teachers at PAAET might be accurate. Moreover, I hope to gain some idea of their preferences, while also endeavouring to understand something of their roles, responsibilities and rights. This phase will form the basis for the design principles underlying this research and will help with the experiment design for both the first and second iterations. This information-gathering phase is therefore important in the DBR process (Herrington et al., 2007).

Further to the above, I believe that this phase provides a good indication of why DBR is a suitable approach for this study. For example, it involves others (i.e. practitioners/teachers and students) in the decision-making, right from the very

beginning. This will allow me to find out in advance, something about their preferred artefacts and learning methods. In other words, based on this data, I will be able to better decide on the most appropriate ways of teaching and learning and the best artefacts to adopt in this context, i.e. PAAET. This could also lead to a systematic theory being generated on how to establish teaching methods and approaches in future. Moreover, this phase may help generate common design principles or guidelines to be used by teachers at PAAET, to be reflected in improved future practice. Next, I will discuss the ethical procedures, followed by a more detailed illustration of the two stages (i.e. the Informal exploratory technique and the Q&A session). Finally, I will explain how the data was analysed and discuss the findings from both stages.

## 5.2 Ethical Procedures

According to the rules and regulations of the Graduate School of Education at the University of Exeter, all MSc, PhD, EdD and DEdPsych students must complete and sign a Certificate of Ethical Research Approval (see Appendix's A), together with the supervisor(s) and finally, the Chair of the School's Ethics Committee. Additionally, a consent form (see Appendix A-1) is used to request participants' permission before starting to collect any type of data. Furthermore, information sheet presented to participants to clarify their roles and responsibilities as well as the researcher in this study (see Appendix A-2). As a PhD student, I followed these steps:

- A. In order to ensure that such procedures would not cause any harm, I followed the BERA Revised Ethical Guidelines for Educational Research. I informed the participants of the aims, methods and procedures of the study and the level of commitment involved. They were informed they could participate if they wished, but could also withdraw if they felt uncomfortable at any stage, or that their privacy was threatened.
- B. I obtained verbal permission from the head of the department under study (for both stages). Furthermore, I obtained a completed written consent form from each participant, prior to their involvement in this research - using the consent forms on the GSE Code of Ethics website. As mentioned above, the participants were informed that participation is voluntary, so withdrawal

is always their choice at any time during the research period, without the need to give a reason and without incurring any penalty. Students could therefore simply withdraw from the study (i.e. the data collection) and merely continue with the course, using the course book and printed materials. In addition, the participants were informed that interviews would be voice-recorded; the data would be downloaded from the recording devices at the earliest possible opportunity and then deleted immediately, for secure storage elsewhere. Along with the consent form, there was an information sheet in the participants' mother tongue, explaining the reasons for the study and what participation would involve.

- C. Anonymity, privacy, respect and confidentiality are among the ethical issues I, as the researcher, bore in mind at all stages of the research. I protected the confidentiality and privacy of all those affected by the research. The respondents were assured of confidentiality throughout the study and the strictest privacy was ensured for the data. In addition, every reasonable effort was made to ensure that no participant or institution could be identified from names, data, contextual information, or a combination of these.
- D. The instruments used to collect the data did not request any identification from the participants and their data was exclusively labelled with numerical codes (e.g. S1, S2, or S3 in Group 8), for administration purposes only. All data was handled with care during the entire study and kept secure and confidential, as outlined by the Data Protection Act (1998). As the researcher, I was the only one who could access them. Moreover, all participants were informed that any copies of recorded interviews would be destroyed once the study was completed, as recommended by (Bell 2005). In addition, interaction analysis (IA) was carried out to track the learners' comments in the apps and events occurring during the classroom activities and all this would be kept private and anonymous. Information was recorded and labelled with numbers and codes, as opposed to actual names.
- E. Assurance was given that all information would be treated in the strictest confidence and that all participants would remain anonymous in the presentation of the research findings. During data collection, data analysis

and the writing up, data (audio-recordings, interview data and individual data) were to be securely stored in a locked cabinet in a secure building. In addition and as mentioned above, audio- and video data would be downloaded from recording devices at the earliest possible opportunity, before being deleted immediately from those devices. Electronic information would only be accessed by me, protected with a username and password, for research purposes and then destroyed. Hard copy data, including signed consent forms and any document matching names with pseudonyms, would be stored in a locked cabinet or drawer; digital data would be stored in my password-protected account on the University of Exeter U-drive.

- F. Pre-service teachers without smartphones from the Educational Technology Department (ETD) at PAAET were alternatively able to use a learning management system (LMS-Haiku) to share and participate with their peers in this study. Those who did not want to use technology (i.e. a smartphone or LMS) had the option of using printed materials, i.e. the course book and could interact face-to-face with their peers in class.

### 5.3 Informal Exploratory Technique

As stated above, I employed an informal exploratory technique to gather data on three teachers' perspectives of relevant concepts, e.g. M-learning and CL, among other issues pertaining to the students themselves; for instance, students' abilities and their acceptance of using technology both within and outside the classroom at PAAET. This took place before the study started, in order to identify where attempts to use or integrate technology had failed in the past, so every effort could be made to avoid those pitfalls. To this end, I carried out a semi-structured interview with the abovementioned teachers at PAAET during the first week of the 2011/2012 autumn course in the ETD. The three teachers represented a convenience sample. The interview statements were analysed using NVivo10 and nine themes were identified (see themes from sections 5.6.1.1 to 5.6.1.9). I believe that this investigation facilitated the advance planning of the study. Consequently, the information collected guided the first iterative phase of the study. To this end,

the semi-structured interview questions were divided into two types: perspectives and practical questions (see Appendix D).

#### 5.4 Question and Answer (Q&A) Session

To expand upon the previously presented questions (via the informal exploratory technique) and gain a more comprehensive overview, a Q&A session was held with the students (pre-service teachers) before the project was launched (induction week). I was seeking to extend themes introduced by the one-to-one meetings with the three teachers, possibly filling in gaps by subsequently convening the students under study into a single classroom at PAAET.

As stated above, the Q&A sessions were held in induction week, which I believed to be valuable, due to the significant number ( $n=65$ ) of pre-service teachers, since Q&A sessions enable a range of issues to be addressed in a single, informal encounter, with multiple contributors providing students' perspectives, attitudes, beliefs and so forth. Furthermore, the situation was likely to afford a free exchange of dialogue in that first week and ultimately, it did. I believe this was of great importance to the whole trial, as it opened up communication and generated ideas, establishing a foundation for the research. In fact, there were no predetermined questions and the exchanges flowed freely and informally, so this proved to be a good opportunity to identify the students' general beliefs and attitudes concerning the integration of technology into their learning, particularly with regard to smartphone apps. Patton (1980) describes this as follows: "Questions emerge from the immediate context and are asked in the natural course of things; there is no predetermination of questions topics or wording" (p. 206).

Nevertheless, I was still obligated (as a teacher) to inform the pre-service teachers of the nature of the investigation and how it would be conducted, defining my expectations and all the accompanying rights and responsibilities of those involved. I also explained the context, i.e. where I had first developed the research idea (namely the adoption of smartphone apps to enhance collaboration outside the classroom). The students were then given the freedom to steer the session according to their enquiry. Patton (1980) states that the strength of such a technique is that it "increases the salience and relevance of questions; interviews

are built on and emerge from the observation; the interview can be matched to individuals and circumstances” (p. 206).

In the induction week, the students were introduced to M-learning as a concept. Open discussions explored how they thought M-learning could be useful and its expected outcomes for all stakeholders. Also explored were the most favoured apps or social networks (e.g. Twitter, BlackBerry Messenger (BBM), or WhatsApp). In addition, the students described how they would use M-learning individually, collectively and collaboratively by playing the role of an in-service teacher, or by providing guidance. Roles, the responsibilities of the teacher (my own, as a researcher) and the students, as well as the students’ rights were also brought up and these formed the first design framework (see 4.8).

Such design principles are naturally expected to evolve and change after the first iteration (see 6.9). This could be the result of engaging participants from the beginning of the project, with decisions being made collectively and democratically. Theoretically, I believe this led to enhanced communication and collaboration among participants and helped some of them to engage with the process, make decisions and become more active.

To a large extent, freedom and the control of their own learning can motivate some participants more than traditional teaching methods (top-down orders). In their study, Sharples et al. (2007) argued that:

“the association between the use of mobile devices and informal learning was salient because learners often find their informal learning activities more motivating than the formal settings such as schools because they have the freedom to define tasks and relate activities to their own goals and control over their goals” (p. 18).

According to Wang and Hannafin (2005), the “Initial plan is usually insufficiently detailed so that designers can make deliberate changes when necessary” (p. 8). It is the notes taken in this phase which helped identify significant issues arising during the first iterative cycle. In order to look out for such issues later on, we must refer to this first iteration. However, even though I had already prepared myself to manage the large number of students expected to enrol on the compulsory course (i.e. Introduction to Education Technology), it was actually very difficult to do so in

practice; I was working alone as both the teacher and researcher with  $n=65$  in the 1<sup>st</sup> iteration and  $n=59$  in the 2<sup>nd</sup> iteration as well as the lecture time was limited. Thus, I have to admit that the situation was very demanding for me and this had some impact on my ability to fully understand all aspects of importance to the students and their context at that time (i.e. induction week).

However, in my view, a more significant weakness of the Q&A technique, particularly with a large number of participants, is that not all voices can be heard, but rather just those with more confidence about expressing themselves. This could also be a weakness in other techniques (e.g. focus groups). Patton (1980) identifies further drawbacks to this technique:

“Different information collected from different people with different questions. Less systematic and comprehensive if a certain question doesn’t arise “naturally”. Data organization and analysis can be quite difficult” (p. 206).

However, despite such weaknesses, I was still able to gather valuable information on the students’ perspectives, beliefs and attitudes to technology and smartphone apps in education. This Q&A session, together with the informal exploratory study conducted previously with three teachers from PAAET, formed the basis for launching this investigation and helped shape the research design. Both methods were employed to answer the following research questions:

1. What are the perspectives of students and teachers at PAAET on CL and Smartphone apps?
2. What are the barriers preventing the full integration of technology at PAAET, Kuwait?
3. Can smartphone apps overcome obstacles, such as context, culture and technology in the PAAET and Kuwaiti context?

## 5.5 Data Analysis

The informal exploratory technique and the Q&A session was analysed using NVivo10 to generate initial themes, followed by a comparison of these to search for similarities and contradictions between the three teachers’ statements. I also compared the ideas raised in the semi-structured interviews with what the pre-service teachers (students) expressed during the Q&A session. Again, this was to

identify similarities and contradictions between the three teachers from PAAET and the pre-service teachers in the same academic institution. Furthermore, it provided insights into the different issues surrounding the teachers, the pre-service teachers and the context (i.e. PAAET). As I have mentioned before, the findings from both phases were used as a basis for choosing the design principles for this research and for designing the experiment for both the first and second iterations.

I recorded and translated the semi-structured interviews with the three teachers, from Arabic into English. Afterwards, the translations were presented to experts in Arabic and English to see how the two language versions matched. Themes were then transcribed and coded using NVivo10. This was achieved by creating a new node for each emerging theme. I followed the same steps with the pre-service teachers in the Q&A session. This analysis of the data supported Ezzy (2002) conclusion that it is important to start analysing while collecting the data, as this step will enable insights to be gained into important issues and will help to plan the initial implementation of the first iteration.

## 5.6 Findings

### *5.6.1 Findings from the Informal Exploratory Study*

To start with, we shall review statements made by the three teachers from Educational Technology Department (ETD) at PAAET, while they were participating in the informal exploratory data collection. As I have stated previously, these represented a convenience sample from the ETD. In the following paragraphs, I will discuss the findings from all three teachers (indicated as T1, T2 and T3). Virtually the same issues were covered with all three teachers (some issues emerged spontaneously during the meeting) and received various responses. The key themes were then translated, transcribed, re-read and coded in NVivo10.

During this phase, my aim was not to make any claims or draw any conclusions (the consultation phase). I was merely trying to discern perspectives on important concepts, such as M-learning and CL in PAAET, among other issues to be discussed in the following paragraphs. This would give me a chance to choose

suitable artefacts and design a more appropriate intervention in both iterations. In other words, I may, for example have apprehended the preferred artefact (app) at PAAET, e.g. WhatsApp, Twitter or BlackBerry Messenger, while also uncovering the reasons for such preferences. It must be emphasised that this was just a primary phase.

#### *5.6.1.1 Using Smartphone Apps Inside the Classroom*

A discussion of the extent to which teachers use smartphone apps (e.g. Twitter, WhatsApp and BlackBerry Messenger) revealed various responses that were encouraging but cautious. For example, T1 said, “I use it, and I think it’s a good thing—not because it is a new technology, I don’t care if it is too simple, and not necessarily to obtain a dazzling new technology—just for doing the work”. Moreover, she went beyond the question and emphasised the significance of individual experience, “I believe students should have contact with each other, and make use of their own experiences”.

On the other hand, T2 pointed out that he used WhatsApp with his male and female students and in his responses, he focused on the advantages of using WhatsApp, claiming that “the nearest new means now for communication is WhatsApp”. He proposed many reasons for this, e.g. it is “free, services are free, available in all modern equipment, and easy to use by anyone who desires to learn”. He added, “The main advantage is in our own work; all files can be sent freely, it can be readable, audio, film, music videos, or videos, especially in education. Subsequently, you need this kind of technology”.

Meanwhile, T3 emphasised the importance of being more cautious about the reasons for integrating any kind of technology, pointing out, “I use it [the technological tool] with caution, for needs, and to measure [retroactively]... to search for the problem and then the best solution to solve it”. He justified the last step by saying, “I don’t bring the device/tool because I like it or because it’s appealing or because of the innovation, because it will succeed no matter what the tool is, even if it was not useful because of the ‘novelty effect’”. He added, “Modernity leads to the success of a thing because people are dazzled” and

continued his argument by saying, “after a while it is clear that this thing did not add anything, so I’m cautiously using the tools and applications”.

I infer that all three teachers agreed on the potential usefulness of technology, including smartphones. However, they were cautious and emphasised that the use of technological tools should be based on need, not because the tools ‘dazzle’. However, their personal intentions behind using technology and apps actually varied. For example, T1 highlighted the significance of email and WhatsApp and how these can be useful for delivering information quickly, while T2 had previously used WhatsApp with his students and emphasised their effectiveness and how they facilitated active learning. T3 talked about an alternative app (Twitter) to exchange information with his students and answer questions related to their course. Overall, the interviews expanded on the following important themes.

#### *5.6.1.2 The Types of Technology Teachers Commonly Use in this Context (PAAET)*

I believe it is important to understand how each teacher integrates technology into the classroom. This gives some indication of the techniques which work best and why. In this case, the three teachers had used different techniques and tools, e.g. email, WhatsApp or Twitter in their classrooms. For instance, when I asked T1 about the techniques she would apply in future, she stated, “normally, in the first week I don’t teach, this week is called acquaintance week”. She suggested, “Probably with email I will use WhatsApp. I get another phone number and I distribute it to them and tell them ‘If you have any enquiries or if you like to communicate, [contact me]’”.

T2 had adopted a different technique, declaring, “I follow a technique, I sit the students in groups and everyone introduces himself. Then, I tell them I need a leader from the group to be the captain, and he will be the representative of the group, doing the training with them, with changing the groups always”. Additionally, when I asked T2 if he allowed the same groups to continue working together until the end of the course, he responded, “inside the classroom, no, it

depends on where the students sit during the lecture, so whoever sits together will be a group, but in the apps they remain the same and don't change".

T3 presented a more sophisticated approach, indicating that, "the idea is simple; when I explain, and you [the student] have a question, write it, the question is then displayed [on the board] during the lecture". He continued:

- A. I collect questions about the lecture.
- B. I answer the questions that I feel might influence the lesson sequence and may be important.
- C. I pass over the questions I can answer later or that are not that important.
- D. I bring in the 'novelty effect', where the tool [Twitter] is interesting for the students.

It is clear that teachers all use the techniques which suit them personally and here, T1 had only used email, while T2 and T3 had tried more recent apps, like Twitter and WhatsApp. Nevertheless, I believe there is a failure to encourage and motivate teachers to use innovative and diverse means of communication to try and meet learners' needs at PAAET. Furthermore, some teachers repeat the same errors many other teachers and educators are prone to when trying to integrate technology into the classroom.

I believe that both T2 and T3 had used the kind of technological tools they were already familiar with (i.e. WhatsApp and Twitter). They had used such apps regardless of their students' preferences. Moreover, they tended to use top-down, rather than bottom-up strategies, where students could engage in decisions about their own learning. Such a flaw in the deployment of technology had reduced the opportunity to fully benefit from it.

It is worth mentioning that some of the interview questions were designed for T1, who had not used any smartphone apps at that point and with regard to her future intentions to use such apps, her answers were quite clear, "WhatsApp? Yes". Furthermore, when asked if she was interested, her answer was, "yes, I would use it with my family members, my friends, and my contacts".

### *5.6.1.3 The Need for Smartphone Apps*

This theme demonstrates that T1 believes a smartphone app to be necessary, only “if it serves a particular purpose”, while T2 implied that we need this kind of technology to send videos, audio- and readable materials. On the other hand, T3 responded, “Sort of,” and when I repeated the question to get a clearer answer, he added, “I think it's useful... [smartphone] apps are useful”. As a result, I believe the three teachers largely agreed that apps are useful for delivering information, but I am not sure to what extent they were enthusiastic about employing them. T1 did not use any apps at all, but focused purely on email, although T2 and T3 had used some apps (Twitter, WhatsApp) with their students before in the past. It is not clear why they stopped doing so. Could it be that they experienced complications, or had large classes and hence, a heavy workload? Where answers were incomplete or unclear, I would have followed them up, but there was limited time for further clarification in this case due to the teachers’ workload and timetables.

### *5.6.1.4 Existence and Significance of Communication*

Since this was a flexible study, based on maintaining a flow of communication, I did not always discuss the same issues with all the teachers or in the same order. Thus, the theme of the importance of communication emerged only from T1 and T3, who both agreed that communication between students is important, while T3 asserted, “sure, communication is something important”. T1 went further and emphasised the importance of encouraging students to communicate, where they come from different backgrounds.

Both T1 and T3 expressed their belief that there was no lack of communication among students inside the classroom. T1 claimed, “For me, truly I don’t see it as a problem”. She confirmed this once more: “for me there is no problem of communication”. Along the same lines, T3 pointed out, “the communication exists. We will not invent something new, in the classroom the communication exists, but its strength and availability is what makes the difference”.

Strangely, their testimony did not completely tally with what I had personally observed as a part-time teacher at PAAET. What is more, T3 presented a conflicting point of view at one point in the semi-structured interview, admitting there was a lack of communication between students, despite stating the opposite elsewhere. Thus, I would suggest there is indeed a lack of communication among students at PAAET, but the teachers I interviewed did not see it or else chose to deny it for reasons which were not clear to me. However, such conflict can sometimes be justified when dealing with human beings. Thomas (2009) sees conflict in human behaviour as normal. For instance, a mother who punishes her child despite her love for him is a good example of apparently conflicting human behaviour.

#### *5.6.1.5 The Importance of 'Knowing our Students'*

T1 and T2 found it important to know their students. For example, T1 indicated, "it's important to know your students as individuals; this is important and a big challenge". T3 also owned this perception and said, "of course, they are known by name and by the second or third lecture I know all their names". Furthermore, when I asked if calling a student by name gave the student value, his answer was, "of course". Surprisingly, when T3 was asked if apps removed barriers to people getting to know each other in his institution and if an increase in the use of such apps would also enhance the level of communication between students. His answer was succinct: "not in this way". Again, this response might be based on T3's denial of a lack of communication among students in the classroom.

#### *5.6.1.6 The Significance of Collaborative Learning (CL)*

This is one of the essential themes emerging from the informal exploratory technique. However, I have to admit that even though the teachers failed to clearly define the concept of CL, they demonstrated an acceptable awareness and some acceptance of it. Furthermore, they emphasised that students need to collaborate with each other for their own sake and maybe smartphone apps could be a suitable technological tool to enhance that communication and collaboration. However, T3 still remained sceptical about the usefulness of CL.

The data revealed different themes related to teachers' perspectives of pre-service teachers at PAAET, CL and technology. It also revealed themes which I coded (agreements, disagreements and unexpected responses). For example, I kept wondering why teachers had not continued using smartphone apps (e.g. Twitter and WhatsApp). Once I had explored and examined another code, I found the answer: Teachers use smartphone apps without reference to students' preferences or needs, reflecting decisions made from the top down, rather than from the bottom up. Moreover, most of their work might not have been sufficiently systematic and did not apply any educational theory or design principles. As I stated earlier, such mistakes would mean that the full potential of technology was not exploited and so the apps were unlikely to be re-used. Next, I will present some more detail on the three themes (agreement, disagreement and unexpected responses).

#### *5.6.1.7 Agreement*

The semi-structured interview revealed issues agreed upon among all three teachers (T1, T2 and T3). For instance, they appeared to believe that communication and collaboration is important for the success of learners. In addition, they expressed that they thought it was a good idea to use some smartphone apps, such as Twitter or WhatsApp, to communicate with their learners. Additionally, one of the teachers talked about the significance of smartphone apps in overcoming cultural barriers. He elaborated on this, stating that, "Female students can express their thoughts via WhatsApp better than in the classroom". When I asked him why, he gave the reason: "...as there is no control on her feeling or ideas".

However, communication and interaction between students using such applications needs to be for a good reason, not merely because of the new technology. Furthermore, the students all know how to use such apps and it was agreed that they all own smartphones. Furthermore, the adoption of such apps needs to be prepared in advance. Nevertheless, while these common findings were encouraging, there were disagreements among the teachers about what needed to be taken into account.

#### *5.6.1.8 Disagreement*

These disagreements over the adoption of apps became obvious between the three teachers and this may have been due to their experiences. However, T1 did not actually appear to use any such apps and stated a preference for email, as she found it easy to use. Moreover, when planning to use such technology, T1 needed a new private mobile number reserved exclusively for her students, to avoid mixing her private life with her work. I took her advice on board and provided a new phone number for communicating with my students (pre-service teachers).

However, T2 and T3 had already used WhatsApp and Twitter and found them very useful for communication, despite some social barriers. In fact, T2 and T3 presented conflicting opinions concerning female students: T2 believed there were social circumstances (e.g. embarrassment and family rules) which prevented females from fully engaging with others, while T3 did not see this as a problem in the specific context, namely PAAET in Kuwait. Moreover, the use of extra marks as an incentive for students to participate was another point of conflict between the teachers. T1 and T2 considered this necessary, but T3 disagreed. I believe it is important to consider such conflicting results when endeavouring to build a successful experiment for this special context.

#### *5.6.1.9 Unexpected Findings*

Although the teachers believed communication among learners to be important, none interviewed claimed they had noted a lack of communication amongst pre-service teachers at PAAET. In fact, they were of the opinion that students were already communicating with each other in different ways.

As stated above, the concept of CL was not quite clear to the older and more experienced teachers, T1 and T2. T3, on the other hand, who had recently completed his degree, was more familiar with the concept of CL. Interestingly, T3 argued that we have to be cautious about using such a concept, because the Arabic region has a unique feature, particularly in the Kuwaiti context. T3 claimed:

“Unfortunately, the embarrassment is exaggerated in this context, and colleagues are embarrassed with each other and this leads to problems such as tasks falling

entirely on one person and the rest getting grades, or being unable to communicate effectively with each other.”

According to T3, students in the Kuwaiti context are generally embarrassed to ask her/his colleagues to participate more effectively. This is mainly due to being embarrassed by confrontation and also because of the social considerations overwhelming most of the students. Thus, adopting CL in this setting remains limited. T3 claimed this differs from the learning styles and working approaches in developed countries, where there is a much greater tendency for everyone involved to participate effectively and identify her/his role. Thus, it is very important to be cautious before employing CL in the Kuwaiti context. T3’s statements indicated some conflict between his prevailing belief that there was a lack of communication amongst learners and his conviction of the value of CL. He was therefore less eager to adopt it since he anticipated frustrating outcomes.

Other surprising findings were presented by T2, who had already used WhatsApp to increase communication among his learners. He illustrated that learners mainly prefer to communicate on the weekend, particularly on Fridays, which is considered as a special occasion for Kuwaitis. Surprisingly, the most spiritual day for Muslims actually translated into increased communication, exchanging greetings and discussing different issues, not necessarily related to their studies. This corresponded to my own experience with students, where they would exchange greetings and blessings. I believe that these events should be exploited to encourage learners to communicate more. Next, I will discuss the findings from the second stage of the consultation phase: The Q&A session.

### 5.6.2 Findings from the Question and Answer (Q&A) Session

The Q&A session was conducted with 65 pre-service teachers at PAAET, in order to loosely gather information on their preferences and perspectives, and to try and identify their roles, responsibilities and rights. Furthermore, it aimed to obtain trustworthy answers on issues discussed earlier with the three teachers in the previous informal exploratory technique. During the lectures in the first week (two lectures in the first week, each lecture lasting 1 h 30 min.), I immediately took short notes on the students’ responses. This would be followed by a deeper analysis to code the most important themes into NVivo10; for example, the number of

students with smartphones, and a preference for certain apps (e.g. Twitter, WhatsApp and BlackBerry Messenger), technology acceptance and the influence of the teacher.

The selection of the preferred application was a democratic process, decided through free and open discussion in the class on the best application to use out of the suggestions made for communication and collaboration (i.e. Twitter, WhatsApp and BlackBerry Messenger). The decision was reached within 10 minutes and almost unanimously. The students verbally informed me (as the teacher) of their decision. The reasons for this choice are given in section 5.6.2.

This session revealed significant issues. As I had already personally noted, all participants had some kind of smartphone (e.g. an iPhone, Android or BlackBerry). This confirmed the previous claims made by the three teachers in the informal exploratory data collection (see 5.3). Additionally, it was revealed which apps they preferred —mainly WhatsApp, because most were familiar with it and it offers more privacy than other apps (e.g. Twitter), since it only requires an exchange of phone numbers between individuals and groups. However, this raised ethical concerns about students who were unfamiliar with WhatsApp, or students who did not have or did not want to use a smartphone. This is considered one of the limitations of the study and it will be discussed in more detail in (section 9.4). The software features of WhatsApp are described as follows on the app's home page:

“WhatsApp Messenger is a cross-platform mobile messaging app which allows you to exchange messages without having to pay for SMS. WhatsApp Messenger is available for iPhone, BlackBerry, Android, Windows Phone and Nokia and yes, those phones can all message each other! Because WhatsApp Messenger uses the same internet data plan that you use for email and web browsing, there is no cost to message and stay in touch with your friends. In addition to basic messaging WhatsApp users can create groups, send each other unlimited images, video and audio media messages.” (“WhatsApp :: Home,” 2016)

During this stage, the participants (i.e. the pre-service teachers) also showed a high percentage of acceptance of the use of technology in learning, communicating, playing the role of a real teacher, or at least in guiding and supporting their peers. Surprisingly, in this early phase, most of the students did

not show any resistance toward using/integrating WhatsApp. Moreover, the findings show that the teacher/tutor can have a huge impact on the acceptance of technology among participants. The teacher's performance reflects on the acceptance of technology.

I took advantage of this step and expanded the discussion with the participants (i.e. pre-service teachers), explaining when, where and how to use such apps (i.e. WhatsApp). Furthermore, I discussed relevant issues with them, such as the lack of communication, the importance of CL and how the course would be run. In addition, I aimed to acknowledge what participants already knew and to inform them about where we were going next. All of the above forms the basis of the start of the study, namely the first iteration. This step was not subjected to thematic analysis, but data was coded in NVivo10, because on the one hand, I was searching for general information so I could draft my initial local guidelines and on the other, I meant to present more information to the participants about the course and how it would be run. What is more, we (the students and I) needed to come to some related decisions before the main study started the second week. For instance, the participants were divided into groups, each with a representative: A more knowledgeable student responsible for helping less knowledgeable peers (scaffolding).

## 5.7 Summary of Findings

Here, I will summarise what I found from the informal exploratory technique and Q&A session. I explored various issues related to teachers' and students' perspectives at PAAET. For instance, how do the students feel about WhatsApp and what were their first impressions of it? How do teachers use technology to collaborate and what are the barriers to this? How can these barriers be overcome? This was the first phase of the DBR represented by Reeves (2006), which is an "analysis of practical problems by researchers and practitioners in collaboration". The practitioners in this case were three teachers and  $n=65$  pre-service teachers from PAAET.

1. Teachers at PAAET did not make a great deal of effort or lay down clear plans to overcome the difficulties associated with the integration/use of technology

in education. They had often abandoned technology and not tried to repeat the experience after encountering obstacles with the tools or a rejection of them by the students.

2. In the local context, PAAET suffers due to various barriers, e.g. technical, social and cultural challenges.
3. Most students show acceptance of the use of their smartphones, both inside and outside lecture halls.
4. Most students choose WhatsApp for communicating with their peers.
5. Oddly, no one wanted to use a BlackBerry Messenger (BBM) to communicate with others, even though more than one student used this device. Fortunately, they were able to download and use WhatsApp on their Blackberries to participate in this study.
6. In answering one of the research questions, 'To what extent do participants accept and appreciate the concept of CL?' The findings show that most students know what is meant by CL and appreciate it. Furthermore, they demonstrated a good attitude towards collaborating with colleagues.
7. Some students were prepared to act as group representatives.
8. Some students hesitated about sharing their thoughts with everyone. This could be due to a need for privacy, or because they were shy or lacked self-confidence. However, as I explained in the ethical guidelines (section 5.2), they had the right to withdraw from the study any time they wished.
9. Some students considered that using WhatsApp for enhancing their learning and collaboration with colleagues was useless.

Although this step (i.e. consulting with other teachers and students) was challenging, it helped build a general picture of how both teachers and students value and appreciate smartphone apps. This step was useful and even fundamental for discovering some of the participants' perspectives and abilities, as well as indicating their familiarity with such handheld devices and the accompanying applications. It was important to acknowledge students' (i.e. the pre-service teachers) skills and previous experience with the preferred applications (e.g. Twitter, WhatsApp, or BlackBerry Messenger (BBM)), in order to be more informed when designing CL activities and to gain some idea of how students could engage in participatory simulation activities to scaffold each other.

The responses in this step (i.e. consulting other teachers and students) confirmed my conjectures (see p.143). For instance, all three teachers (T1, T2 and T3) appeared to believe that communication and collaboration is important for the success of learners. In addition, they supported the idea of using certain Smartphone apps, such as Twitter or WhatsApp, to communicate with their students (see 5.6.1.7). Therefore, I focused on designing CL activities intended to construct shared knowledge among group members, related to the subjects they were studying and through the use of Smartphone apps, such as Twitter or WhatsApp (see the initial design principles in section 5.8).

### 5.8 Design Framework 1

Sandoval (2014) suggests that “learning environment designs begin with some high-level conjecture(s)” (p. 4). In this section, the initial conjecture derived from my teaching practice is reinforced by an extensive literature review and subsequently confirmed by the informal exploratory technique and Q&A session. This conjecture presented four design principles (see Table 5.1 below) to help me design some activities for implementation in the 1st iteration and in order to achieve the intended learning outcomes (see 6.2.1);

Table 5:1: Summary of the conjecture (Design Framework 1)

Design principle 1	Design principle 2	Design principle 3	Design principle 4
<ul style="list-style-type: none"> <li>• Students need to search and locate individual concepts relevant to their course from new resources that can help them to understand and retain them easily, along with information relevant to their courses.</li> </ul>	<ul style="list-style-type: none"> <li>• I suggest that students need to take part in collaborative activities intended to construct shared knowledge among group members and related to the subjects they study. After collecting relevant data, they should share it and discuss it with colleagues.</li> </ul>	<ul style="list-style-type: none"> <li>• To achieve productive collaboration, I suggest that students are encouraged to play the role of in-service rather than pre-service teachers, in order to help/scaffold each other.</li> </ul>	<ul style="list-style-type: none"> <li>• I suggest that, in order to achieve more productive collaboration, students should also be freely allowed to choose their own group and favourite technological tool to communicate.</li> </ul>

### 5.8.1 Explaining the Conjecture (Design Framework 1)

The participants (i.e. pre-service teachers) were asked to engage in some activities. To be specific, they had to use WhatsApp to search individually for some definitions of education technology and relevant information, beside its impact on teaching and learning, other than what is commonly presented in the course book. This had to be done outside the walls of the lecture hall and at their convenience, to avoid distraction. The idea here is that the participants would expand their knowledge of the course content, possibly understanding and retaining it better from other resources, without the need to rely on just one (i.e. the course book). The problem in this regard is that some participants try to memorise/retain information merely for the exams, as I mentioned earlier (see section 1.2.1).

I suggest that students take part in collaborative activities intended to construct shared knowledge among group members, related to the subjects they study. To be specific, after locating relevant, useful and accurate information, the students were encouraged to share it and discuss it with other colleagues via LMS-Haiku, or WhatsApp at their convenience. The idea here is that the explanations and

ideas provided by others on the course content would help some gain a better understanding of their subjects and lead to more success on their course.

I also suggest that instead of relying on the dominant teacher-centred model in Kuwait, (see, e.g. Ebrahim, 2012; Al-Ali, 2010; and Al-Fadhli & Khalfan 2009), it might be better to shift to a student-centred model (Thamraksa, 2003). Kuwaiti pre-service teachers should be assigned new roles, since the new teaching and learning style needs to be constructive, collaborative, interactive and contextualised (Roschelle et al., 2000; Windschitl, 2002). Based on research by Sharples et al. (2005), M-learning can help ensure that learning control and management is distributed across learners, guides, teachers, technologies and resources. I suggest that students are encouraged to play the role of in-service teacher, instead of pre-service teacher. This role would simply be to support their less knowledgeable peers in understanding certain complex concepts and to offer help, presenting useful information relevant to the areas of study. I believe that, by scaffolding each other, no students will be neglected.

Furthermore, I suggest that, to achieve more productive collaboration, students should be allowed to freely choose their own group and their favourite technological tool to communicate (Boticki et al., 2011). By working together with group members they already know, 'social loafing' (putting in less effort) is less likely to occur (Karau & Williams, 1997).

## Chapter 6: Prototyping Phase

## 6.1 Outlines

In the previous chapter (Chapter 5), I discussed the informal exploratory technique with  $n=3$  teachers and a Q&A session with  $n=65$  students and established Design Framework 1 - Conjectures on the Framework. Chapter 6 discusses the design of the intervention in the prototyping phase – the development of solutions informed by existing design principles and technological innovations. By implementing the first iteration, the participants, collection methods, methods of analysis, practical evidence, reflection and revision will help construct Design Framework 2. This Framework will be implemented again in the second iteration, with the participants, collection methods, methods of analysis and practical evidence being presented once more for reflection and revision, so that the final design principles (Design Framework 3) can be developed. The second iterations will be presented in Chapter (7).

## 6.2 Designing the Intervention

The first iterative cycle started after the induction week. I explained to the participants (i.e. the pre-service teachers) what I expected from them in the second week (i.e. to engage in different kinds of activity, see 6.2.2), based on three hours a week of lectures (1 h 30 min per lecture). I followed a specific order in each lecture, starting with a review of what had previously been discussed, followed by 45 minutes on the course under study (Introduction to Education Technology), which left 30 minutes to cover technical and individual problems.

I (as the teacher) taught without explaining anything in detail, in order to leave room for the students to use WhatsApp to expand upon topics already introduced in the lecture hall. I followed Fry et al. (2008) advice, emphasising the importance of a mixed learning approach (i.e. surface and deep learning approaches). Ideally, this enables better collaboration and more action for an in-service teacher.

The actual discussion topics varied and so the first chapter (chapter one of the course Book) consists of basic concepts (e.g. teaching, learning, education technology). Furthermore, there were elements of instructional communication (e.g. sender-receiver; competence; performance; messages; channels; methods; noise; feedback; context; fields of experience, and effect). Chapter two (focusing on chapter 2 of the course Book) therefore looks at discussions between the

teacher and the students in the lecture hall, covering topics such as printed visuals; still images; conventional drawing; sketching; diagrams; cartoons; posters; three types of chart-classification; timelines, and tables, as well as other multimedia, e.g. different types of board-chalk, pegs, magnets, etc.

In chapter three (chapter 3 of the course Book), the use of overhead projectors is explored, namely different types of transparencies and how to prepare them. Furthermore, the advantages and disadvantages of slide projectors and opaque projectors are examined, along with their implementation. In Chapters 4, 5 and 6, the use of computers is covered, along with their elements, productivity and programmes (e.g. Word, Excel, PowerPoint, etc.) and their role in education, E-learning and distance learning. All topics were discussed in more detail by the groups via WhatsApp, to increase their knowledge of the subjects they were studying. However, the students were asked not to use their smartphone apps (i.e. WhatsApp) inside the classroom, especially during the lecture, so they would not get distracted.

It must be added that relying exclusively on smartphone apps to deliver content, assignments, tasks, grades and announcements might not be appropriate for reasons such as its small display screen (see 3.4). Therefore, I employed an LMS (i.e. Haiku) as a vehicle for the abovementioned elements to allow the students (pre-service teachers at PAAET) to engage in broader discussions, as well as to send and receive large files, images, videos and audio-material. I explained the course process, as well as how and for what purpose it would run. Furthermore, in order to make sure the students could enrol without any problems, I created a silent online video which explained step-by-step the process of enrolment in the suggested LMS, namely Haiku (see Figure 6.1).

Unfortunately, however, I am aware of the fact that the Haiku LMS is more limited than the more costly and advanced Blackboard LMS. Therefore, I had to be well acquainted with its components and cautious when using some of its functions (e.g. writing sentences from right to left, as in Arabic). One solution in the first iteration was to combine both artefacts (Haiku as a vehicle and WhatsApp as a communication channel). WhatsApp is more suitable than Haiku for chatting and

interacting, and for exchanging links, images, audio-material and video files at higher speeds and from anywhere, at any time.

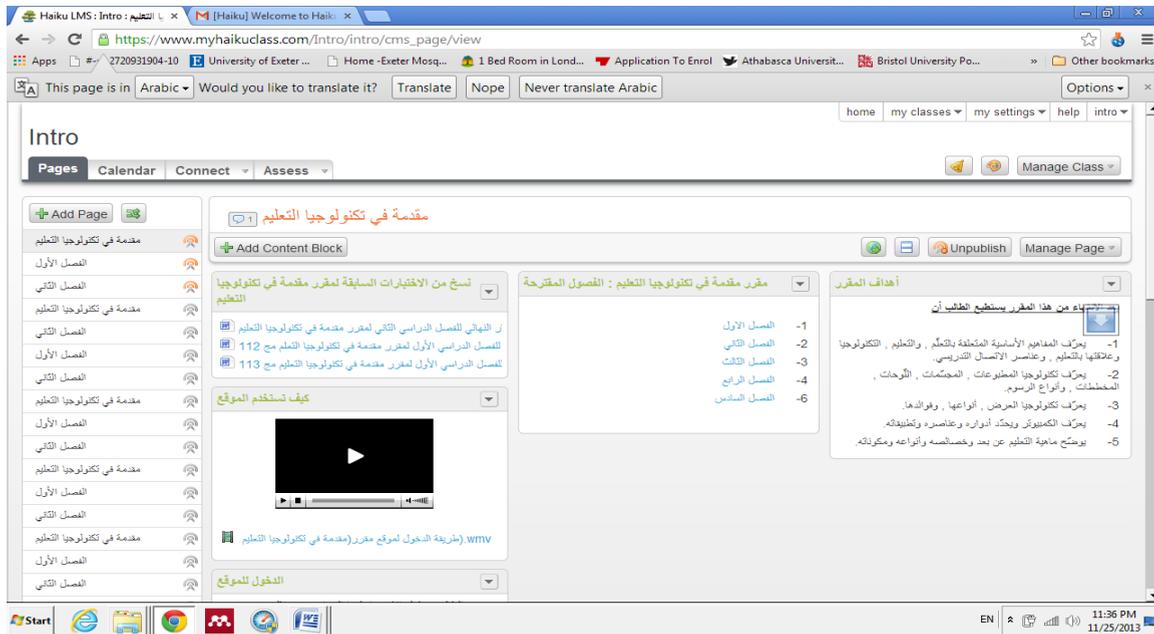


Figure 6.3: The Haiku LMS

I (as the teacher) prepared the objectives and chapters to integrate them into the suggested LMS (i.e. Haiku). It is important to transfer the curriculum from printed to electronic materials. Nevertheless, I knew from experience that this would not be an easy job as I had to follow a system and apply particular criteria. Fortunately, my Master's degree in distance teaching and training had prepared me for accomplishing this task. For instance, there is no need to transfer all book chapters; it is enough merely to determine the aims which we most desire to achieve and transfer them in the form of activities. In addition, the syllabus and aims should be clear. This can be done by carefully identifying an 'Intended Learning Outcomes' (ILO) approach, which is useful for showing what students will be able to do by the end of each chapter. We can then determine whether or not such goals/aims have been accomplished and whether there is anything that can be done to correct the situation or modify such goals. In the end, this is the point of using a flexible approach like DBR with its cycles of design, action, observation and modification.

At a later stage, I submitted answer to following question of the internal examiner; what is the nature of knowledge you expected the participants to develop? Why

constructivism is the best theoretical idea to tackle the issue? And why concept of distance learning (and other important 'concepts' in your teaching contexts) should be 'constructed' through collaborations? I break down his question into three sub-questions:

1-the nature of knowledge you expected the participants to develop?

This course is introductory and the students need to basically come to terms with the use of technology in education. However, this was also incidentally found to help motivate learning and promote higher levels of thinking skills in that the participants needed to explain, discuss and describe relevant ideas and concepts (i.e. regarding hardware and software, Ram and Rom, as well as various computer components: input devices, output devices and storage devices). Furthermore, they needed to compare the advantages and constraints of E-learning and distance learning in order to identify what best suits the Kuwaiti context. Finally, they appraised the constraints of technology and its various stages of application.

Going through all the above steps (intended learning outcomes - ILO) was a drastic departure from existing learning approaches in the context, namely a learning culture where students purely memorize facts and comprehend certain concepts, because the students became more able to judge and evaluate the information, ideas and concepts involved in their studies. In this way, the participants moved from being mere passive learners (as with traditional teacher-centred methods, focused on rote learning and memorization) to becoming active learners (in a student-centred approach focused on analysis, making judgements and having the confidence and motivation to formulate their own decisions). In the midst of this, the students' own initiative and imagination was stimulated to the point where they sought to express and convey more complex ideas or forms of information. This exploration and stimulation of higher thinking exceeds the existing boundaries of education in this context, whereby students have traditionally received information from the teacher, learned it by rote and then regurgitated it in end of year exams. Moreover, in being motivated to access technology for their own personal expression, the students became more aware of it: its limitations and benefits.

2- Why is constructivism the best theoretical idea for tackling this issue?

Social constructivist theory has been adopted in this study, because of the researcher's persuasion. As a practitioner in the respective context, it is his belief this is the best approach for overcoming some of the challenges hindering the students from learning effectively in Kuwait (as it helps combat shyness and hesitation). This is because it causes students to work together, balancing each other's weaknesses and strengths; building confidence amongst those who have ability, while at the same time providing support and a frame of reference for those who may be less able or less confident in their abilities. It is essentially a social constructivist approach, where more knowledgeable and experienced peers scaffold their less knowledgeable, less experienced, more isolated and more silent peers in the classroom. This is one aspect of the process. A further benefit arises from the teacher's responsibilities being alleviated through sharing. Social constructivist theory supports the notion of bringing students together and encouraging teachers to create social spaces for learning. According to Vygotsky, full cognitive development involves social interaction (John-Steiner & Mahn, 1996), whereby learning "occurs as a socio-cultural system, within which many learners interact to create a collective activity framed by cultural constraints and historical practices" (Sharples, Taylor & Vavoula, 2005, p. 7). This is greatly lacking in the Kuwaiti context, despite the fact that, as this present study indicates, there are many benefits to be derived from it, such as learning scaffolding and motivation.

What is more, as a teacher, it is important to recognize that the individual search for personal development on the part of every student can be a huge challenge, especially for those who normally feel marginalized in class, or for those who suffer from reticence and shyness. Thus, giving students the chance to form a relationship with their peers, as well as to receive support from caregivers (i.e. the teacher and more knowledgeable peers) can enrich their own lives, learning and experience. Social constructivist theory therefore seems a completely natural antidote to the existing shortcomings in the current Kuwaiti education system. These are shortcomings that are still faced by pre-service teachers at PAAET, but which need to be overcome to ensure full cognitive development (for more detail, see section, 2.4).

3- Why should the concept of DL (and other important 'concepts' in your teaching contexts) be 'constructed' through collaboration?

Participants are expected to acquire a fair amount of knowledge on a wide range of topics within a short period of time (between 10-12 weeks). Therefore, without collaboration with colleagues to build their own knowledge, there is the risk they will encounter difficulties in comprehending or interpreting certain concepts and ideas.

As a teacher who has previously taught on this course at PAAET, the researcher knows from experience that not all students are psychologically or mentally equal. As a result, it is a hard fact of life that eventually, there are some who must learn from peers or their environment if they are to survive the course or their eventual careers. Aside from this, even in the best of all possible worlds, a group of people can be greater than the sum of their parts. There will always be some who are more intellectually capable, motivated and willing to learn and work hard than others and this condition may continue into their professional lives. Sometimes, as mentioned earlier, it just takes motivation and leadership from more confident and able peers to help other students overcome their shyness and hesitation. Consequently, they find themselves able to share their ideas and thoughts. The researcher would even venture that what is taken as read in a Western context, where students may have had more exposure to a range of teaching and learning approaches, as well as more opportunities to express original opinions, is still relatively new in the Kuwaiti context – although self-expression is becoming more evident in the informal use of technology and social networking. As a result, the researcher sees benefits in eliminating some of the barriers to learning through collaborative activities, with students learning from each other and helping one another co-construct knowledge about things of common interest.

On a more basic level, more knowledgeable students can repeat words and procedures many times until they master them, while the less knowledgeable also passively benefit from this, so that all involved increase their knowledge, expertise, and skills (for more details, see 3.3.1). At present, this is still a very raw process in a hitherto little-researched area, still prone to generating more questions, but the dynamic outcome is necessarily a break away from the less

productive traditional approach, especially given the nature of the students' chosen profession. To clarify, some examples which are presented here show the significance of constructing certain concepts through collaboration between participants (computer components, display technology, E-learning, distance learning, the constraints of technology and its various stages of application):

First, from previous experience in teaching this course (Introduction to Education Technology), the researcher has faced some difficulties in explaining the above concepts to the large numbers of students who usually participate in these introductory courses (60-70 pre-service teachers). Thus, splitting participants into groups in the classroom and letting them discuss relevant concepts collaboratively could help render the teaching more effective, whereby information is relayed and reinforced, so that less knowledgeable students apprehend, analyse, evaluate and then conceptualize it. A further strategy is to enable and encourage learners to communicate in smaller groups outside the classroom in their spare time, using various types of technology, e.g. e-mail, discussion board-LMS, or smartphone apps.

On the previous course, the researcher found it was difficult for students to clearly conceptualize definitions, concepts and ideas on their own; for example, describing several types of display technology and their benefits, e.g. differentiating between overhead projectors (OHPs) and other forms of projection. It can be difficult for just one student to fully understand all their advantages and disadvantages. The researcher also found that students tend to reject the concepts of E-learning and distance learning. Some in fact link these and think they are one and the same thing. This has led to a rejection of both concepts, simply because the distance learning approach is not approved by the Ministry of Higher Education in Kuwait and students often think this includes the E-learning approach. Collaboration between pre-service teachers both inside and outside the classroom may therefore help clarify the difference between these concepts and have an influence on lifting the taboo associated with E-learning. There is the possibility that the students themselves will become more able to judge which learning approaches are most suitable for the Kuwaiti context.

A further example is the researcher's observation, as a teacher, that although many students succeed in memorizing concepts, they are not actually able to explain them for themselves or to me (as a teacher). This probably refers to the teacher-centred approach they are used to following in school, where there is rarely anyone to ask for help in interpreting what is read or memorized. This is due to many different reasons (large student numbers, limited classroom time, poorly qualified teachers, etc.). Evaluating the constraints of technology and its various stages of application is not a mission for the isolated individual; this kind of knowledge construction requires collaboration between participants to best realize, apprehend, analyse and evaluate it, especially given its strong communicative features.

### *6.2.1 Intended Learning Outcomes (ILO)*

By the end of this course (Introduction to Education Technology) the student will be able to:

1. Define the basic concepts related to learning technology and its relationship to education and human contact components; for example, senders and receivers of the information, the surrounding environment, etc.
2. Recognise publishing technology, sculpture, paintings, drawings and printed visualisations.
3. Describe the various types of display technology and their benefits, e.g. overhead projectors (OHPs) - the main parts, exhibits and methods of use. Further opaque projectors are also to be examined, with their parts, advantages and disadvantages.
4. Define the computer and identify its roles, elements and applications.
5. Comprehend concepts like E-learning and distance learning, with their properties, types and components.
6. Specify the constraints of technology and its various stages of application.

The course 'Introduction to Educational Technology' was split into two main sessions (each lasting six weeks). The first session covered the first three chapters of the course book and was investigated in the first iteration. The second session dealt with the remaining three chapters (4, 5 and 6) and was investigated in the second iteration. This means that the second iteration was a continuation of the course begun in the first iteration; each iteration running over a period of six weeks, with three ILO driving each of these six-week periods. The extent to which these ILO were met was measured using a summative assessment (two mid-term exams and a final exam), as a course requirement. Furthermore, all the ILO were subject to formative assessment in both iterations (micro-cycles). As Plomp (2013) suggests, this is a way of developing more solutions if needed. The formative assessments consisted of Interactional Analysis through WhatsApp, a focus group, observations and field notes. Further, the formative assessments was an ongoing process which was applied after the end of each lecture. The formative assessments included feedback for students (see sections 6.5.1.5 and 7.4.1.5).

Fortunately, from the very outset, the research design involved continuous analysis, keeping records and taking field notes inside and outside the classroom, simultaneously using Haiku and WhatsApp. This was based on Ezzy (2002), who advised that it is better to maintain parallel data collection and data analysis, so as to avoid missing an occurrence (for more, see section 6.4). Ezzy's (2002) advice helped me a great deal in keeping up with the fresh information and observation, besides conducting direct analysis after data collection. For instance, after every lecture, all the information and notes were analysed immediately and uploaded to Nvivo10 under specific categories -e.g. quality and control of communication, and so on. In this way, I saved a substantial amount of time and effort. Meanwhile, I was able to revise the first design principles (Design Framework 1) within a short period of time (approximately six weeks), based on the richness of the accumulated information and data gathered from WhatsApp, followed by a presentation of the second revised design principles (Design Framework 2).

### 6.2.2 Activities

During the course, students were expected to be able to use the Haiku MS and the WhatsApp to:

1. Find relevant concepts (i.e. the topics discussed above) individually from new resources, like the Internet.
2. Send and share information found using WhatsApp and the Haiku LMS to colleagues.
3. Discuss what was found through Haiku (using the discussion board).
4. Collaboratively evaluate the relevant information exchanged to construct shared knowledge.
5. Play new roles: In-service teachers instead of pre-service teachers to scaffold/help each other and achieve a productive collaboration.

To apply these activities in the first iteration, the process involved specifying flexible roles and responsibilities for myself (as a teacher) and for the students (i.e. pre-service teachers). For instance, my new role, according to Wink and Putney (2002) was that of “Mediator, mentor, actuator”, while the students’ new role was that of “Active thinker, explainer, interpreter, inquirer, active social participator”. Additionally, the students' view of themselves pointed to the role of, “sense-maker, problem solver, socially appropriate member of collective” (p. 33).

To be specific, my own role and responsibilities encompassed:

- A. Making sure all – or at least most – of the students owned a smartphone and were familiar with the selected app (i.e. WhatsApp) (see section F. Ethical Procedures).
- B. Providing complete instructions for the learners before the start of the course about what was required of them and why, as well as how to achieve it.
- C. Asking the students to download their chosen app, selecting their preferred group and the most convenient times (e.g. daily or weekly).

- D. Encouraging students to collaborate with their peers, peer-to-peer and group-to-group, in order to find solutions/answers to any problems or enquiries.
- E. Illustrating the significance of smartphone affordances with the facility to record sound and take pictures.
- F. Constantly monitoring all groups to ensure they were functioning effectively.

*Students' Rights, Roles and Responsibilities:*

- A. Students have the right to use any kind of mobile device they wish as long as they can install the app they choose (e.g. WhatsApp, BlackBerry Messenger, or Twitter).
- B. Students can choose any group they like as long they can communicate effectively with members of their own group.
- C. Groups have the right to choose activities for their own sake, as long as these activities do not run counter to the curriculum and the scheduled lessons. For example, they can choose to answer one or more questions by identifying problems and questions which call for communication with others to find answers.
- D. Groups have the right to determine how often they communicate, e.g. after each lesson or weekly.
- E. Students must engage effectively in the activities (e.g. provide persuasive and influential answers) and collaborate with other learners for the success of the experiment.
- F. Activities must be derived from what has been learned in the classroom.
- G. The exchange of thoughts and ideas between members of different groups is permitted.

### *6.2.3 Recalling the Main Research Question*

One more thing to do in this section on designing the intervention is to clarify what I mean by 'enhance'. As mentioned earlier, the main aim of this study is to answer the main research question, namely 'Is WhatsApp useful in enhancing collaboration amongst pre-service teachers at PAAET? If so, then how and why is it useful? To answer this main question, I have to unpack this word 'enhance' by revisiting the Literature Review. This may help produce a set of pedagogical affordances for smartphone apps (i.e. WhatsApp) in relation to collaborative learning among pre-service teachers at the Educational Technology Department (ETD) at PAAET. Basically, if group members can provide evidence of successful engagement in some of the activities under any of the themes presented below, as a result of their interaction and collaboration via WhatsApp, then we can consider that theme to be a pedagogical affordance. If not, the theme is excluded from the table, or a new one added, if necessary.

### *6.2.4 Returning to the Literature Review (LR)*

By returning to the LR, I seek to clearly define what I mean by 'enhancing CL'. This is intended to offer initial themes and sub-themes, where a shift is expected towards the pedagogical affordances of smartphones for CL, in the event where the majority of the students succeed in engaging in activities related to their course (see 6.2.2).

#### 1- Quality of Communication

According to Anttila (2001), the intention behind communication is to stimulate action which results from thought. This frequently means a change in action. "Quality means the degree to fulfill someone's needs and expectations" (Anttila, 2001). Quality of communication can be measured by answering the following questions: To what extent do group members manage to discuss topics relating to their study area? Secondly, to what extent do they offer meaningful feedback to each other? Anderson et al. (1987) call it 'directionality'. Thirdly, to what extent is information presented that stimulates and motivates others to share with the rest of the group?

#### 2- Control of Communication

Control of communication can be measured by analysing the communication that takes place between participants from an expanded range of locations, e.g. cars, malls, etc. and at an expanded range of times. Ally and Prieto-Blázquez (2014) illustrate earlier in the LR (Chapter 3) that time and location no longer present obstacles with the presence of M-technology, since learners can reach teachers whenever they need. Meanwhile, course materials can be accessed anywhere and at any time, with the potential of increasing enrolment and engagement with others (Lowenthal, 2010). M-learning supports teaching and learning on the move, e.g. while we are in a car, train, the field, on campus, etc. (Sharples et al., 2009). Furthermore, “learners are increasingly taking the lead in exploring possible applications of mobile technologies to make their studies more effective, enjoyable or convenient” (Kukulska-Hulme, 2012, p. 252). Sharing at their convenience is one of the important features leading to students accepting and using their own smartphones for collaboration and learning (Berge & Muilenburg, 2013).

### 3- Social Construction of Knowledge with New Media

It is significant that students bring new information from new resources (e.g. the Internet). According to Ally and Prieto-Blázquez (2014) and Sutch (2010), learners can use the wireless capability of their mobile devices to access relevant and up-to-date educational resources from the Web, enabling them to communicate with field authorities and other relevant contacts in their studies, since resources and information are thus made available, irrespective of location. Furthermore, they can decide for themselves what information from the Internet is relevant, useful and compatible with their curriculum. This tiny space of freedom might motivate them to be more active and responsible for their own and their peers' learning.

### 4- Playing New Roles (Participatory Simulation (PS))

Students are assigned the task of being real teachers (in-service teachers), instead of pre-service teachers responsible for asking, answering and responding to questions, as well as helping colleagues by presenting different kinds of knowledge via links, images and videos related to their course of study, at any time and from anywhere via their smartphones. In other words, the participants' mission is to support less knowledgeable students. Hopefully, those taught may lead others to learn and increase individual experience, as well as alleviating my

workload as a teacher. Yin et al. (2013) suggest a conceptual framework, “scaffolding participatory simulation for mobile learning”, to be utilised on mobile devices for facilitating the learning of certain kinds of theoretical knowledge for students. They found that the framework they suggested was helpful in motivating students and was useful for experiential learning. Furthermore, Klopfer et al. (2004) point out that students can act out simulations themselves when they use their wearable/hand-held devices to engage in simulations that support inquiry and experimentation. It is this, amongst other things (see Participatory Simulation, 3.3.8) which motivated me as a teacher and researcher to adopt participatory simulation in this study.

### 6.2.5 The Pedagogical Affordances of Smartphone Apps - WhatsApp

Revisiting the LR helped to provide four themes representing the pedagogical affordances of the WhatsApp smartphone app (see Figure 6.2). I chose these four themes to present a unique pedagogical affordances of smartphone app-WhatsApp as an implication to theory. These themes were investigated and analysed in NVivo10 and evaluated to see if there was a need for any modification, cancellation or addition.

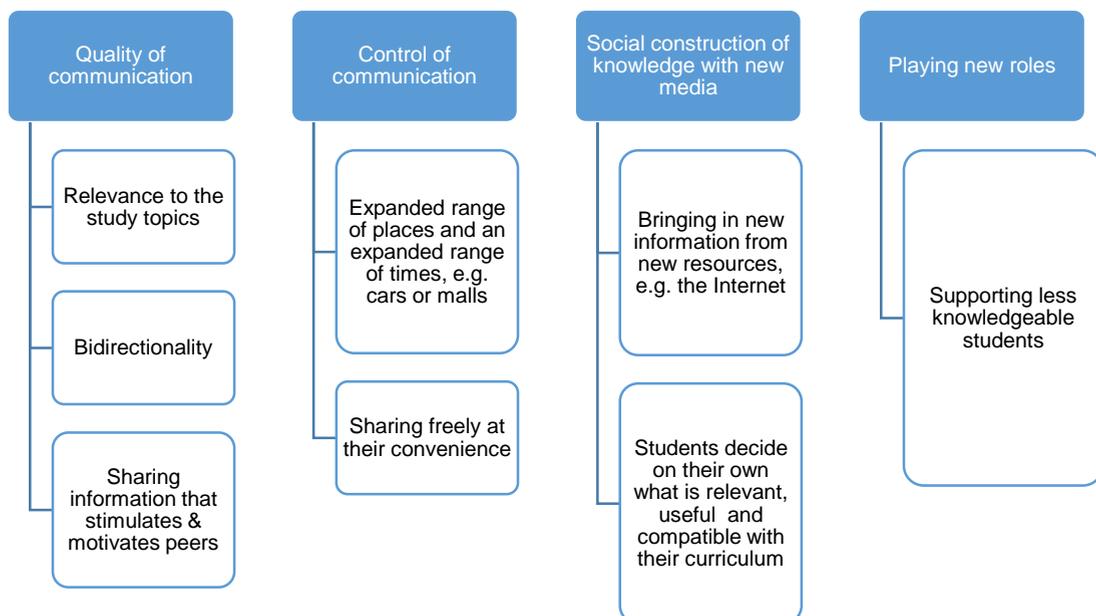


Figure 6.4: The initial pedagogical affordances of the smartphone app-WhatsApp

After preparing the environment (e.g. the venues and times for sharing, with WhatsApp being downloaded onto all smartphones), specifying four themes to represent the pedagogical affordance of the WhatsApp smartphone app for CL, as well as ensuring that all roles and responsibilities had been understood (my own (as teacher) and the students' roles), the scene was set and the first iteration could begin.

## 6.3 Implementing the Intervention (The First Iteration)

### 6.3.1 Participants

The selected sample in the first iteration consisted of  $n=65$  male participants living in Kuwait and enrolled at the academic institution, PAAET. These were pre-service teachers from various backgrounds. Furthermore, the field of study varied to include a number of subjects, like special education, computer science, Arabic language and Islamic studies. The students were mostly in their first academic year, except for a few in their second year, normally aged between 18 and 20, with a few over the age of 25, but no one older than 32.

Talbot (1995) illustrated that the convenience sample is a convenient, cost-effective and not so time-consuming. According to Cohen et al. (2007), convenience sampling involves choosing the nearest individual or captive audiences, like students (or in this case, pre-service teachers) to serve as respondents. Thus, I can “choose my sample from those to whom [I] have easy access” (Cohen et al., 2007, p. 114). However, Cohen et al. warn against attempting to generalise findings to a larger population from a convenience sample, as this is irrelevant, has many problems associated with it and is not recommended (Thomas, 2009).

Normally, learners are obliged to participate in the course, 'Introduction to Educational Technology' within their first year. It is worth noting that educational technology courses have more students enrolling on them than any other course at the Basic Education College (BEC), because they are general mandatory courses for students with different specialties. Thus, there may be as many as 50 or 60 participants in any one class.

Females were excluded from this study, because at PAAET in Kuwait, males are segregated from females and attend separate colleges with the same curriculum and teachers. As a part-time teacher, I was asked to teach male students only (policy). For the sake of the research, ethical considerations were also taken into account, as the study required participants to exchange phone numbers. This could have embarrassed female students, causing them to withdraw from the course, because they tend only to trust their regular teachers. Hopefully, this will change in the future, but for now it might lead to undesirable ethical problems in the project.

When discussing ethics and sampling in this section, I did not convey much about the participants themselves (see 4.2 for more information on ethical procedures in this study). Nevertheless, I tried to describe very systematically what they actually did, e.g. how they were organised, what they had to do and whether they were working in groups. If so, how many were in each group? Moreover, with regard to role-play, what roles could they choose and who made that decision? What did the students do with WhatsApp and what kinds of questions did they answer? There are many different questions which need to be clarified for the reader – without this clarity it could be extremely difficult to get some sense of what the research is all about.

### *6.3.2 Methods Used to Collect Data in the First Iteration*

Determining the method to be used was difficult. Each instrument had its strengths and weaknesses. Vygotsky (1978) pointed out this dilemma when he wrote, “[The] search for methods becomes one of the most important problems of the entire enterprise of understanding the uniquely human forms of psychological activity” (p. 65). This does not mean there are no suitable instruments for collecting qualitative data. In contrast, there are valuable instruments that can help give insights into the phenomena under investigation, especially while using innovative tools, like smartphone apps. Examples include the exploratory stage, e.g. pilot studies, face-to-face or online interviews, observations, question and answer sessions, focus groups, field notes and online communication notes (Davies, 2007; Cohen, Manion & Morrison, 2007; Silverman, 2005; Thomas, 2009).

The data collection methods were specified on the basis of social constructivist theory (SCT), where the knowledge constructed in socio-cultural historical environments is required for more flexible and reliable instruments that can help interpret how people interact in real life, including how they behave and why. According to Urquhart, Lehmann and Myers (2009), qualitative data sources usually include observation or participant observation; questionnaires; interviews; documents and texts, and the researcher’s feelings and reactions.

I was more interested in collecting data to explain causal patterns and “to understand what happens inside the black box, to go beyond inputs and outputs” (Hart, 2012, p. 78). In addition, I sought to recognise not only what works, but how and most importantly, why it works. As I said before, in this study, the question is whether WhatsApp is useful for enhancing the collaborative learning, and if so, how and why?

There were in fact four methods used in the first iteration (see Table 6.1 for all methods used in this study). The first was IA via WhatsApp; the second was observation inside the classroom; the third was taking field notes about what went on inside and outside the classroom, and lastly, there was a focus group. All these methods, except the focus group, were applied in both the first and second iterations. The qualitative methods in my study consisted of the following:

Table 6.1: Methods used to collect the data

<b>Method</b>	<b>Participants</b>	<b>Aim</b>	<b>Time</b>
<i>Semi-structured interview</i>	3 teachers from PAAET	Informal exploratory technique	Before the investigation
<i>Q&amp;A session</i>	All students ( $n= 65$ ) inside the classroom	To validate what the teachers said, and the students' perspectives.	In the first week (induction week)
<i>Observation</i>	All students in the classroom	To observe behaviour	During the lectures
<i>Field notes</i>	Myself and all students, in the classroom and via WhatsApp	To record my feelings, reflections and important things relating to the students	At all times, both inside and outside the classroom

<i>Interaction Analysis (IA)</i>	All students via WhatsApp, outside the classroom	To observe what they said and why, when and where	From the 2 <sup>nd</sup> week until the end of the course
<i>Focus group</i>	All students inside the classroom (split into groups)	To investigate some of the obstacles and how to overcome them	After the 1 <sup>st</sup> iteration and before the 2 <sup>nd</sup> iteration

### 6.3.2.1 Observation

According to the European Commission Sourcebook (2009), “[O]bservational techniques are forms of naturalistic inquiry and allow investigation of phenomena in their naturally occurring settings.” Furthermore, “[O]bservational techniques are also useful when one has to observe a situation about which there is little knowledge or when it is suspected that the same situation is understood very differently, depending on whether the point of view is ‘external’ or ‘internal’” (p. 62).

I kept a running record of events occurring in the classroom, in order to obtain an overview of how participants acted during the lecture. I followed a specific technique to achieve this. When new and significant events arose from the students during the lecture, I immediately asked them a question related to the course and let them think about it while I wrote down the event in my memo. This allowed me to immediately record the most significant things which happened inside the classroom and give the students something to think about. This method yielded significant data related to the students’ behaviour inside the classroom, their aptitude for sharing their thoughts with others and their acceptance of CL with their peers. In addition, I noted to what extent issues like shyness prevented students from engaging in discussion and interaction inside the classroom.

However, Engel and Schutt (2012, p. 5) suggest avoiding selective observation. They point out some errors that might be made with such an observation technique:

- A. Selective observation: Choosing to look only at things that are in line with personal preferences or beliefs

B. Inaccurate observation: Thinking we have seen something when this is not the case

C. Drawbacks

- Observers cannot observe everything
- Observations are filtered by the observer
- The presence of the observer might change behaviour.

Nevertheless, “[O]bservational methods have the advantage of directly evaluating learners’ involvement and engagement in the learning environment and with the learning activities” (European Commission Sourcebook, 2009, p. 62). This Sourcebook also mentions a “highly honoured American philosopher Yogi Berra who declared, ‘You can observe a lot just by watching’”. I have to stress that I was not merely observing for observation’s sake; I was collecting data in order to answer the research question.

To sum up, when I observed students in diverse instructional practices, such as classroom discussions, group activities, interaction inside the classroom and to some extent, online communication, I was able to conceptualise a special understanding of how pre-service teachers in this context (PAAET) appreciate and accept the integration of technology in the form of a particular smartphone app (i.e. WhatsApp) into learning, as well as the concept of CL. Furthermore, the challenges associated with this and how we can overcome them were also explored. This was not an easy or complete process. Ultimately, I concluded that more time and samples were needed to reach a full understanding and develop insights into such questions.

However, one of the main criticisms of the observation technique arises from the fear that learners will change their attitudes when they know they are being observed (Kawulich, 2005). I do not think this happened because in the end, I was their teacher and also one of the participants, through WhatsApp. Nevertheless, I do not think students saw me as a stranger who stared at them or counted their strides. Hence, it was not a problem that needed more attention. The observation and field notes (see 3.6.3) were both employed to answer the research questions (see section 1.5).

### 6.3.2.2 *Field Notes*

As mentioned above, another important instrument used in this study was the field note (see Appendix C). This method differs from observation, but both are interrelated and complement each other. While the observation method is concerned with what has happened - interaction and collaboration - inside the classroom, field notes focus more on how participants behave and act outside the classroom during on-line activities through WhatsApp. This method proved to be an excellent way of recording and differentiating my own feelings from what I observed. Moreover, it focused on collecting data related to the context, e.g. the lack of an equipped classroom; the lack of technical training sessions or preparation for either teachers or students; the lack of e-resources; the lack of faculty members at PAAET, and how such challenges affect the integration and use of technology. To be specific, three processes of field note-taking were carried out in this research:

1. People: How they behave, interact, inquire and respond (particularly outside the classroom).
2. Environment and context (e.g. what is available or missing, barriers, encouragement and disappointment, colleagues' views).
3. The daily process of active participation (collaboration and role-playing, drawn from comments on smartphone apps).

This method has been used by many researchers to record and separate their own feelings and reflections from what they see (Wolfinger, 2002). Predictably, a vast amount of information was contributed by each group. I tried my best to avoid influencing the learners' decisions or interfering with their choices, or with what they were trying to do and how they did it (e.g. activities, interaction, collaboration and role-play). This was not an easy job, but it had to be done, or at least the level of interference needed to be kept to a minimum.

To resolve such a dilemma (i.e. not to confuse what I felt with what I had observed), as Thomas (2009) suggests, as well as finding enough time to teach the students as best I could, I resorted to a particular technique, seeking to present the lecture in general, without going into detail, while maintaining coverage of all aspects of the lesson. On the one hand, this offered more time during the lecture

to record important notes. On the other, such a technique encouraged the students to interact, discuss and collaborate more, in order to resolve incomprehensible aspects and activities related to the lesson, using the suggested technological tools, e.g. the LMS or WhatsApp. This basically takes place in the communication process via WhatsApp. Questions such as 'Why?', 'Where?' and 'How?' arose during the process of keeping field notes.

Emerson and colleagues consider field notes to be the very essence of a study: "Thus they emphasise writing detailed field notes close to their field observations, mining these notes systematically through qualitative coding techniques, and producing 'grounded' analyses tied closely and especially to the original field note corpus" (Emerson, Fretz & Shaw, 2001, p. 355). Silverman (2005) points out that the researcher can put himself in a better position to analyse the significant issues identified in Table 6.2, by recording details of the interaction between the participants.

Table 6.2: Functions of detailed field notes (adapted from Emerson et al., 1995)

<b>Functions of Detailed Field Notes</b>
<b>1-</b> To identify and follow processes in witnessed events
<b>2-</b> To understand how members themselves characterise and describe particular activities, events and groups
<b>3-</b> To convey members' explanations of when, why or how particular things happen and thereby, to elicit members' theories for the reasons underpinning particular events
<b>4-</b> To identify practical concerns, conditions and constraints that people confront and deal with in their everyday lives and actions

### *6.3.2.3 Interaction Analysis (IA)*

All smartphones and even less advanced mobile phones have a built-in camera that permits video and audio-material, text and images to be captured. By asking the participants to interact and collaborate with each other through WhatsApp, a large amount of video material, images, text and mutual response is to be expected. The question will then be how to analyse such issues and people's

interaction and collaboration. I believe that interaction analysis (IA) can be a suitable choice. According to Jordan and Henderson (1995):

“Interaction Analysis [...] is an interdisciplinary method for the empirical investigation of the interaction of human beings with each other and with objects in their environment. It investigates human activities, such as talk, nonverbal interaction, and the use of artefacts and technologies, identifying routine practices and problems and the resources for their solution. Its roots lie in ethnography (especially participant observation), sociolinguistics, ethnomethodology, conversation analysis, kinesics, proxemics, and ethology” (Jordan & Henderson, 1995, p. 39).

This means that IA is a method of analysing what people say and mutually exchange using technology. Video technology (i.e. video-recording), which allows for close interrogation and which can be used to reply in a sequence of interactions between many people over several events, is the key to IA (Frohlich, 1993; Jordan & Henderson, 1995). According to later researchers, IA is rooted in conversation analysis. More importantly, it is compatible with my underlying assumption that “knowledge and action are fundamentally social in origin, organization, and use” (Jordan & Henderson, 1995, p. 41). Thus, I used the IA approach to analyse the interaction between the participants and the videos, images and texts mutually exchanged via WhatsApp and outside the lecture hall.

I believe that the best way for me to gain insights and understand how my students act, interact and perform various activities was to be directly involved with them. Thus, I became one of the participants and installed the selected app (WhatsApp). In addition, I added my name to the different groups to observe how they behaved. According to Thomas (2009), “this kind of observation is called *participant observation* because it is associated with researchers becoming a participant in the situations they are researching” (p. 187). The nature of this technique is to become a part of it, not to break down the situation, but to see the situation as a whole.

In the European Commission Sourcebook (2009, p. 62), the definition of participant observation “is where the researcher joins the population or the organization or community setting to record behaviours, interactions, or events that occur”. Participation of this kind allowed me to be near the action and glean

deeper information, as I placed myself in an apt position to gain additional insights by personally experiencing the phenomena under investigation.

However, the European Commission Sourcebook (2009, p. 62) also suggests that the researcher needs to “to stay long enough to immerse himself in the local environment culture and to earn acceptance as well as trust from the other participants”, since the observation can be used in the long- or short-term. Unfortunately, this was not possible in the current study, as the course was limited by PAAET’s calendar. However, Burgess (1982) claims that participant observation as a term “is a little confusing since it connotes much more than simply observation” (cited in Thomas, 2009, p. 186).

As mentioned above, I joined the participants and became one of them. I downloaded WhatsApp and asked each group representative to add me as one of the group members, so I could follow what was said and how the students interacted and collaborated. Besides, I was able to reply and provide assistance where needed; I had access to all data and all groups. All the data, i.e. mutually recorded videos, images and texts for all groups (six groups in the first iteration), were first downloaded and stored in my laptop and then moved to my password-protected account on the University U-drive. This electronic information would only be accessed by me, with a username and password and for research purposes, before being destroyed (see 5.2. Ethical Procedures).

By engaging with the participants, I deepened my personal understanding of the Kuwaiti context, language, patois and environment by keeping a journal of the most significant comments, actions, reflections, thoughts and perspectives from pre-service teachers. In addition, I gathered data concerning all participants’ behaviour, needs, and barriers. Additionally, I constantly and immediately reviewed and analysed the videos, images and texts which had been exchanged between the participants using WhatsApp. This was in order to understand how the activities were organised, i.e. are they arranged in a certain way, or do the participants simply jump from topic to topic? Furthermore, how do the students make sense of each other’s responses and actions? It was also a means of assessing videos, images and texts which could be relevant and useful for the participants’ respective courses. Whenever the students deviated from the main

point, the efficacy of WhatsApp decreased and I was then obliged to intervene and return the participants to the main points of the discussion.

More importantly, I observed how the students played the role of a real teacher or at least provided guidance or support for their peers. I also noted the techniques they used to accomplish this assignment, while posing the questions, 'To what extent did they accept this role?' and 'How, where, and when did they use their smartphone app (WhatsApp) to collaborate in the construction of knowledge?' Participant observation in this context was useful for answering such questions, as presented in the Findings Chapter.

#### *6.3.2.4 Focus Group*

The use of focus groups has generated increasing interest among educational researchers (Cohen et al., 2007). This technique can be used repeatedly, whenever the researcher struggles or cannot find his way (Thomas, 2009). I believe that engaging the participants from the beginning whenever a problem arises will help reach a solution or understanding in a new situation, which is what distinguishes the DBR approach. Thus, the focus group technique was chosen for the current study, permitting willing participants to make helpful contributions, based on the old saying, "Two heads are better than one".

According to Cohen et al. (2007), focus groups have many strengths. For example, this technique can be more precisely aimed at specific issues and may offer insights which are not evident in straightforward interviews, even if they are conducted in unnatural settings. In addition, their contrived nature is 'economical in time', producing a large amount of data in a short time, although not as much as a natural interview. According to Morgan (1988, p. 21), "focus groups might be useful to triangulate with more traditional forms of interviewing, questionnaire, observation, etc." In fact, this is what led the researcher to adopt various qualitative methods in the first place: To ensure that thick and rich data could be revealed.

However, according to Cohen et al. (2007), a focus group also has certain drawbacks. For instance, since the number of participants in the group is usually small, they might produce less information than a survey. Furthermore, it is

sometimes difficult to analyse the data or understand exactly what people mean at times. Moreover, Cohen et al. claim that focus groups do not usually yield numerical, quantifiable or generalisable data. Indeed, this technique is more likely to be a qualitative, rather than a quantitative approach; it focuses attention on words, interactions and actions, to present a rational interpretation.

The focus group was used in the current study between the first and second iterations. I presented an outline of the study (once more reminding the students of the aims) and the concept of the focus group. Instead of conducting a workshop to prepare the participants for the next iteration, I gathered the pre-service teachers into small groups (5-7 students in each group), according to where they sat. I encouraged them to talk to each other and express their ideas and thoughts (e.g. to brainstorm). After entering into discussion with each other in each group, the participants started to write a list of answers and suggestions on the sheets of paper I had distributed to them at the beginning of the session. I then kept their answers with me as a record of the data. I analysed what they had said and now present it in the findings section in this chapter. Afterwards, they discussed the questions (e.g. how and why questions - see the following paragraphs) in groups, once more writing their answers on sheets of paper.

The focus group started with some questions about WhatsApp and the advantages and disadvantages of the smartphone, together with learners' acceptance and resistance. Additional questions were generated, relating to students' feelings, perspectives and satisfaction with the process in the first iteration, i.e. 'Why did some students not participate in the first iteration?', 'How can we encourage the resisters?', 'Why do you think some of you did not share at all or only occasionally?' and 'How can we improve this situation and overcome these problems?' The answers helped identify the barriers and determine a new design for the second iteration. Therefore, the focus groups were employed to answer the following research question: What are the barriers that prevent a full integration of technology into PAAET, Kuwait? Sub-questions were also specified to gain insights which could enhance the implementation of the second iteration:

A- Why do you think some of you did not share at all or only occasionally?

B- How can we improve this situation?

- C- How can we encourage these students?
- D- How can we overcome such problems?
- E- The significance of smartphones: What are they good for? Why?

The reasons for the lack of sharing, means of encouragement and the significance of the smartphone apps were summarised and presented in the findings chapter, according to the students' views.

#### 6.4 Data Analysis Strategy

According to Ezzy (2002), the “data analysis in most qualitative research begins during data collection” (p. 60). He argues that “[w]aiting until after data have been collected to begin data analysis can lead to some significant problems during data analysis” (Ezzy, 2002, p. 61), as we might miss something that has occurred. Although Ezzy (2002) was focusing primarily on certain inductive research methods, such as grounded theory and narrative analysis, he made a meaningful suggestion that I took on board in the current study, by analysing the data as from the first phase (i.e. the pilot study and Q&A session). Such data served as a preliminary foundation for understanding various issues relating to the teachers and pre-service teachers, such as their perspectives on integrating technology into the classroom; their experiences in this field; the respective barriers; students' acceptance of technology, and what they know about CL.

However, to arrive at a rational interpretation of the findings, the emerging themes from WhatsApp were used to offer a further analysis of the data. These themes, which were in the form of clusters, enhanced the understanding of the first and second investigative iterations. To a large extent, these clusters were based on socio-constructivist learning principles; thus, social constructivism, as a theory of learning, informs the analysis across both phases of investigation. The different themes studied were based on questions at the heart of this research.

According to Brooks (2002), “[f]rom a Vygotskian perspective everything about learning and development is social” (p. 8). Ezzy (2002) provides a compatible view that “interpretations can be actively constructed through social processes” (p. 72). Thus, to obtain valuable interpretations, we need to negotiate and construct meaning with other parties involved in an investigation, like colleagues, peers and

participants. In addition, keeping journals and memos to record diverse issues will lead to an increased understanding of the phenomena under study. Looking through the eyes of constructivism, learning happens through rich conversations, dialogue and negotiated meanings with other people, who have either the same or different perspectives and thoughts, based on their own experiences (Jonassen, 1999). Interpretivism requires multiple voices; thus, all the points of view of the participants engaged in online activities were recorded. Only students who resisted, or who were not active in engaging with peers were neglected because they did not contribute any data. I could not force them to join in. In order to avoid prejudicing ethical principles, they had the freedom to refrain from joining in and had the right to withdraw from the intervention at any time.

I created a journal and memos to reflect on my emerging understanding of the data on a regular basis. A variety of memos were used to record my hunches, notes, perspectives and observations of the context, the first and second iterative cycles, and existing materials, such as books, videos, images and audio-material. All memos were kept in one place: NVivo10. NVivo10 software is useful for coding data and offers many advantages, such as the capacity to code, encode, recode and structure the coding system. Microsoft Office Excel 2007 was also used to make comparisons between emergent data, mainly the different themes and codes.

After data collection, I transcribed the data collected from WhatsApp, uploaded it onto NVivo10 and started to look for the most relevant themes. I analysed these and presented them in the findings section in this chapter. All data/notes collected from observations and field notes were rewritten, since the notes originally seemed like sketches in two languages (Arabic and English). I rewrote the most important and relevant data, transcribed it, and translated it all into English, before importing it to NVivo10 (see Appendix E). I saved all the data in my laptop and stored it on the University U-drive. The same process was repeated with the focus group material (see Appendix C, section 2). I gathered together the participants' written answers and recommendations and classified them according to their relevance and significance from the participants' point of view. Unethical issues were excluded. The text was then translated into English and uploaded onto

NVivo10, so it could be coded, the answers and recommendations being presented in the findings section in this chapter.

The purpose of coding is to identify themes or concepts emerging from the data. Through coding, I tried to construct a “systematic account of what has been observed and recorded” (Ezzy, 2002, p. 86). Data were analysed using a thematic analysis approach, which aims to identify themes within the data. Braun and Clarke (2006, p. 6) explain that “[t]hematic analysis is a method for identifying, analysing, and reporting patterns (themes) within data”.

## 6.5 Findings

### 6.5.1 Findings from Interactional Analysis (IA)

In this phase, the first iteration, I analysed the data collected from WhatsApp by using IA. I was looking for evidence of the four themes that had emerged earlier from the Literature Review, representing the pedagogical affordances of the smartphone app, WhatsApp (i.e. quality of communication - 168 examples, control of communication - 9 examples, social construction of knowledge with new media – 37 examples, and the adoption of new roles – 22 examples). The results show a combination of four themes, with new theme also emerged (i.e. socialising – 71 examples) see (Figure 6.3). The notion and act of ‘socialising’ is clearly not an exclusive discovery in this study. In relation to learning environments, for example, Kirschner and Neelen (2015) discuss the significance of ‘socialising among students’ and call it ‘off-task communication’. They define it as follows: “[A]ny communication that is not related to the task at hand. In other words, social talk, chitchat, jabber, or even gobbledegook”. ‘Socialising’ is discussed and described in the concluding chapter (see 9.3.1) as one of the theoretical contributions of this study in the cultural context of Kuwait.

Each of the four themes with the emerged fifth theme (i.e. socialising) could be broken down into further sub-themes (see Figure 6.3). Occasionally, these sub-themes were interwoven, e.g. when one of the participants brought relevant new information from new resources (the Internet or the field) and shared it with others at an expanded range of venues or times, in order to scaffold their learning, where it could be said they were going through some of the sub-themes. The main five

themes representing the pedagogical affordances of the WhatsApp smartphone app for CL are presented below (Figure 6.3).

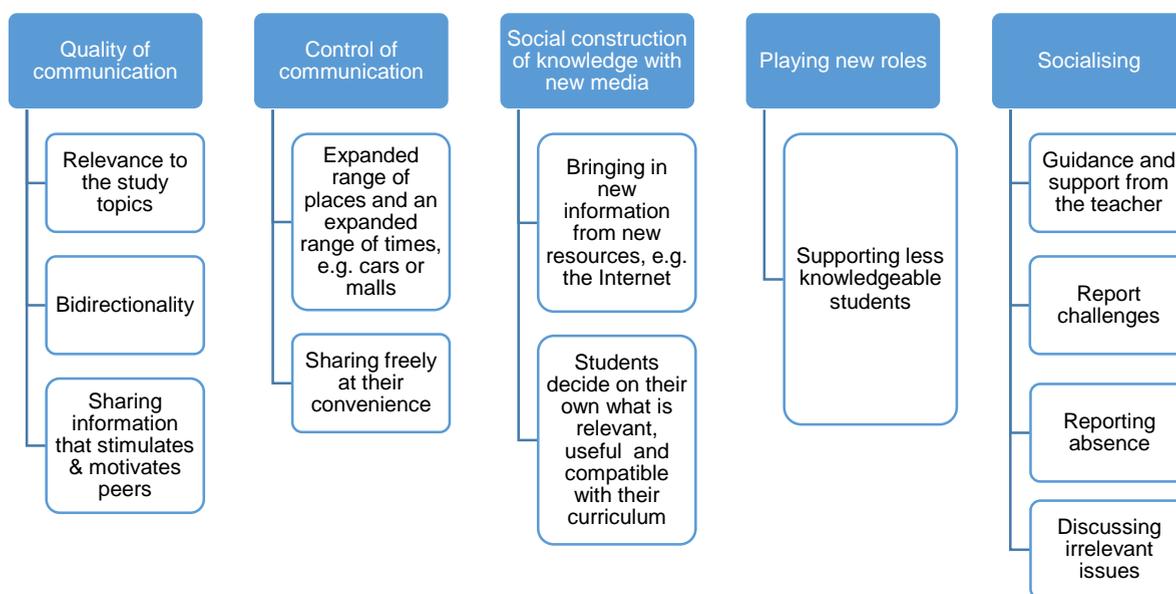


Figure 6.1: Themes representing the pedagogical affordances of the smartphone app- WhatsApp for CL

The new themes emerged (i.e. socialising) can be illustrated as follows; when some participants used WhatsApp for social events (e.g. seeking the teacher’s help, reporting challenges or absences, exchanging greetings on Fridays (the weekly rest day for Muslims) and at Eid Al-Adha (a Muslim religious feast, etc.). Additionally, they used WhatsApp to discuss issues which were irrelevant to their topics (sharing jokes, feelings and ideas).

These actions correspond to what T2 mentioned earlier. Socialising with others (colleagues and teachers) and discussing irrelevant issues while using a synchronous and ubiquitous technology, like smartphone and the accompanied apps (in this case WhatsApp), seemed highly appropriate for maintaining the flow of communication between the participants. Mantyla (1999) suggests that one thing an instructor should do when deciding to use technology in teaching is to keep communication flowing. This kind of socialising can stimulate self-confidence and overcome shyness. Thus, ‘socialising’ was added to the previous four themes, with some sub-themes, i.e. A) Guidance and support from the teacher, B) Challenges, C) Reporting absences, and D) Discussing irrelevant issues

through WhatsApp (see Figure 6.3, above). Besides, this can be considered as the fifth pedagogical affordance of WhatsApp for CL in this study.

#### *6.5.1.1 Quality of Communication (168 examples)*

This theme is represented by sub-themes, i.e. A) Relevance to the study topics, B) Bidirectionality, and C) Information-sharing that stimulates and motivates peers.

##### *A) Relevance to the study topics*

In the first iteration, there were many examples of communication between each group members (51 examples, see Appendix B-1, section 1.1), i.e. Relevance to the study topics (originally in Arabic), and the fact they were sent via WhatsApp:

G1:S6: I want to bring a small information about the role of the teacher in education technology which is the e-learning... <http://genie-inezgane.ibda3.org/t20-topic>

G1:M.: Guys who didn't attend the lecture yesterday [...] I bring few issues about our topic, about charts... (Charts) is a kind of graphs (or graphic formats) that are used to re-using data representation through drawing columns, lines, and circles... [M. added] what is the benefit of using the charts? The schemes collect, organize, and summarize numerical statements that help to understand this data better especially for decision makers. It is considered important schemes used in the science of statistical analysis tools... [he presented the following links] everything about the charts/schemes and types and shapes... [http://kuwait10.net/2010/06/04/charts\[And\]](http://kuwait10.net/2010/06/04/charts[And])  
<http://www.egyscholars.com/vb/showthread.php?t=13296>

G1:S1: Advertisement which I liked... about the differences between the new and the traditional learning... <http://t.co/LZBjrZ0S>

This is an example of one of the group's conversations about the role of technology in education (all the other conversations between the students can be

found in (Appendix B-1). The above extract illustrates the students' understanding of the role of technology in education. Some group members provided explanations, examples and links to resources, as well as identifying topics which were relevant their study area.

It seems that this group (Group 1) achieved the first two ILOs specified earlier; they:

- 1- Defined the basic concepts related to learning, technology and its relationship to education, and human contact components, for example, the sender of the information, the receiver, the surrounding environment, etc.
- 2- Identified publishing technology, sculpture, paintings, drawings, and various types of graphics.

I believe that most of the participants appreciated the role of technology and their opinions clearly expressed this in the educational context via WhatsApp; as we can see from the following quotes:

*G2:S1:* Technology plays a major role in education; technology has a direct influence on the individual using it. Without technology, education would not evolve.

*G4:S5:* The technology has a very important role in terms of education, making it easier for students to get the information and gain the largest amount of important information from the lesson...

*G5:S2:* I think technology is the only way in which to improve education, especially in Kuwait... where we are surprised... not to be using technology appropriately in Kuwait...

The following Figure (Figure 6.4) shows the number of responses, indicating how much the students appreciated technology. To collect as much data as I could about the participants' perspectives of the significance of technology for education, the group discussions did not revolve around the same issues, but rather varied. For example, I asked just two groups out of a total of five to discuss the advantages and disadvantages of technology in education. These amounted

to around 15 participants, with 13 responding. Most of these students clearly confirmed the key role of technology in education. As we can see from Figure 6.4, 10 out of the 13 students believed that technology potentially offers a great deal to education, because it has many advantages and, as one student asserted, “Technology has a very important role in education because we live in the Internet era... and computers make exchanging information easy and convenient”.

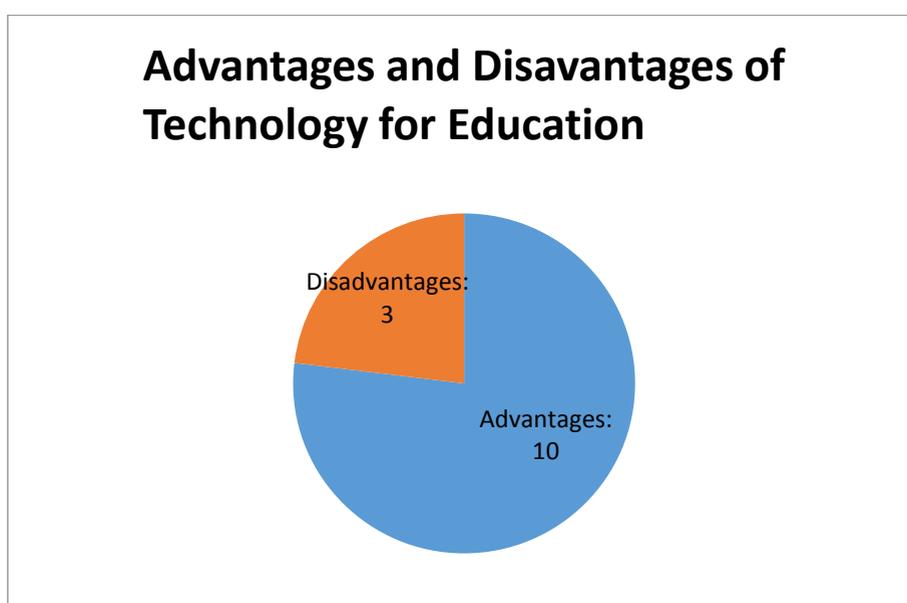


Figure 6.5: Advantages and disadvantages of technology

### *B) Bidirectionality*

There are two sub-themes which need to be discussed, i.e. bidirectionality and information-sharing, as they stimulate and motivate peers. The exchange of communication between participants was sometimes a conversation/debate between two group members. In other words, it evoked bidirectionality, as we can see in the following example (for more details see Appendix B-1, section 1.2):

G1:S2: Personally, I see transparencies project, excluded the drawing... Unsuccessful...

G1:S4: Can I know why?

G1:S2: Because what you actually do... zooming the book...

G1:S4: In contrary, facilitate the explain process... because it used to display pictures... and as we said... the easiest way of explain is by picture... and picture is better than thousand words.

G1:S2: No you did not understand me...

G1:S4: Explain, kindly

G1:S2: I mean that the transparencies... the best of it is that you can put picture on it, or you put words and let the students see it... it's a failure project for me

G1:S4: It's only one transparency... so the words inside it will be as simple as could... and shortened and clear...

This type of bidirectional communication occurred within all the groups (67 examples, see Appendix B-1, section 1.2). This is an example of two students debating over the usefulness of transparencies and how they can be helpful as technological tools at school. This is evidence of the WhatsApp smartphone app facilitating such a debate outside the lecture hall between two members of the same group. The above extract illustrates how students expand their understanding of one of the topics they were studying. Another example of how WhatsApp permits bidirectional conversation may be found below:

G5:S4: Guys, I see that learning by technology is negative!!!!... Don't sets the stage to study!!... and not encourage you so that you expand in information!!!...

G5:S3: Its depend... brother

G5:S4: Imagine... searching on the internet... can't be complete [satisfy and like searching in academic library

G5:S3: If the individual is search... he will benefit.

G5:S4: Except that, and of course... the internet might transfer wrong information.

G5:S3: You must make sure about the source...

G5:S4: Its difficult you go and search from references... it's impossible to be inclusive.

G5:S3: But, technology is useful in our life! without technology, we cannot speak to each other now...

G5:S4: I am with you... technology facilitate your [search]...

### *C) Information-sharing that stimulates and motivates peers*

The third sub-theme is, C) Information-sharing that stimulates and motivates peers (50 examples, see Appendix B-1, section 1.3). This sub-theme was presented clearly by many group members in the first iteration for instance, see the following conversation between some of the students.

G1:S4: Guys, I am following a channel... while I am eating [at his convenience]

G1:S4: I saw in Japan and the development countries... even in the primary school... they making the learning easier.

G1:SM.: How?

G1:S4: They use the ipad... don't left heavy stuff and take book with them... like us

G1:SM.: Enjoyable and lighter...

G1:S4: Who's disagree with me... speak... guys we want to make it a discussion

G1:S4: I see it fun, give special colour and taste of fun in studying [integrating iPads into classroom]

G1:SM.: In this, I agree

G1:S4: Give advancement... communication be easier like what we do now.

G1:SM.: Correct, it's enjoyable

The above example shows some students' ability to share relevant information from outside the lecture hall when using WhatsApp. This example and others (50 examples, see Appendix B-1, section 1.3) also show that students can stimulate and motivate their peers in the same group via WhatsApp. For instance, one of the students gave an example of using another technological tool, i.e. an iPad, in a Japanese school, in a way which differed from this study (where a smartphone app was used). His fellow-student seemed convinced and liked the idea of using an iPad in the classroom. It seemed that this expanded their understanding of new types of technology that could be used in future, once they were in-service teachers.

#### *6.5.1.2 Control of Communication (11 examples)*

This theme was represented by sub-themes, i.e. A) An expanded range of places and an expanded range of times, e.g. cars or malls, and B) Sharing freely at their convenience.

All groups showed they had used their WhatsApp smartphone apps to, A) communicate and collaborate within an expanded range of places and at an expanded range of times, e.g. cars or malls; for instance, the communication took place at different times (note that the times were sometimes at or after midnight, early mornings, etc.

A) Communicating and collaborating within an expanded range of times and places (6 examples, see Appendix B-1, section 2.1)

G1:S3: At (**03:09 am**, sent by this student via WhatsApp)... attached an image relevant to the transparency display device (IMG-20121109-WA0000.jpg)

G3:S2: At (**11:59 noon**, another student sending via WhatsApp) ... A link to YouTube to show the device that show the dark objects [http://www.youtube.com/watch?v=RBLPJ0SZ45w&feature=youtuube\\_gdata\\_player](http://www.youtube.com/watch?v=RBLPJ0SZ45w&feature=youtuube_gdata_player)

G4:S6: At (19:27 pm, sent by another student via WhatsApp)... a link that contain some answers about issues they study <http://ejabat.google.com/ejabat/b-thread?tid=1fc35c9f34d840a9>

The above examples shows that pre-service teachers at PAAET used WhatsApp to communicate, collaborate and send various material, e.g. text, links, images and videos, within an expanded range of times. Furthermore, they can send and receive the same material, communicate and collaborate from an expanded range of locations; for instance:

G1:SM.: Guys, now I am in the cafe in the *Mall* [expanded range of places]...

G1:S4: Excuse me, I could not registered [with LMS-Haiku] because I am in the *Farm* and the signal is weak...

G4:S6: My Mobile Internet Subscription expired and I was in the *Chalet* this weekend... and shared last time on Wednesday... if the service is available I really shared [the financial challenge of sustaining a mobile Internet subscription]

The above extract clearly shows that the students use WhatsApp from an expanded range of locations, e.g. malls, farms, chalets, and their cars. However, the extract also indicates some of the challenges faced by students when trying to use their smartphone and accompanying app (in this case, WhatsApp) to communicate with others and explore the e-content of their course, e.g. a weak signal or the expiry of their mobile Internet subscription.

*B) Sharing freely at their convenience (5 examples, see Appendix B-1, section 2.2)*

The next quotes show how the students can use WhatsApp to communicate within their groups when necessary and at their convenience. They were able to report and discuss many issues before, during and after the lecture times, e.g. reporting

some of the challenges faced when using LMS-Haiku. Expressing their ideas within their groups at their convenience seemed to encourage openness amongst some of the students, but also led them to reject the integration of technology into the classroom. Furthermore, it seemed that WhatsApp gave the students the opportunity to express their thoughts immediately, without waiting for the next lecture, as well as enabling them to be heard, especially in view of the large student numbers at lectures during this period (1<sup>st</sup> iteration,  $n=65$  students).

G1: S2: Excuse me, I want to sleep... [it may be a sign that he is already in bed – sharing at his convenience].

G3: S1: I apologise for not sharing before... [At 02:46 am]

G3:S4: In the same path and away from the activity I see that the traditional way [teaching] sometimes more positive, especially in material such as mathematics... This subject needs to practice continually to resolve the issues... It is difficult to explain by Projector way of solving the issue [equation]... and the image become too far to the mind of the learner [freely expressing his opinion]

G3: S9: Doctor [pointing to me as a teacher], I see the web [Haiku-LMS] is slightly complicated... and I see WhatsApp is enough for communication and sharing... this my view... [freely expressing his opinion]

#### *6.5.1.3 Social Construction of Knowledge with New Media (55 examples)*

This theme was represented by sub-themes, i.e. A) Bringing new information from new resources, e.g. the Internet, and B) Students deciding for themselves what is relevant, useful and compatible with their curriculum. In addition, this theme offered 16 examples of the knowledge actually constructed by the participants during the study (see Appendix B-1) and the benefits this brought to the learning process. It seems that WhatsApp helped the students attain higher level thinking skills (i.e. The Cognitive Domain of Bloom's Taxonomy). Using WhatsApp as a means of communication may help overcome one of the challenges faced in this

context (whereby students focus more on memorising information, see 7.4.2.1.2). The following extracts show how some of the students were able to construct their own knowledge by counting on each other's understanding, as well as analysing, comprehending and evaluating certain topics they were studying (i.e. projectors components).

G5:S6: guys, I couldn't understand what the teacher said ... about projectors components...hhhh [laughing]

G5:S1: its not difficult..

G5:S6: I was browsing Twitter ....hhhhh [challenges, sign of distracting]

G5:S6: my football team will play after two hours...hhhh

G5:S1: projectors components are lenses, screen, memory, remote control, air filter, interactive pen, 3D glasses and more...

G5:S3: Allow me to add, what Mohamed mentioned are the basic components.... we have to remember that there are other important accessories like... head set, interactive pen, speakers, camera.

G5:S1: yes, true

G5:S1: but, analysing in my head what is more important ... I think we can live without ...accessories.. [evidence of analysing]

G5:S3: without interactive pen ...how can you point towards important things.. With big audience!!! [evidence of evaluation].

G5:S2: thanks Ahmed [pointing to S3]... I didn't recognise the significant of interactive pen or accessories.. hhhh .. I thought that I need only... the screen ... [clue of comprehend]

G5:S1: you need to reverse your words....hhhh ... you need the device [projector] and can neglect the screen... no need.. any surface is good..[I think he ment any wall]

G5:S2: hhhhhh.. thanks brother..

*A) Bringing new information from new resources, e.g. the Internet*

The next examples refer to the students' ability to draw new information from new resources, e.g. the Internet (12 examples, section 3.1); for instance:

G4:S3: This is a pdf paper called - the exclusive libraries in education technology [he shared this link with the others]<http://al-mostafa.info/data/arabic/depot3/gap.php?file=011978.pdf>

G4:S5: Another student sent this link as a new resource for relevant information's...<http://www.khayma.com/education-technology/TCHH1.htm>

G4:S2: OHP video and how its manufacture manually... possible benefit from it to know the basic parts of the machine and how they work...[http://www.youtube.com/watch?v=-lKTwn-gAzU&feature=youtube\\_gdata\\_player](http://www.youtube.com/watch?v=-lKTwn-gAzU&feature=youtube_gdata_player)

The above extracts shows that students were able to draw new information and definitions from new resources, i.e. the Internet, to expand their understanding of topics being studied on the course. The above examples and others (see Appendix B-1), combined with responses from fellow group members are evidence that those students socially construct their own knowledge with new technology, i.e. the WhatsApp Smartphone app.

*B) Students deciding for themselves what is relevant, useful and compatible with their curriculum*

This sub-theme represents the degree to which students were able to decide by themselves the usefulness of some of the thoughts and ideas revealed using WhatsApp during the course, as well as the relevance of the curriculum and content studied; for instance, the preferred learning methods, traditional or otherwise, e.g. e-learning or distance learning (27 examples, section 3.2).

Conflicting responses were given, according to what the students believed to be more useful and compatible with their curriculum; for instance:

G3:S6: I prefer the learning content... electronic... because of the simplicity and easier than the printed/paper...

G3:S5: Electronic because it easy to browsing...

G3:S8: I prefer the electronic because 1- easy to use... 2- precision... 3- speed...

G3:S6: I agree with N.[S8]... the electronic much better and the reason...Because it give the student excitement and is used by many means, such as voice, image and video...And makes students live in the school environment in enjoyable and easy way... and helps in the transmission of the information smoothly and in understandable way...and without complexity... the electronic, keep pace with educational development and facilitates student [learning]... and be easy and fun and enhances the spirit of the study and understanding of students... and in the same time, save student effort...

G3:S4: I prefer it... printed/paper whereas the existence of guarantee for the content... excluding the easy to browsing on the internet... because the content as one said previously can be sometime manipulated... make the learning process difficult...

Surprisingly and in contrast to their appreciation of technology, a higher percentage of students stated a preference for traditional learning over E-learning, as shown in Figure 6.5 below. Even though such findings cannot be considered conclusive, due to the small number of participants answering this question, it still offers unexpected findings.



Figure 6.6: Preferred method of learning

To understand this contradiction and gain insights into this dilemma, let us review some participants' justifications for why they prefer content on paper to electronically presented materials. One student declared, "I prefer it on paper as it starts with me from the beginning. Furthermore... paper [content] is easier for gaining information and faster [than E-content] for maintaining/remembering the information". I believe it is the way the students learned at school which has affected these preferences. State schools under the governance of the Ministry of Education in Kuwait adopt traditional learning methods. They mainly count on printed books and pen and paper in all grades. The teacher is responsible for almost everything; from lecturing and offering support, to assessment. In this case, the students are passive, not active. Thus, it made sense that some would prefer these learning approaches.

Those students who stated a preference for E-learning, however, justified their choice by saying, "of course, I prefer E-content because it keeps pace with the evolution and development of the technological era". Other students justified their choice by declaring that E-learning is simpler, easy to use and browse, more precise, and more appropriate for quick searches than the printed page. A student in the same group concurred, adding that E-learning is more exciting, with information being transmitted smoothly and clearly by means of voice, image and video media, free of complexity. In addition, E-learning can make students' school experience more fun and easier to negotiate.

Nevertheless, there were students who did not express a special preference for any of the methods proposed above. For example, one pronounced, “paper [content] is easier for studying and maintaining/remembering and electronic [content] at the time of explaining became easier for students to understand the lesson”. Another student declared,

*G4:S4:* “for me... if the information is specific for the learning curriculum... there is no difference between the paper and the electronic [content], whereas, if the information is about something outside the learning curriculum, I prefer to collect it from paper/books, not electronically, for two reasons; Firstly, E-books, especially if the format is in Word, are too much of a problem to trust because they are uploaded onto the network without the author or publisher, so there is the probability of misrepresentation. Secondly, E-books are mostly converted from paper books, so, to explore them more, it’s better to refer to the original, which is the paper”.

I think that such remarks show the ability of some students to identify the advantages and disadvantages of the proposed methods (traditional and electronic). Furthermore, they accept the integration of technology into the education process on one condition, namely the reliability of electronic sources, as highlighted earlier by their colleagues.

There were obvious contradictions in many situations in this research. For instance, most of the participants use technology frequently (mobiles, smartphones, PlayStation, computer games), but they just do not choose it for their learning! They differentiate between using technology for learning and technology for fun and simply will not allow anyone to spoil their pleasure/fun time. Of course, they have some justification: It is understandable that fun is not like learning; such handheld devices can provide an outlet for stress and the users will not allow anyone to ruin that. An interesting point was raised by one of my colleagues who claimed any use of technology will not be successful because the ‘curriculum’ is not designed to work with technology, but rather with printed material at PAAET. In fact, the curriculum depends on the students being able to

memorise and recall information in this context. Furthermore, we have to bear in mind that people generally look for the quickest and easiest way to do things.

#### *6.5.1.4 Playing a New Role (39 examples)*

This theme is represented by a sub-theme, i.e. A) Helping and supporting less knowledgeable students.

##### *A) Helping and supporting less knowledgeable students*

One of WhatsApp's unique pedagogical affordances proposed in this study is the potential for hand-held devices and their accompanying apps to promote and allow for more knowledgeable students helping and supporting their less knowledgeable peers (37 examples, see Appendix B-1, section 4.1). To explore the affordances of such technology, i.e. the WhatsApp smartphone app, the following examples may be reviewed:

*G1:M.:* Guys, I collect images in details about the device that we talked about today which is the Display Device Transparencies... IMG-20121107-WA0000.jpg (attached file)... [helping others]

*G1:S2:* Where I put the code?? [to enrol into Haiku-LMS]. One of the students asks his fellow group members to help him.

*G1:M.:* [The response] beside the word Next [followed by] enter this code GR4RF [this student scaffolds his colleague and sends an captured image to show him how to register with LMS-Haiku]

*G1:M.:* One minute guys, I will take a picture and send you the steps in photos [using the capture feature in his smartphone to help his peers]

The above example and others (see Appendix B-1), show that students aside from the group leader can play a new and active role, rather than remaining passive (as in the traditional classroom), by helping and scaffolding less knowledgeable peers in the same group. WhatsApp allowed most of the students participating in one of the groups to spontaneously ask questions, providing and receiving instant

responses and help when required from fellow group members. Some of the conversation via WhatsApp showed that the students varied in their levels of knowledge. This suggests that playing a new role can be beneficial for the entire group, whereby members can learn from each other.

#### *6.5.1.5 Emerged Theme: Socialising (45 examples)*

The results point to a new theme emerging (i.e. socialising with peers and the teacher), which included a number of sub-themes: A) Guidance and support presented by the teacher, B) Challenges, C) Reporting absences, and D) Discussing irrelevant issues brought up by participants using WhatsApp:

*A) Guidance and support presented by the teacher (27 examples, see Appendix B-1, section 5.1)*

The following instructions and guidance presented by the teacher to the students through WhatsApp before, during and after the course show the need for immediate help to be provided when required, without waiting for the next lecture:

*I:* Good group but needs more focus [encouraging them]

*I:* Tomorrow is a vacation... [I use WhatsApp to inform students about leave]

*I:* Eid Mubarak... [using the App to wish the students a pleasant Muslim Eid Al-Adha]

*I:* The Website [LMS-Haiku] is important to identify the targets... And our planned activities... And interaction... It is very important and must be visited and you must register in it...

*I:* After identifying the chapter targets... and the next activity required... Participation will be through it... or by the Apps.

*I:* Ok, Doctor.

*I:* How to register is easy... go to [https://www.myhaikuclass.com/Intro/intro/cms\\_page/view](https://www.myhaikuclass.com/Intro/intro/cms_page/view)

*I:* Insert the code... The code is YR475... Follow the instructions

*I:* I want everyone to effectively participate... we will start giving grades... reporting absence...

*I:* Follow the registration steps, then, go connect and choose a discussion... and share [instructions on how to use the discussion board in LMS-Haiku]

*G2:S1:* Doctor is there any other activity [?]

*I:* Go to the second chapter [students always need support]

*G2:S1:* Thanks... and we will do our best

The above extract is evidence of the pedagogical affordances that smartphones and their accompanying apps hold (receiving instant support, guidance and feedback). This is in contrast to traditional learning, where students have to wait for the next lecture to obtain answers to their questions and enquiries. The above evidence suggests that teachers can encourage students, inform them about future leave, provide instructions and feedback, etc.

### *B) Report challenges (9 examples, see Appendix B-1, section 5.2)*

Any attempt to develop teaching and learning methods may face some challenges and this study is no exception. The students reported many challenges through WhatsApp; for instance, the complexities of LMS-Haiku.

*G1: M.:* I couldn't register to Haiku-LMS

*G1: S4:* Even me... it did not open...

*G1: M:* It is not working... it show like this [this student immediately captured a picture of what he saw on his mobile screen and sent it via WhatsApp]

*G1: S7:* But, it all in English [sign of poor language proficiency]

*G2: Mo.:* I prefer it [the content] on paper... reason... it start with me from beginning... and the paper easier to gain the info... and faster

for retain than the electronic [one of the challenges was that some of the participants seemed to prefer to memorise information, instead of comprehending it; some also showed a preference for printed content, e.g. books, rather than e-content].

G3: S6: Library close [another challenge consists of the limited library opening times on the campus]

G4: S6: My Mobile Internet Subscription expired [the financial challenge of sustaining a mobile Internet subscription].

G1: S4: Excuse me, I could not registered because I am in the farm and the signal is weak... [Another challenge – weak Internet signals].

As we can see from the above extract, many challenges were faced by the students during the study, but WhatsApp allowed them to report these instantly. Furthermore, as I (the teacher) was accessible on WhatsApp for all the groups, I was immediately informed of any challenges they faced. This gave me the opportunity to offer instant help, resolve problems and modify my plans, wherever necessary. Fortunately, the more knowledgeable students also offered help to their less knowledgeable peers, which alleviated my workload. Usually, this kind of mutual support is difficult to achieve, since those seeking help generally have to wait till the next lecture or visit the teacher during predetermined office hours.

### *C) Reporting absence (4 examples, see Appendix B-1, section 5.3)*

The students used WhatsApp to report absences and this was useful during times of illness, when traveling, on Hajj (pilgrimage), etc. without incurring the need to visit the . It thus saved the students time and money.

G1:S6: Excuse me, I could not come to the last lectures because of private circumstances.

G1:S4: I didn't attend [the lecture] today...ill

G1:M: Wish you a good health

G1:M.: Excuse me guys, I am leaving to Mecca for Hajj [a pilgrim's journey]. Inshallah [God willing]... I will communicate with you from there.

G1:S2: 'God' accept your Hajj

*D) Participants discussing irrelevant issues using WhatsApp (5 examples, see Appendix B-1, section 5.3)*

The preference for WhatsApp amongst the students in this study, as well as its ubiquity, helped them stay connected at all times and not only offered new opportunities for discussing relevant issues, but also irrelevant ones, e.g. scheduling meetings, reporting students' protests, sharing jokes, etc. This seemed to increase their interest in sharing and kept the flow of communication between group members at acceptable levels.

G1:S4: There will be a protest tomorrow in the Basic College... [sharing and distributing news]

G3:S7: Touchable screen from Disney company which can distinguish between users <http://t.co/FPGdG3rP>

G5:S3: Guys, keep our subject about the topic only... without outside topics

G5:S1: N.[he was talking to G5:S3], we have to let the atmosphere joyful...

G5:S1: Laugh a little and return to our topic

G5:S2: Giggle and gain Knowledge.

### 6.5.2 Findings from the Focus Group

The focus group was one of the methods used in this study. Focus groups still form part of my first iteration, as they are used to develop the new design principles for the second iteration. This method was implemented to investigate various questions raised during the first iteration; for example, ‘What is the significance of smartphones?’, ‘What are they good for?’; furthermore, ‘What are the problems of using WhatsApp?’, ‘What are the reasons for not participating effectively and how can we encourage others to participate?’ I used focus groups following the first iteration and before beginning the second, in order to expose vague issues related to the above questions. I divided the students into groups according to where they were seated and asked them to write down their opinions after brainstorming ideas on a piece of paper.

The focus groups’ comments on the significance of smartphones and what they are good for were categorised according to the five pedagogical affordances suggested by Klopfer et al. (2002) (see Table 6.3).

Table 6.3: Significant features of the smartphone

Portability	Social interactivity	Context sensitivity	Connectivity	Individuality
Can connect at any time	Useful for meeting new people	Helps acquire information	Enables easy communication	Offers privacy and is easy to shift between programmes
Easy to carry	Useful for social communication	Offers general packet radio services (GPRS)	Allows group communication & teaching	Saves time & money (when using Apps)
			Allows communication with the outside world	Represents an inclusive device (computer, phone, camera, calculator, clock, etc.)
				Easy to navigate & retain permanent contact Easy to use
				Comprises a personal computer
				Reminds of appointments & matters of importance. Stores personal information
				Offers entertainment (games & apps). (constantly updated)
				Not expensive (in the Kuwaiti context)

It was evident that many of the students were convinced that smartphones offer many tools and advantages they can benefit from. However, I asked some why they did not participate with the others. In other words, what were the barriers? I received various comments from all the groups and analysed these responses to reveal some barriers. For instance, there was a lack of focus on a single topic (some were distracted); some students were negligent; there was no relationship between the students; some students were shy; some students did not assimilate (individual differences); some students were disinterested, or else there was insufficient encouragement from me (as a teacher).

Moreover, some students relied on posts from fellow-students and then followed up. Others were preoccupied with other courses and tests; failed to organise their leisure time; were unable to use technology or the Internet for specific reasons (e.g. cultural or technical), or were unable to use different resources appropriately (maybe due to a lack of training). Additionally, most found the LMS (Haiku) was not useful or relevant (i.e. they considered it to be dispensable). Participants also warned of expected future challenges, like the possibility of a sudden disruption in mobile services, or incompatibility with certain applications.

After identifying the reasons for a lack of participation in activities via WhatsApp, specified by the students themselves, it was time to ask those students for recommendations and how they could encourage their colleagues to participate more. Again, I tried to engage the pre-service teachers in relevant decision-making. The students, however, demonstrated that we can encourage others to participate more by focusing on a topic selected for each group and obtaining group approval. Furthermore, the most efficient group could be honoured, enriching the spirit of criticism; group members could be changed over time; numbers could be limited to less than six per group, and ongoing follow-up from the teacher could be organised for the discussion groups, staying in contact and imposing duties as required.

What is more, there needed to be explanations of the rules of participation and grading strategies, paying attention to the personal opinions of the students and responding to these. Posts needed to be brief and examples of the topics to be

discussed needed to be provided, allowing debate outside the subject matter to entice students to participate, thus enhancing mutual understanding. The issue of sharing needed to be determined in each group, such as whether participating in a group discussion via WhatsApp should be mandatory (since they are already in a group) and whether additional grades should be awarded for such sharing (this point will discuss in section (6.6)).

Knowing the reasons behind a failure to participate and proposing solutions to encourage students to participate more was helpful, before designing and implementing the second iteration. In other words, I knew the problems and had devised solutions. As a result, I would hopefully avoid mistakes and use students' opinions and recommendations before starting the second iteration.

### *6.5.3 Findings from the Observation*

I observed that some of the students' perspectives and attitudes to using WhatsApp, or to collaborating with their peers became more positive during actual practice in the first iteration. In this phase, my theory was that smartphone apps (in this case, WhatsApp) are able to enhance CL, since they hold several pedagogical affordances that encourage use by students and facilitate collaboration with peers. However, I will firstly demonstrate what I learned from the data as a whole by presenting some observations to help figure out how WhatsApp can be implemented in this context:

- 1) Groups were big; there were between eight and ten students in each group (five groups).
- 2) Communication was weak and limited; some of the students were hesitant, anxious, or inexperienced.
- 3) Some individuals did not participate at all. They hid behind other peers for many reasons (e.g. shyness or a lack of interest).
- 4) Collaboration without a group leader/director was not entirely fruitful.
- 5) Not all students in the first iteration benefitted from interaction; they did not adopt a cumulative process to construct their knowledge, but rather worked alone.
- 6) Playing the role of a real teacher (in-service) was ineffective at times.
- 7) Obstacles increased (e.g. enrolment in the LMS).

- 8) Being left to freely determine activities and tasks without any help from me (as the teacher) was not a good strategy, particularly at this early stage.
- 9) With the passage of time, more students used WhatsApp, which meant they eventually accepted it as a means of communication and peer collaboration.
- 10) Some students insisted on writing long sentences, even though I warned them against this beforehand, since it is difficult to read long sentences on a small screen.
- 11) The students enjoyed receiving extra grades for sharing.
- 12) Plagiarism was obvious in some cases.

The most important aspect to consider is the challenge emerging from the first iteration (see the observation points above), stated in the LR before trying to use WhatsApp in this context. This is to avoid repeating mistakes.

After I had understood most of the elements surrounding the implementation of a new artefact into the classroom from IA, observation, fieldwork and the focus group. I generated some procedures for the successful implementation of WhatsApp for enhancing collaboration. This is to enhance the conditions of the fieldwork for the second iteration, maximising participation and ensuring open and respectful communication and collaboration; For instance:

- 1- All students agreeing to participate in this study are obligated to download and use WhatsApp.
- 2- Full instructions must be presented on how to download and use WhatsApp (participants are strongly advised to refer to 'How it works' - in Arabic, <https://www.whatsapp.com/>).
- 3- Each group must have a representative and not exceed six students, so the experiment can be controlled. This is to prevent less active members from hiding behind their more active peers and benefiting from their efforts without doing anything themselves.
- 4- At the end of each lecture, a new activity will be started for each group, initiated by the teacher and consisting of a set of questions – unlike the

previous strategy, where the students were responsible for initiating activities. These activities must be based on what students have already learned.

5- All students will be granted the freedom to go beyond each activity as they wish; being creative and serving as a real teacher in a real situation.

6- New questions must be asked, as the types of activities relating to smartphone apps (i.e. WhatsApp) might reveal other pedagogical affordances. Within such activities and with the progress of the research, I hope that all the pedagogical affordances will be clearer and more easily understood.

7- The students must understand why they need to play the role of a real teacher (in-service teacher), why they need to collaborate with peers, and how WhatsApp can help them enhance their CL.

8- Critiques, analyses, intellectual judgments and the re-thinking of all information should be encouraged before being accepted as fact. This might lead to more negotiation between students for their own benefit, while adding to their understanding. As things start to make sense for the students, it may lead to the construction of new knowledge.

## 6.6 Reflection on the First Iteration

As the interaction and communication proceeded, more issues emerged. For instance, the students constantly needed encouragement and support. Hence, they were encouraged to ask me (the teacher) or a colleague for help without hesitation. In this case, we (the more knowledgeable students and myself) scaffolded the less knowledgeable students (see 2.4.3. Zone of Proximal Development, Vygotsky). This approach also helped solve problems immediately and at the same time revealed the role of the in-service teacher (participatory simulation principle).

The students (pre-service teachers) started to communicate within their own groups using WhatsApp and asked/answered one another's questions, relevant to their respective courses (i.e. Introduction to Education Technology) once the

lecture had finished. Some opted to act as group leaders, in order to help fulfil the scaffolding concept. Some therefore volunteered to play the role of an in-service teacher to provide guidance and scaffold others in the groups. In this situation, more advanced peers helped arrange tasks related to the appropriate area of study, so that less advanced peers could work on them successfully. In other words, more knowledgeable and self-confident students (not necessarily the group leaders) provided relevant information (e.g. the advantages and disadvantages of technology), which was then discussed by group members, replying via WhatsApp. This scaffolding process gave less knowledgeable and less self-confident students the chance to express their feelings and thoughts, as well as a chance to expand their knowledge of the subject under study, without the fear of being criticised or misjudged.

Unfortunately, at this stage, it seems that collaborative learning was not initially captured in full or completely understood by the students as a concept beyond role-playing, but as the study progressed, more understanding evolved. However, the structure of the M-learning activities was designed primarily to introduce a more comprehensive understanding of the course. It focused on introducing definitions, concepts, advantages and disadvantages of some of the issues related to the subject under study (e.g. the software and hardware).

At this stage, after collecting and analysing different kinds of data, I noticed some changes in participants' attitudes and perspectives (observation and field notes). I believe these were the result of increasing interaction between the students after gaining more confidence and experience. In contrast, other participants' attitudes did not change. For example, until the end, some resisted using WhatsApp and engaging with their peers. Therefore, the aim of encouraging participants to use their own smartphones, in particular apps, to collaboratively communicate and construct knowledge was maintained until the end of the experiment.

As mentioned above, full collaboration between students at this stage (the first iteration) and within this context, PAAET, faced many challenges. For instance, the lack of confidence in the value of peer collaboration, together with the lack of trust in peers' ability to offer valid peer-assessment is considered as a major challenge. More effort was needed to increase such confidence. Moreover, there

were technical challenges (registering and using Haiku and a weak Internet connection), financial challenges (re-subscribing to Internet services), and poor language proficiency, as well as limited campus library opening times.

In this period, I also found that some of the participants were hesitant to share their thoughts with their peers. Shyness and the desire for privacy were major barriers preventing such participants from fully engaging with others. This is compatible with Al-Ali's (2010) findings. However, most needed a high level of support and encouragement to participate. This may be due to their previous learning experiences e.g. in schools). In other words, they may not be familiar with using CL or learning with technology. To encourage the students to participate more, I therefore highlighted good examples of responses from their peers. I also explained why they might need WhatsApp face-to-face during lectures.

Nevertheless, some participants considered WhatsApp to be useless at this stage – largely due, in my opinion, to personal feelings, attitudes, desires and background. This was understandably a major challenge for me, as the researcher and I started asking myself and other participants how we could encourage everyone to participate effectively. Thus, in order to promote interaction, I offered bonus grades. This was not part of my research, but part of the design of the learning environment. In other contexts, this strategy might be considered unacceptable in education, but in Kuwait, it is regarded as justified, since students need a catalyst for participation, as we saw in the focus group (6.5.2). However, to avoid ethical breaches, students were given the option to withdraw from the study, if required (i.e. from data collection, see 5.2. Ethical Procedures) and continue the course, merely using the course book and printed materials as learning resources.

#### *6.6.1 Participants' (Pre-service Teachers) Perspectives*

The differences between the students' (participants') perspectives in the Q&A session and in the first iteration are related to the use of WhatsApp in real time. In the first investigation (the Q&A session), the students had not yet started using WhatsApp. Most were thrilled and enthusiastic about this prospect. In contrast, when they started to actually use it in a real setting during the first iteration, their anxiety and discomfort emerged. However, to gain insights into the students'

perspectives, particularly at the beginning of the course, we needed to review some of the more noteworthy conversations and comments on the use of WhatsApp.

*G1:S2:* “I am not convinced about learning from evolved devices like laptops and others, because you can only hear [and] read, but you can't discuss through it...”

*G1:S1:* “I'm the same... I think the best thing is face-to-face [communication], even WhatsApp, I am not convinced about it...”

*G1:S3:* “Me too, I'm not convinced about WhatsApp because I will not be able to remember the information quickly...”

These comments can be seen to mirror the pre-service teachers' attitudes towards using technology, especially smartphone apps. As indicated earlier, even though most of the participants initially expressed satisfaction with WhatsApp as a means of communication, once the course had started and they had begun exchanging ideas and thoughts, some immediately expressed their dissatisfaction. If we look deeply, such findings reveal two important points: The first is that refusal or resistance from some of the participants can be the result of previous bad experiences with other teachers and this proved to be the case; there had been some unsuccessful technology implementation with different teachers at PAAET.

The second point, which is interesting, is that the voices refusing technology could not have been heard without using such technology and apps in the first place. With the large number of students in the classroom and the workload, it was possible to overlook such important attitudes and ideas. Thus, technology was useful, even where the students were unenthusiastic about using it for learning. However, one could argue they would not have felt like this without the introduction of technology for learning.

In addition, there was a major debate and arguments between some of the students over the advantages and disadvantages of integrating technology into the classroom. For instance, one student declared: “I think technology has negative influences on the learner if it is not used in the right way”. Conversely,

one of his colleagues refuted his view, declaring, “But technology is useful in our lives!” Thus, I was optimistic, as this seemed to be a situation which could change as the discussion evolved, just as the participants’ attitudes could change after the course and their engagement with the new method, their peers and the adoption of WhatsApp. I review the participants’ perspectives and attitudes in more detail in the following paragraphs.

### *6.6.2 Acceptance and Satisfaction*

By comparing the total number of students ( $n=65$ ) with those enrolled in WhatsApp (approx.  $n=45$ ), I could tell that some students had resisted enrolling for a number of reasons. For instance, as the findings show (and as some of the participants stated in the focus group), several students in this context (i.e. PAAET in Kuwait) preferred traditional methods of learning (lecturing and information retention); were simply lazy; suffered from work overload; were shy, or preferred their privacy. However, most of the students who had actually enrolled on the course (i.e. Introduction to Education Technology) showed a certain amount of acceptance and satisfaction as regards using WhatsApp in this first iteration, especially with the passage of time. I can confirm this because more students participated in their preferred groups and started to communicate with members of their own groups, engaging in the activities. The evidence of this exists in the data collected from WhatsApp, since I read, commented on and stored all that was said.

The findings from IA show that usability and privacy were decisive issues in the students’ acceptance and use of WhatsApp. Furthermore, some hoped this method of learning would prevail in future. One of the students stated:

“The greatest example of learning using technology with this classy style... through the use of the latest technology... I hope this thinking prevails with all our teachers because you [he pointed to me as a teacher] used this method to break all the traditional barriers that only constrain the pattern of maintaining/remembering information and dictation... opening for us a space for conversation and discussion”.

The participants asserted that WhatsApp helped them in many different ways. This acceptance and satisfaction can be clearly seen through what they submitted via WhatsApp. For example, absences from lectures do not necessarily mean that students will miss out on what was discussed or achieved inside the lecture

theatre; WhatsApp can keep them informed of the course and the activities performed. One of the students explained:

“Despite the circumstances I went through and because of them, I could not attend the previous lectures, but I was able to [find out about]... the content of the lessons taught to my colleagues as if I had been there.”

### *6.6.3 Students' Perspectives on Computers in Education*

As part of data collection, the students were asked to answer some questions. Some of these related to the course they were on and the remaining questions were designed to discover their perspectives on smartphone apps and technology. Some of the questions actually served both these purposes. For example, the question: ‘How do we benefit from the computer in education?’ may be considered as a good example of inquiring into the perspectives of students on the computer, as well as finding out more concerning issues related to their course.

The responses to this question varied among the students, but were mostly positive. For instance, they talked about the advantages of using PowerPoint and making slides and preparing topics via Microsoft Word. Another added Excel, searching the Internet, drawing, displaying photos, and utilising mathematical operations. Furthermore, we can connect a computer with a projector for better teaching and communication with the teacher. One student went beyond the normal uses of the computer in the classroom and spoke about alleviating the weight of textbooks borne by students in Kuwait by replacing some of the hard copy texts with electronic documents.

One of the students reported more advantages than expected. For example:

- A. Teachers and learners are able to save time and effort.
- B. Shy students can start answering through the computer, as they can correct their mistakes without being worried about the presence of other students.
- C. Colour, music and images are made available, making learning more fun and attractive.

- D. Lessons are displayed immediately, instead of having to waste time writing.
- E. The communication process between students is facilitated.

Nevertheless, one of the students demonstrated a negative perspective on the use of computers in education, clearly stating that computers added “nothing genuine”. Thus, the general question was directed at students to investigate further perspectives on the role of technology in education. Although most of the participants said that technology had a significant role to play in education, some were still worried about the abuse of technology. They warned against using it in the wrong way or for the wrong purposes.

Some participants showed a certain amount of caution in using or integrating technology into education. For example, one argued that technology can only be positive when used appropriately and purposefully. He added that this positivity can become negative if we use technology to waste time or purely for entertainment. This idea was confirmed by some of his peers and other teachers, whom I had previously met. However, this caution did not stop many of the students or teachers from expressing their satisfaction with the integration of technology into the classroom.

#### *6.6.4 Disadvantages*

In contrast, some students perceived certain disadvantages to using technology, particularly, handheld devices, such as mobiles and smartphones. They were of the opinion that technology isolates people, not only in school or at work, but also in daily life. For example, one student commented on what had happened in the daily lives of people in Kuwaiti: “Look, if you entered any Dewanya [room in the house that friends and relatives gather in], everyone holds his phone in his hands [looks busy] and no one is talking to you” (disadvantage — it isolates people). Additionally, he pointed out that, “accidents arose because of people getting distracted... [while] driving their cars”. Although the student was making assumptions here and did not provide any statistical data or evidence, I believed his claims accurate because of what I had personally observed as a Kuwaiti citizen.

Moreover, one of the students pointed to the problem of distraction, mentioning that, “for a student... if he uses the iPad in class... he might get distracted from the class and play games, [use] WhatsApp, or [use] social networks”. I believe this is a good point and teachers need to be cautious about using or integrating any handheld device such as a smartphone or iPad into the classroom, since this could very well be the result. In fact, it is what led me to ask the students to limit their smartphone use to communication and collaboration outside the classroom and lecture theatre: The fear of distraction.

#### *6.6.5 Preferred Devices*

There were big debates among the participants about the best device for enhancing learning. An example of this can be seen in a conversation between two students, where one believed a certain device to be more effective than a PC in this regard, or at least that it reduced the dominance of the computer:

S2: “Earlier, all work... everything was done by computer; now its use is reduced... not like before.”

S1: “I agree with you... but still, the computer is the best in some programmes, and the screen is bigger and makes it easier to read or look at something.”

S2: “But there are devices which are better than the computer... [e.g.] iPad.”

This is exactly what I was looking for; a change in preference from computers to the new tools. Before and during the investigation, I kept asking myself, ‘Will the students be more interested if we use the new tools, devices, or apps?’ What I noticed is that they were interested in newer, lighter, more portable and more personalised devices with more apps. Some of the students even declared, “The iPad... makes you dispense with the computer”. Another claimed, “it's good... the iPad truly fits your needs better than the computer sometimes, but at other times, you need a computer”. Another student, who had initially praised the advantages of the computer, changed his mind and stated, “there are devices [which are] better than the computer... [the] iPad”. Yet another student added, “I agree with you, since it's light and easy to carry... and [causes us to] ...love study”. However,

the students did not reject or deny the significance of the computer, but rather clearly demonstrated their appreciation for it (desktops and laptops), while also praising the new devices, such as the iPad.

Nevertheless, some of the debate was a comparison between technological tools. For example, there were students who referred to the limitations of smartphones, such as the small screen.

“We share by mobile, which is a minicomputer... but it does not replace the computer. Now, I prefer the computer over [the] mobile for exploring sites because of the large screen and [portability].”

[and]... “The laptop is better and more usable than the iPad because it does not have Word or Excel [iPad’s disadvantages], things that you need in education... I say [the] laptop is better than [the] iPad.”

[and]... “Still, the computer is the best in some programmes... and the screen is bigger and easier for reading something or looking at it...”

Interestingly, one of the students pointed to a very real factor which is that “the majority own an iPhone or Blackberry, few have an iPad”. His words clearly show what kinds of devices are most popular amongst Kuwaiti youth. Furthermore, the comment highlights the dilemma surrounding the choice and integration of such devices (e.g. iPad or smartphone) into the classroom, without having to consult the students or identify their abilities and needs in advance.

#### *6.6.6 Does Using Technology Guarantee Success in Learning?*

The above debates between the students make me wonder if using the preferred technology guarantees more collaboration or leads to success in learning. I received various responses to the question from students:

“No, not necessarily... if they use it correctly it helps.”

“There is no guarantee... but it is better and easier for the student at this present time [to use technology] because of technological development.”

“I think it helps.”

“But if they want to use the technology without planning... I expect it will fail.”

This last comment echoed a point of view expressed by one of the teachers (T1) I interviewed, using the informal exploratory technique. T1 had been asked the question: “Do you think if someone came to you and cooperated with you in using smartphone apps it would work?” The response was “Insha'Allah [hopefully] it will work, I will do my best”. The respondent added, “It depends on what you mean by work [she was talking to me]; if you mean transferring information, I think it will transfer it. Do you mean that I can send the message? This is easy, sending the message and people receiving it. However, after that what will happen? I don't know”. T1 and the students' comments imply that we have to be cautious and identify our purposes and intentions in advance, before using or trying to integrate any kind of technology. The students showed some awareness and understanding of the risks of integrating technology into classrooms without planning.

#### *6.6.7 The Impact of Group Size and Harmony on Cognitive Productivity*

Based on the Q&A session findings, I assumed that familiarity between group members could enhance interaction and collaboration, making it less likely for social loafing to occur (Karau & Williams, 1997). In contrast, it seems that a homogeneous group may actually be less productive (Hooper & Hannafin, 1991). I was also unaware of the bad influence of a large group (an average of 7-9 in each group). In the first iteration, it was difficult to control these groups and there was substantial social loafing. Thus, it may be better to re-mix the group members and create heterogeneous groups to enhance cognitive productivity. Furthermore, numbers should not exceed 3-4 (or 5-7) in each group (Wheelan, 2009). Without returning to the LR for guidance, I might have misunderstood such issues.

### **6.7 Discussion**

In the first iteration of this study most participants succeeded in achieving the first three intended learning outcomes (see 6.2.1). Furthermore, most partly succeeded in carrying out all the activities they were assigned (see 6.2.2). However, not all succeeded in taking full responsibility for what they had been assigned. Some did not present relevant information derived from what had been discussed during the lecture. Furthermore, they rarely exchanged thoughts and ideas with other groups. Nonetheless, the results suggest that to some extent I

had succeeded in playing the role of “mediator, mentor, actuator” as Wink and Putney (2002) suggest (see Guidance and Support Presented by the Teacher p. 48). Additionally, I had successfully provided instructions on how to use the suggested technology, i.e. the LMS Haiku and WhatsApp, and had been able to encourage them to collaborate.

This first iteration provided answers to some of the research questions. For example, is WhatsApp (smartphone app) useful in enhancing collaboration amongst pre-service teachers at PAAET? If so then how and why is it useful? Does WhatsApp allow pre-service teachers to play the role of in-service teachers to achieve productive CL? What are the barriers that prevent the full integration of technology into PAAET in Kuwait? Can WhatsApp overcome certain obstacles, e.g. context-related, cultural and technical obstacles related to the Kuwaiti context? I found the answer to be yes, since the flexibility of WhatsApp can compensate for the complexities of an LMS (see The Significant Features of the Smartphone, p. 51, p. 54 and 58).

To gain insights into the evidence found (see section 6.5), I decided to check the literature review once more. I reread the research confirming or denying the results I had obtained from the fieldwork (inside and outside the classroom) at PAAET, from what the students had expressed in IA, the focus group, the observations and the field notes. Comparing the findings of other researchers with my own was useful for understanding certain issues, e.g. whether such challenges are global, or merely local. Did other researchers faced the same barriers when trying to integrate technology into schools or other higher academic institutions? And how they had overcome their problems; for instance, in using an LMS (Haiku) in the first iteration, besides smartphone apps (i.e. WhatsApp). Both of these were found to bring various challenges with them. Other examples included resistance from students and their constant need for training, support and encouragement.

According to Ali and Magalhaes (2008), there are two main barriers in the literature: organisational and technical issues. The technical barriers include system crashes, difficulties of use, accessibility and the availability of technical support, since the user must learn a new set of skills (e.g. using the discussion board and WhatsApp). The organisational barriers start with management

support, a shortage of time for training and cost versus value. Furthermore, unsuitable content refers to certain needs and language barriers, since most LMSs around the world are constructed in English. Additionally, there is the difficulty of evaluating the effectiveness of E-learning and a lack of E-learning awareness (Baldwin-Evans, 2004; Maniar et al., 2008). This is emphasised by the findings in this study. Enrolling and using an LMS (i.e. Haiku) was difficult, according to the participants, but not WhatsApp. A great deal of time was wasted asking me (as a teacher) and peers how to register and enrol in the LMS. To fully understand this problem, I listed the following steps:

- A. I enrolled in an LMS as a student to see how it really worked.
- B. I followed the registration steps and used screen capture.
- C. I put the images of the captured screens with details in a PowerPoint presentation to facilitate enrolment.
- D. I converted the slides into a video which could be easily uploaded onto students' smartphones (see Figure 6.6 below).
- E. I displayed the resulting video in the classroom and sent it to all the groups.

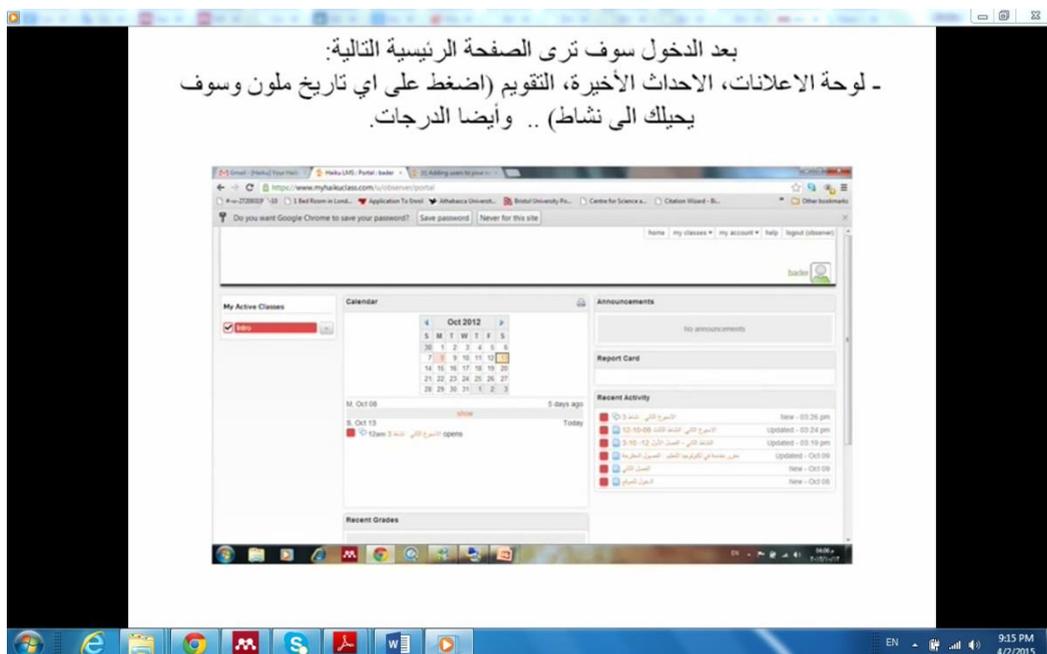


Figure 6.7: Instructions on how to use the Haiku-LMS

Using the above practical steps, all participants were able to view and follow the process, which was useful because more of them subsequently overcame the

LMS enrolment problem. However, the above process did not drive all the participants to enrol, as there were other barriers, like those mentioned above, namely resistance or shyness. However, working alone as a teacher and researcher was not a good strategy, because it consumed a lot of the planning and preparation time, particularly with such a large number of students. As a result, I decided to ask them to stop wasting any more time attempting to register and instead, to start using WhatsApp to communicate and collaborate with their own group about issues related to their course. More time was needed to offer technical training to those participants.

Unfortunately, this was not an option, due to the shortage of time in this study and supplementary training was beyond the limits of my responsibility. It is actually the responsibility of officials at PAAET to train and prepare students and provide appropriately equipped classrooms. These findings, the lack of technical training offered to the students and the lack of management confirmed the barriers to E-learning implementation found in the literature (i.e. Ali & Magalhaes, 2008).

If we look at the barriers to E-learning adoption in the GCC countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, USE), we will note more unique barriers. For example, since there are few companies which provide Internet services in this region (e.g. each country has just two or three providers), there are substantial Internet usage fees, which can restrict access to online learning resources (Ali & Magalhaes, 2008).

In narrowing the scope of the focus to Kuwait, we will find other barriers related to Internet use, like slow Internet speed, a lack of time and a lack of access at home; these representing the main barriers at KU (Al-Ansari, 2006). Students and their families also suffer as a result of the same barriers. Additional barriers can include, “political influence, funding, infrastructure, teacher development, administration support, and parent awareness” (Aldhafeeri, Almulla & Alraqas, 2006, p. 726). Furthermore, Ali and Magalhaes (2008), who carried out research to compare the barriers to E-learning adoption in Western countries and Kuwait, reached the conclusion that in Western practice, the priorities consist of cost, time, technology and resistance to change, while in Kuwait, the barriers include a lack of management support, language barriers, IT problems, workload and lack of time.

Cost, however, is classified as unimportant, while resistance to technology is classified as important.

Smartphone apps (i.e. WhatsApp) also hold numerous challenges, according to the literature. For instance, Ekanayake and Wishart (2014) pointed out during their 'Review Workshop' that teachers reported certain barriers in mobile communications, such as small screen size, inadequate screen resolution, short battery life and restricted memory. Maniar et al. (2008) also confirm such technical challenges for M-Learning. They identify connectivity, battery life, screen size and key size as important. Significantly, screen size is perceived by Papanikolaou and Mavromoustakos (2006) and Shudong and Higgins (2005) as being critical to the success of effective learning.

According to Chen et al. (2003), there are two underlying reasons why screen size is a problem, particularly when people try to watch a video: Human visual perception and attention span. "Human visual perception limits the level of small detail they can see which also affects their attention span" (Maniar et al., 2008, p. 51). The above authors were convinced that with time and advances in technology, most of the barriers stated above could be resolved. However, they wondered about the problem of screen size. Thus, it is important to find a solution to overcome the small screen size of smartphones and mobiles, or at least to mitigate their influences. I therefore advised students in this study to avoid long sentences and get to the point when communicating with their peers. Additionally, if it was necessary to send a longer message, like a paragraph, they could split the information into smaller parts and send these sequentially.

In fact, I noted that most of the students preferred sending short sentences in sequence, particularly when responding to their peers. Furthermore, despite the problem of screen size, Maniar and colleagues (2008) found that students tended to have a "positive overall opinion of m-learning and watching [a] video significantly increased their knowledge of the subject area" (p. 51). This is perhaps not my main concern; what worries me is that there are other barriers, such as social and educational challenges, which are more difficult to overcome. In their work, Mehdipour and Zerehkafi (2013, p. 97) reviewed some of the existing

literature and presented different types of social and educational challenges (see Literature Review).

Most of the barriers the above authors found in the literature confirmed my findings. I discovered that the main barriers during this phase – the first iteration - were a lack of technical training offered to the students; a lack of management; a lack of confidence amongst students; shyness; hesitation and resistance to sharing with peers; a lack of experience; a lack of equipment in the classroom, and a lack of understanding of both concepts — CL and PS (playing the role of an in-service teacher). Furthermore, most of the students had become accustomed to remaining passive, rather than active, because of the general influences of the education system in Kuwait.

Additionally, most participants were mainly interested in the first level of Bloom's Taxonomy — memorising/retaining information to ensure exam success and avoiding collaboration - the latter being a good technique for increasing the ability to acquire higher order thinking skills. Again, as I said, this might be the result of learning strategies in schools. Generally speaking, HEIs and schools in Kuwait commonly focus on traditional methods of teaching and learning; in other words, asking students to remember facts instead of collaborating with colleagues to construct knowledge (Al-Fadhli, 2009).

## 6.8 Summary

The evidence in the first iteration helped me refine my theory on how participants learn, communicate and collaborate. In addition, suitable group size was identified and it was determined whether these groups should be heterogeneous or homogeneous in this context. Furthermore, the evidence helped me develop new draft principles to guide the design of the intervention (Framework 2) in the second iteration. Here, I will present a summary of the evidence from all the methods.

1. There was some evidence that a few students had successfully accessed new resources (e.g. the Internet) and located new information relevant to their areas of study. Moreover, they shared this and discussed it with their own group members.

2. There was also some evidence to show that most students joined a group but not all engaged effectively in the collaborative activities. This could be due to the fact they might not have a clear idea about what to do or how to do it, especially in using the Haiku-LMS, which was complex and offered little benefit. The self-motivation of such students was weak in general, which might be due to a lack of self-confidence. There was no evidence that retention was enhanced. The information exchanged was a combination of relevant and irrelevant text, images and video material.
3. There is some evidence of authentic information (i.e. snap images and videos) from the local environment being presented by certain students. Furthermore, there was some evidence that WhatsApp drove some students to overcome their shyness and lack of confidence to engage effectively with other group members.
4. There is some evidence that students explicitly played the role of in-service teacher – the ratio was not high. It seems that they did not comprehend this, since PS is new to Kuwait. In this study, for example, more knowledgeable students were supposed to correct some of the misunderstood technological concepts relevant to their course for less knowledgeable students via their smartphones (i.e. WhatsApp). However, more knowledgeable students were not much help at this stage, i.e. the first iteration. This was perhaps due to the theoretical nature of the course (i.e. Introduction to Education Technology), or the fact that most were freshmen, still unfamiliar with such responsibility, or simply that they did not clearly understand their role.
5. Each group was big (there were 5 groups, each with 7-9 members). This drove some of the students to hide behind others to avoid sharing (social loafing). The cognitive productivity of a homogeneous group was therefore limited. This indicates that allowing students to choose their own group is not necessarily fruitful. Now, I must refer once more to the LR to determine optimal group size and whether groups should be homogeneous or heterogeneous.

## 6.9 Development of *the Second Draft Principles to Guide the Second Iteration*

The evidence collected from the first iteration helped refine the initial design principles (Design Framework 1), and create the second design principles (Design Framework 2) see Table 6.4 below. In Design Framework 2, some of the principles had changed slightly and would be re-used again to guide the design of the new intervention in the second iteration. The fifth theme emerged – socialising – driving me to change the first principle slightly and allow participants to exchange relevant and irrelevant information to maintain the flow of communication. The ILO (see 6.2.1) and the activities (6.2.2) remain the same. More details about Framework 2 can be found in the next chapter (Chapter 7: Iteration 2).

Table 6.4: Design Framework 2

Design principle 1	Design principle 2	Design principle 3	Design principle 4
<ul style="list-style-type: none"><li>• On an individual basis, students should continue to search and locate new concepts relevant to their course from new resources other than books and at their convenience.</li><li>• The group members can present relevant and irrelevant information, which is also informative and accurate. Furthermore, they must bring in theoretical &amp; authentic evidence from their daily lives.</li></ul>	<ul style="list-style-type: none"><li>• Students still need to share what they have found and collected with other group members, collaborating more to create shared knowledge.</li></ul>	<ul style="list-style-type: none"><li>• Students need to play the role of in-service teacher or supporter for other group members, especially those who are less knowledgeable. Students should help their group members by answering some questions, giving examples and proposing solutions to problems that less knowledgeable peers might encounter.</li></ul>	<ul style="list-style-type: none"><li>• The number of group members should be reduced (5-7) and students should participate within a heterogeneous group.</li></ul>

## Chapter 7: Second Iteration, Prototyping Phase

### 7.1 Outline

In the previous chapter (Chapter Six - The First Iteration) the investigation was concerned with the pedagogical affordances of smartphone apps (i.e. WhatsApp) for CL in Kuwait. Furthermore, it focused on the perspectives of the participants (i.e. pre-service teachers in ETD at PAAET), as regards M-learning and CL. Moreover, I was searching for draft principles to guide the intervention for this thesis.

In this chapter, the second iteration, I have provided a modified plan, focused mainly on keeping the flow of communication - by allowing participants to discuss relevant and irrelevant issues and endeavouring to overcome some barriers and challenges. The groups had increased (9 groups instead of 5) and the number of participants had slightly decreased (see 7.3.1). Only three methods were used to collect the data in the second iteration (see 7.3.2). I used a six-phase process suggested by Braun and Clarke (2006) to follow more systematic data analysis (see 7.3.3). This then led to demonstrating my findings from the fieldwork in the second iteration. I discussed these findings and presented some relevant evidence, as well as some considerations accompanying the second iteration. Finally, I added a brief summary of what I had found and learned. This helped me present the final design principles (Design Framework 3) for this study.

### 7.2 Designing the Intervention

The second iteration is a completion of the investigation of the first iteration. Most of the procedures (see 6.2), ILO (see 6.2.1) and activities (see 6.2.2) suggested in the first iteration have remained the same (see 6.2.), except for the use of LMS-

Haiku (since participants consider it complex, see 6.5.2). As I mentioned earlier, in the second iteration varied topics covered and discussed related to Chapters 4, 5 and 6, i.e., the use of computers, along with their elements, productivity and programmes (e.g. Word, Excel, PowerPoint, etc.) and their role in education, E-learning and distance learning. Further, in this second iteration, there will be more focus on achieving the last three ILO:

- 1- To define the computer and identify its roles, elements and applications.
- 2- To comprehend concepts like E-learning and distance learning, and their properties, types and components.
- 3- To specify the constraints of technology and the various stages of its application.

Some of the principles have changed slightly and are re-applied to guide the new intervention in the second iteration. Next, I will discuss the revised design principles (Design Framework 2).

1. Students should continue to search, locate and discuss concepts relevant to their course from new resources, other than the course book. Group members are allowed to bring and present relevant and irrelevant information to keep the flow of communication, but it must be informative and accurate. This may help them expand their understanding and retention, as confirmed in Al-Fadhli's (2008) study from KU. Furthermore, they must bring evidence of how technology is useful in their lives, to support what some claimed in the Q&A session. They should therefore capture videos and images from daily life, related to the topics they are studying. They should also have some authentic understanding of how technology can be useful for learning and for their future as in-service teachers. By doing this, their retention may be enhanced.
2. Students still need to share what they find and collect with other group members and to collaborate effectively to create shared knowledge. When they are able to chase new information and collaborate with their peers, their learning may be more successful (Ravenscroft, 2000). This is difficult to achieve unless students have a clear vision of what to do and why, and

how to enquire about and construct knowledge, i.e. be a self-directed learner (see Wirth & Perkins, 2008; Koh et al., 2013; Sha et al., 2012).

3. Students need to be aware of the role they will play as in-service teachers or supporters of other group members, especially if the latter are less knowledgeable. They should be encouraged to help fellow group members by answering, giving examples and proposing solutions to problems encountered by less knowledgeable peers. The teacher's task is to set constructive tasks or problem-solving situations, where more knowledgeable learners can assist others, e.g. by explaining some concepts and their advantages or disadvantages (Windschitl, 2002).
4. It is perhaps better to re-mix group members and create heterogeneous groups. Furthermore, there need to be more groups (from 5 to 9), thus reducing the number of members in each group (from 7-9 to 4-6 members). However, this was not a feasible option here, as fewer group members in a larger number of groups would have been difficult for one teacher working alone to handle.

Modifying the four local design principles above was accompanied with some modification of my own and the students' roles and responsibilities in the second iteration. For instance -

**My New Role and Responsibilities Were:**

- 1- To redistribute and reduce the number of group members, as well as creating heterogeneous groups.
- 1- To consider the technical hitches of an LMS (Haiku), as well as WhatsApp.
- 2- To encourage more knowledgeable and experienced students to help their peers.
- 3- To consider students' needs, circumstances and diversity.
- 4- To consider students' feelings about WhatsApp and how they would use it in the real world.
- 5- To consider the local context, norms, cultural effects and technical barriers.

- 6- To offer partial freedom, discussing choices and offering advice (the students were not left to make decisions on their own).
- 7- To avoid exaggeration and set achievable targets with an explicit schedule.
- 8- To encourage students to play a real teaching role or offer support to their peers.
- 9- To ask students to express themselves in their own words, using short but meaningful sentences.
- 10- To offer more encouragement and support.
- 11- To encourage students to collaborate with each other in order to construct knowledge.
- 12- To encourage students to use WhatsApp to ask various questions which are not necessarily relevant to what they are studying.

Furthermore, I outlined a few steps to enhance the conditions of this experiment, thus encouraging more students to participate and collaborate. For instance:

- A. I started a new activity for each group after every lecture. The question or activity was initiated by the teacher, unlike the previous activities, which were initiated by the students. The activity was to be drawn from what they had already learned.
- B. I allowed students to act freely and go beyond each activity, being creative and serving as real teachers in real situations.
- C. I asked the students new questions, representing activities related to smartphone apps (i.e. WhatsApp), which could reveal other pedagogical affordances. Within such activities and with the progress of the research, I hoped that all the pedagogical affordances would be clearer and more easily understood.
- D. I encouraged critiques, analyses, intellectual judgments and the re-thinking of information before it was accepted as fact. This had the potential to lead to more negotiation between students for their own sake, while adding to their understanding. As things start to make sense for students, it can lead to the construction of knowledge.

### **Students' Roles and Responsibilities:**

- 1- Students need to engage effectively in activities (e.g. providing persuasive and influential answers).
- 2- Students should collaborate with each other to construct knowledge related to the topic they are studying.
- 3- Knowledgeable students must not hesitate to help peers in the same or another group, whether inside or outside the classroom.
- 4- Activities must be derived from what has been learned during lectures or in the classroom
- 5- Students should critique, analyse and make intellectual judgments, re-thinking information before accepting it as fact.
- 6- Students are encouraged to bring theoretical data (from the Internet) and authentic data (capturing images and videos) to support their learning and claims.

### *7.2.1 The Pedagogical Affordances of Smartphone Apps (i.e. WhatsApp) in the Second Iteration*

The pedagogical affordances of smartphone app-WhatsApp which emerged in this study remained the same as the first iteration, and consisted of quality of communication, control of communication, social construction of knowledge with new media, playing new roles and socialising.

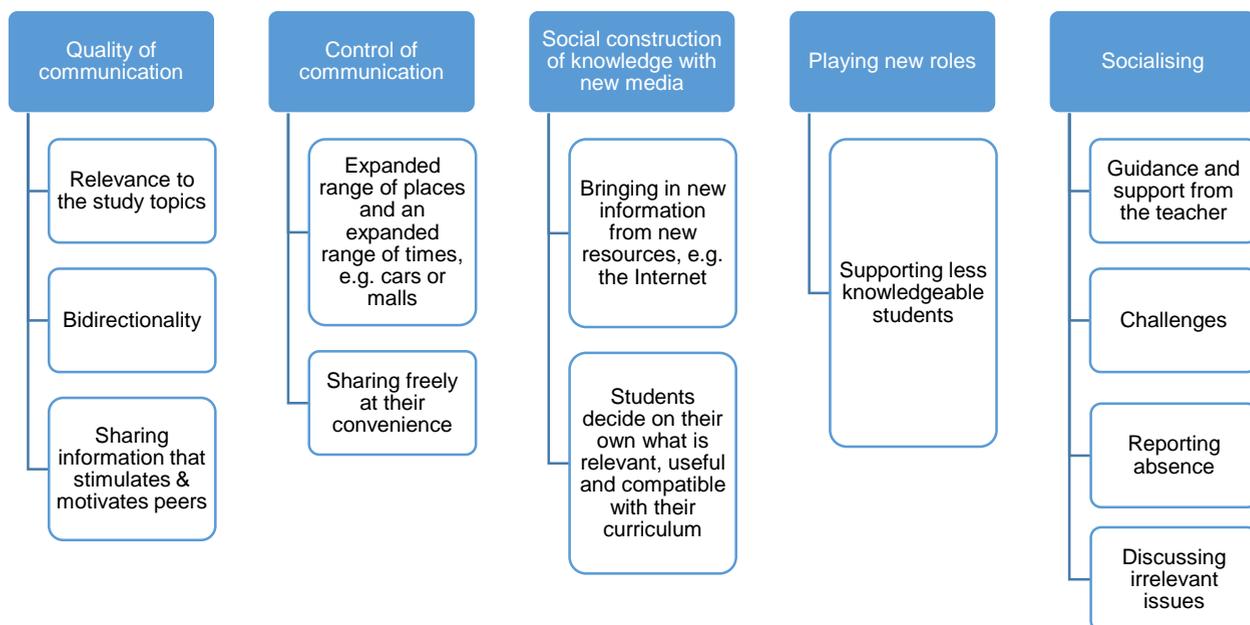


Figure 7.8: The pedagogical affordances of the WhatsApp smartphone app

### 7.3 Implementing the Intervention (the First Iteration)

#### 7.3.1 Participants

In the second iteration, the sample size was reduced from  $n=65$  (see 6.2) to  $n=59$  (male) participants. Some of the students withdrew for various reasons. Even though I am not aware of the real reasons behind their actions, I can hazard a guess. For instance, some were not comfortable with the times of the lectures (15:30–17:00), while others were not eager to do any cumulative work or activities using their smartphones, whether inside or outside the lecture hall. However, such withdrawals did not damage the study, because the number of participants remained sufficient.

#### 7.3.2 Methods Used to Collect Data in the Second Iteration

In this second iteration, I focussed on collecting the data, which mainly emerged through students' interaction via WhatsApp (IA), as well as taking field notes about what was going on inside and outside the classroom (i.e. using WhatsApp) and observing students inside the classroom. I believe these methods were rational choices, since they helped answer the research questions and added to my knowledge of students' needs, preferences and understanding in the context of

PAAET in Kuwait (to read more about the advantages and challenges of these methods, see 6.3.2.1, 6.3.2.2 and 6.3.2.3).

### *7.3.3 Data Analysis Strategy*

To conduct more systematic analysis, I used the six-phase process suggested by Braun and Clarke (2006), who argue that there are no clear or concise guidelines around thematic analyses and so there is a need for a “clear demarcation of this method... to ensure that those who use thematic analysis can make active choices about the particular form of analysis they are engaged in” (p. 5). Therefore, I just tried to adopt useful and suitable phases that would best fit and serve my work. This is compatible with the idea that thematic analysis is flexible, as Braun and Clarke (2006) assert. In addition, as Patton (1990) confirms, the researcher is required to be flexible to fit the research questions and data.

According to Braun and Clarke (2006), a decision has to be made about the themes to be identified and at which level (semantic or latent). The semantic level is mainly descriptive and does not concentrate on anything much more than on what a participant has said or written. In contrast, thematic analysis at a latent level:

“tends to be more constructionist’ (p. 91) and goes beyond the semantic content of the data, focussing on “the underlying ideas, assumptions, and conceptualisations – and ideologies - that are theorised as shaping or informing the semantic content of the data” (p. 90).

I conducted a thematic analysis at a latent level because my intention was to gain insights into the pedagogical affordances of smartphone apps (in this case, WhatsApp) for CL, among other things which needed to be understood in more depth. Braun and Clarke (2006) claim,

“If we imagine our data three-dimensionally as an uneven blob of jelly, the semantic approach would seek to describe the surface of the jelly, its form and meaning, while the latent thematic approach would seek to identify the features that gave it that particular form and meaning” (p. 13).

In other words, the latent level involves interpretive work and is already theorised (Braun & Clarke, 2006). Coding will largely be theory-driven, rather than data-

driven, since my aim is to code specific questions and identify particular issues, while keeping in mind the pre-existing theory driving the investigation. The six phases suggested by Braun and Clarke (2006, p.16) are summarised below; some phases were straightforward, while others needed more explanation:

Phase 1: Becoming familiar with the data - this simply means being involved and getting to know the data deeply. This includes the transcription of verbal data.

Phase 2: Generating initial codes - This means producing the necessary initial codes from the data. As I was using the computer software, NVivo10, I coded by tagging and naming selections of text within each data item.

Phase 3: Searching for themes - This means re-focusing the analysis at a broader level in terms of themes, rather than codes, which involves sorting the different codes into potential themes and collating all the relevant coded data extracts within the identified themes.

Phase 4: Reviewing themes - This phase aims to ensure that the candidates' themes are valid and have enough data to support them, rather than being too diverse. In addition, it examines whether some themes can be collapsed into each other or need to be separated.

Phase 5: Defining and naming themes - The authors suggest that this phase starts when I can create a satisfactory map of my data. This phase is mainly about defining and refining, which means identifying the essence of what each theme is about and the overall themes. It also includes determining what aspect of the data each theme captures, identifying what is interesting about it and discovering why.

Phase 6: Producing the report - Providing a concise, coherent, logical, non-repetitive and interesting account of the story the data tells, while avoiding complexity. It involves the final analysis and writing-up of the report.

By adopting these phases, I have tried to extract the true meaning of what was said or done by the participants during the data collection phase, as well as

recognising the impact of the context and environment on what the participants said or did. It undoubtedly led to developing new codes, while breaking others into subcategories, thereby expanding the research investigation. Furthermore, I believe that following such phases strengthened the evidence emerging from this study.

The journal and memos I created in the first iteration to reflect my emerging understanding helped me a great deal. First, I used them to record my hunches, feelings, perspectives and observations of the students and the context. Second, I constructed new knowledge and understanding, based on what I had witnessed. Thirdly, the memos provided insights into what the next step would be and what decisions and designs I needed to follow to satisfy the students and drive them to engage more effectively in the activities inside and outside the classroom. Once again, the NVivo10 software package proved to be a useful tool for coding data; it helped in the first and second iterations to code, decode, recode and structure the coding system. Additionally, charts from Microsoft Office Excel 2007 were useful, since they allowed me to make clearer comparisons between the emergent data. In this second iteration, various things relating to the investigation and respective barriers were more certain, as the students' engagement via WhatsApp increased and they became more aware of their roles and responsibilities, as we will see in the next section on the findings.

#### 7.4 Findings from the Second Iteration

In this section I will summarised findings from Interactional Analysis (IA), observations and field notes. For more details see (Appendix B-2). Followed by discussion the findings from the observations and field notes (see section 7.4.2).

##### *7.4.1 Findings from Interactional Analysis (IA)*

I return in this second iteration to search for more evidence of the pedagogical affordances of WhatsApp for CL. Suggesting that smartphone apps (e.g. WhatsApp) can enhance CL will only be accurate if there is evidence of quality of communication, control of communication, social construction of knowledge with new media, playing new roles and socialising amongst participants.

#### *7.4.1.1 Quality of Communication (183 examples, see Appendix B-2)*

This theme is represented by sub-themes, i.e. A) Relevance to the study topics, B) Bidirectionality, and C) Sharing information that stimulates and motivates peers.

##### *A) Relevance to the study topics (103 examples, see Appendix B-2, section 1.1)*

In the second iteration, students continue to discuss topics which are relevant to their studies, with more focus on achieving the last three ILO (see 7.2). The following examples show that students exchanged information which was relevant to their topics using WhatsApp, e.g. on computers and their components, besides programmes like Word and PowerPoint.

*G1:S2:* The computer is an electronic tool used to process the entered data... Storage units is a unit used to store amounts of data and programs permanently for a long time... what do you think is it true or not?

*G1:S5:* There is a temporary storage units

*G1:S2:* As we have said the computer and data storage functions as mentioned and this had to be the existence of a unit to measure the amount of data used for this unity of purpose

*G1:S3:* Which is the external hard drives

*G1:S2:* RAM... when increased... it be better... Don't forget the bit that teacher told us about... Binary numbers... Every bit is a one of a binary number box which has only two possibilities either 0 or 1

*G1:S1:* True

*G1:S1:* And it start from 8 and duplicate

*G1:S3:* The characters are a group of binary numbers like this 010010 but the places of zeros and ones are changeable

*G1:S1:* Each character in keyboard takes No. 0 or 1

G1:S2: PowerPoint is for display program

G1:S5: PowerPoint is one of the best programs in which it offer features that help the teacher to facilitate the explanation and clarification of the topic [she/he] teach

G1:S2: Lets talk about the writing programs [Word]

G1:S5: Right...

G1:S2: [Writing programs like Word] develop the capability of the teacher and student

G1:S5: Writing program like the display program... are many, but Word program is the one known... and most uses

G1:S4: Without the Word [software-Microsoft]... I swear we will not buy the laptop... because seriously it have things... impossible to find it in mobile or ipad [disadvantages of the mobile]

The above extracts show evidence of much more relevant information and images being shared than in the first iteration. Further, it appears the information exchanged was more focused on discussing issues relevant to the students' studies. It seems that the instructions given by me (as the teacher) before the start of the 2<sup>nd</sup> iteration were useful for directing the students. This suggests that once the students understand their role and responsibilities, their performance may be enhanced.

*B) Bidirectionality (39 examples, see Appendix B-2, section 1.2)*

In the second iteration, there were more examples of WhatsApp allowing two students in the same group to instantly discuss issues that interested them both. The extract below suggests that there is no longer any need to wait for a face-to-face meeting and the constraints of time and place are therefore diminished.

G1:S2: The computer is very important now and before

G1:S1: Computer now used in the ministries and banks and every home

G1:S2: Yes true

G1:S1: We share by mobile which is minicomputer, but it is no substitute from the computer

G1S2: True

G7:S1: When you use/integrate the electronic device... as the basic [necessary] of study... then, all will use technology...

G7:S3: But, who apply this

G7:S1: The topic [discussion] is what it is better... and when there is a vote and claims... then, they will plan for the thing...

G7:S3: Correct.

*C) Sharing information that stimulates and motivates peers (36 examples, see Appendix B-2, section 1.3)*

Again, in the second iteration, WhatsApp allowed students to send information that stimulated and motivated their peers within the same group. It seems that these group members all had the same opportunity to encourage and motivate each other. Therefore, there was no need to wait for the teacher or group leader to give instructions or guidance. Once a group member felt the need to share a significant problem or any information, he did so immediately with the rest of the group and no permission was needed.

G4:S1: Hello, this is the new group and new posts... and the old end [finish]

G3:S1: Guys, from now to the end of the course sharing is compulsory and if we did not share deduction grades [ethical issue] do not embarrass us in front of the teacher [encouraging his colleagues]..

G3:S2: Insha'Allah [God willing]

G5:S2: Interim memory: in short... whenever the Ram size increased it helped you open more than one site at the same time... RAM came with many sizes, e.g. 128, 256 and 516

G5:S2: I stop here to give other colleagues a chance to share... I hope [for more] interaction

G5:S6: I hope that I benefited you... seriously the image worth thinking... IMG-20121120-WA0000.jpg (attached file).

#### *7.4.1.2 Control of Communication (41 examples, see Appendix B-2)*

This theme is represented by sub-themes, i.e. A) An expanded range of places and an expanded range of times, e.g. cars or malls, and B) Sharing freely at their convenience.

*A) An expanded range of places and an expanded range of times (15 examples, see Appendix B-2, section 2.1)*

It is clear that the portability of hand-held devices allows students to take advantage of WhatsApp's expanded range of places and an expanded range of times, e.g. cars or malls. It seems to provide peers with more control over communication with each other. Time and place are no longer viewed as constraints with WhatsApp. The evidence in the extract below confirms the findings of the first iteration, namely that students can share, communicate and collaborate with each other while driving, shopping at malls, sitting in the *Dewanya* or even attending weddings.

G1:S3: Sorry guys... I am driving and I couldn't read all the above...

G4:S1: I think it help [technology]... for example, I want to go to Starbucks [café] to study!! I take my bag and go!! the ipad let me like going out... to changing my mode... and study one or two topics in the same time...

G7:S1: I use the phone when I am free... I exist in Dewanya or café or at home...

G5:S5: [I use my smartphone] when I am in the Dewanya...

G8:S2: Smartphone shortened a lot of things and the evidence on that I correspond from wedding ceremony... it mean a lot to us in our daily lives...

In response to my question as a teacher: Does being able to carry a mobile with you at all times help you in your learning? The students' perspectives seem highly positive. Most believe that the ability to carry their own smartphone around everywhere helped them stay connected to their peers and learn more effectively. However, some saw this portability as a problem, due to the obsession and distraction this feature can lead to.

G1:S5: Yes Doctor... it help in a high degree... because it is with you in anytime and anyplace...

G1:S5: Suppose you are in the Dewanya [a place where men gather in a room separate from the home: norms and culture]... or in the lecture and you did not understand a word or a sentence... you can capture your mobile and search for it...

G1:S5: I say that mobile help a lot to learn in better and clear way...

G1:S4: Ok, the mobile good in learning, but the problem of in the capability to carry it all time... meaning, I see from my side, not all places... you carry the mobile... sometimes you are driving ... and sometimes you're setting in Dewanya [due to etiquette in Kuwaiti culture, the use of mobiles is sometimes considered rude behaviour]... it's difficult... 24 hours on mobile [usage].

G1:S7: Now, the mobile became something important for the human... like eating and drinking...

G1:S2: Yes, Doctor... the mobile is significant... to the degree that my little brother... do not how to write or read... bought a BlackBerry and now learning... I swear to God... in sometimes, the mobile help to learn significantly... For that, thanks to modern devices... can gain info that help us more in research or studying and

facilitate a question... and sometimes, the mobile might not accomplish the task... or the intended learning aims because of lack of information... we might find it in books... and don't exist on the internet...

*B) Sharing freely at their convenience (26 examples, see Appendix B-2, section 2.2)*

There was more communication amongst students in the second iteration, showing that WhatsApp allowed them to share at their convenience. It seemed that allowing this was useful for alleviating some of the restrictions that traditional learning holds, e.g. the lack of sufficient time for all to share or express their ideas and thoughts within the lecture hall. This suggests that WhatsApp may enhance the students' comfortability and encourage them to share more with others and ease the pressure of time shortage. It seems that they now have more time to share with others and collaborate than before (i.e. traditional way of teaching). The following examples are another evidence to the previous one that presented in the first iteration;

G5:S1: Guys, we can start activities when you like.

G5:S2: There are 8 types of computer tools...

1 - writing programs (Word), 2 - database programs (Access),  
3 - programs of spreadsheets (Excel), 4 - Viewers (PowerPoint), 5 - free programs (Illustrator), 6 - producer's programs (Photoshop), 7 - produced video (premiere), 8 - Design programs (In Design).

G3:S1: When do you like us to start [discussion] topics! It prefer from tomorrow?

G3:S2: Insha'Allah [God willing] tomorrow

G2:S4: Who have time to write... please do [encourage others to share at their convenient.

G2:S3: Insha'Allah [God willing] I will start...

#### *7.4.1.3 Social Construction of Knowledge with New Media (170 examples, see Appendix B-2)*

This theme is represented by sub-themes, i.e. A) Bringing new information from new resources, e.g. the Internet, and B) Students deciding on their own what is relevant, useful and compatible with their curriculum. This theme offered 170 examples (see Appendix B-2). Furthermore, as we saw in the first iteration (see 6.5.1.3), some of these examples concerned knowledge which was actually constructed by the participants during the study and the benefits this brought to the learning process. The extract below shows that some students were capable of comparing certain software programmes, e.g. PowerPoint and Photoshop ('compare' was one of the verbs of analysis). This suggests that WhatsApp offered opportunities for students to distinguish between and reflect upon topics they were studying, or even to reject each other's ideas ('distinguish' was one of the verbs of comprehension). It could also indicate they were more active and decisive about their study area, compared to the passivity characterised by more traditional teaching and learning methods. As mentioned earlier, there was evidence that some of the participants acquired higher level thinking skills (i.e. The Cognitive Domain of Bloom's Taxonomy).

G1:S5: Guys, this is the group question next topic (21/11) talk about the different displays and writing programs

G1:S4: Most important the writing [Word] which we need more...

G1:S5: PowerPoint is a writing and display program

G1:S2: Writing programs is better for teacher and learner because it [allow] design and layout... like Word.

G1:S5: True, but you can write a paragraph in every page [PowerPoint] and become essay

G1:S2: PowerPoint easier to navigate and browse... and we can add audio or video and movement for the words and letters

G1:S5: No, it difficult you write an essay in PowerPoint because Word give you more space and page to write

G1:S1: Guys, the sound programs are programs for modify the sound and useful for mixing, cutting, adding effects and poetry

G1:S3: I personally use it

G1:S3: From which the reader can be amended and puts his voice echo and filter sound... and cut clips, for example, putting a second sound with the sound of his voice and combine them with some or section is read by one and read by the second section

G1:S1: Yes

G1:S1: Photoshop is the king

G1:S3: Yes, Photoshop is the top, but painter [Microsoft] is expired.

G1:S4: Yes, how it benefit the education??!!

G1:S4: Nothing... true...

S1:S3: Its useful for teaching children .. putting images and change it .

*A) Bringing new information from new resources, e.g. the Internet; (27 examples, see Appendix B-2, section 3.1)*

In the second iteration, some students kept visiting the Internet, capturing images and videos to search for new information which was not in their course books and sending it to their fellow group members via WhatsApp. This suggests the students were able to bring fresh and updated information to support their learning, without depending totally on the course book – which could in many cases be out of date. For instance, some of the students presented new definitions for the computer and links to fresh and relevant topics, or the advantages and

disadvantages of various software. Furthermore, the cumulative information that group members bring as social construction of knowledge was useful to encourage some hesitators to also bring relevant information from new resource and share it with others. It seemed easier for the students to browse the Internet using their own smartphones, than it was for them sitting in front of a desktop.

G3:S3: Computer definition? Computer is an electronic machine... used to address input data of the device... by CPU to obtain useful information, and this is done by programs be known for the computer. For elements. It consists of several elements: 1. CPU, 2. Memory, 3. permanent memory, 4-input devices, 5-output devices and other

G3:S4: Computer exist in many places 1- car, 2- Bank machine [ATM], 3-telephone, 4- when paying K-net [buying through Bank card]

G3:S5: The most famous programs and the most primitive and easily, program; (sound recorder) its image: <http://i.imgur.com/HXNbB.jpg> ...download with the windows directly and can be benefit from in all simple operations in this aspect, such as voice recording via the microphone or start an audio clip or add former Echo... [The disadvantages], but it does not support many formats like other programs, since it design only to support wav, and the loss of many advantages compared to other programs being designed not only primitive operations such as what we have.

*B) Students decide on their own what is relevant, useful and compatible with their curriculum (143 examples, see Appendix B-2, section 3.2)*

In the second iteration, as in the first, the students discussed issues they felt were more appropriate and compatible with what they were studying. For instance, in response to the following questions: Do you think WhatsApp enhances the way you learn? Please give reasons for your answer. How can you explain your and

your peers' drop in grades? Please share your views. The students responded and justified their responses in various ways:

G7:S3: Yes, because WhatsApp presented chances to discussion and critic and conversation... The low grades because of the Negligence and lack of attention [by students themselves].

G7:S2: I support your words...

G7:S6: The words of A. [G7:S3] is correct, because WhatsApp help the student but if the student were Negligence... it [WhatsApp] will not [be a big] help for him

G7:S1: I see WhatsApp help to understand generally... and help to keep the info in mind... but I think that the exam need study from the memo... [part of book]

G8:S8: NO... because WhatsApp is for communication... Not for learning... without doubt WhatsApp is useful, but we can't learn by it because it is a program for conversation...

The above extract shows evidence that students were mostly satisfied about using WhatsApp to learn, communicate and collaborate with each other. However, some also advised not to depend solely on WhatsApp for passing exams - studying from course books and printed materials was still necessary. It therefore seems that WhatsApp is useful for gauging students' responses, justifications and judgement.

#### *7.4.1.4 Playing a New Role (43 examples, see Appendix B-2)*

This theme is represented by a sub-theme, i.e. A) Helping and supporting less knowledgeable students.

*A) Helping and supporting less knowledgeable students (19 examples, see Appendix B-2, section 4.1)*

Similar to the first iteration, WhatsApp offers opportunities for more knowledgeable students to help, guide and support less knowledgeable peers in the second iteration.

G1:S2: Drawing program: hold advantages that it have natural colours [that] seems realistic... Sound program: integrating multiple layers of sounds and disparaging effects in one layer... Whallah [swearing to God] easy things but all from computer, if you know how to use it... everything will be easy for you...

G1:S4: Thanks A. [G1:S2], your information is sufficient

G1:S8: Ok, this lesson I didn't attend... I don't know what you have taken [clue to how useful the app might be for students seeking help from others]...

G1:S8: What is your advice for me?

G1:S4: Easy... open page 116... you will find definition of the device above and page 117 the device parts... and page 118 methods of producing layers below.

The above extracts shows evidence of the new roles played by some of the students, i.e. as in-service, instead of pre-service teachers. For example, they offered help, advice and guidance to their fellow group members. The above extract also gives some clues as to the usefulness of WhatsApp for those requiring immediate help either from their teacher or peers, e.g. asking questions and receiving answers via WhatsApp about exam times, clarifying unclear definitions and study topics. Sometimes, the roles were reversed, as peers helped each other, suggesting mutual benefit.

#### *7.4.1.5 Emerged theme: Socialising (193 examples, see Appendix B-2)*

This theme is represented by the sub-themes, A) Guidance and support from the teacher, B) Challenges, C) Reporting absences, and D) Participants discussing irrelevant issues.

*A) Guidance and support from the teacher (97 examples, see Appendix B-2, section 5.1)*

This sub-theme suggests that teachers can use WhatsApp to provide instant guidance and support for students, as required. This means students no longer need to wait for office hours to seek help. Furthermore, the teachers' workload is alleviated as they can respond to as many students as they like at their convenience. The extract below shows substantial evidence of help and support from the teacher, provided via WhatsApp:

*I:* How do we benefit from the computer in education? The group activity

*I:* For your safety... I apologise for this Monday's lecture...

*G1:S5:* AL Salam Alaikum Doctor what is the group question [some seem more enthusiastic now]

*I:* Talk about the sound and graphics programs.

*I:* [After the vacation] today there is a lecture

*I:* Whoever is not registered in LMS-Haiku and could not see his grades... contact me privately [of course, using WhatsApp]...

*I:* There are copies of previous exams in LMS-Haiku

*I:* All grades are down after the finals [second sharing using WhatsApp]... Final test on Tuesday... 3 o'clock in the same hall

*I:* Where are the good responses [encouraging them]?

*I:* Where is the constructive criticism?

*G3:S6:* Hi Doctor... is there a lecture today or not?

*I:* Today... there is a lecture [clue to instructions about attendance].

*B) Report challenges (44 examples, see Appendix B-2, section 5.2)*

Many challenges emerged in both iterations, e.g. social and technical problems. Apprehending all these challenges in just one investigation or using traditional teaching and learning methods is not be easy. In contrast, the constant communication between group members and with teachers using WhatsApp provided insights into various challenges faced by teachers and students when using technology inside or outside the classroom and lecture hall. This suggests that WhatsApp is useful for revealing challenges as they arise, since students can usually discuss any problems they face straight away.

G1:S4: Without the Word [program]... I swear we will not buy the laptop... because seriously it have things... impossible to find it in mobile or ipad [disadvantages of mobiles]

G1:S1: Guys, class 319 [I changed the classroom, since not all the classes were equipped with technology; this is one of the barriers]

G3:S6: Doctor, my line [mobile Internet subscription] expired [financial challenge] and I have just return it back [he has paid for internet services]

G2:S3: I am register but I don't have internet... I want to know my grade [barrier, no connection]...

G2:S1: Abd [addressing one of the group members] I agree with you, but slightly shortened [summarises his words] because a lot of speech can lost us [difficult to follow or read words from a small screen; challenges]

G7:S2: WhatsApp... some student... difficult to use it as we saw in the lecture... there are individuals who don't have WhatsApp [lack of expertise in using WhatsApp].

### *C) Report absence (14 examples, see Appendix B-2, section 5.3)*

The students used WhatsApp to report absence and this seemed advantageous, where they did not have to waste their time travelling into college from far away

(from home or workplaces), merely to report absence - as they usually had to in a traditional learning setting. The extract below shows some evidence of reported absence, as well as a kind of socialising with peers and the teacher;

G1:S5: Doctor [B...] I apologies, I can't attend the lecture today

G1:S2: Doctor [talking to me as a teacher], this is Abdul-Aziz and Yousef... we want to go to funeral to console one of our friends

G1:S7: Sorry for not sharing... I was in the Dentist

G1:S5: May God help you

G4:S1: I apologize for the lack of participation of the health conditions

G5:S2: Sorry Doctor I will arrive late because the traffic [he sent me a picture of street traffic]

*D) Participants discussing irrelevant issues (38 examples, see Appendix B-2, section 5.4)*

Like the first iteration, in the second iteration, students continued to discuss irrelevant issues, e.g. presenting themselves to others, greeting others, laughing and so forth. This feature can be seen as a form of socialising and it seems very important for maintaining the flow of communication at acceptable levels. This suggests that WhatsApp can be helpful for encouraging students and enhances their enjoyment, often driving them to discuss many things which are not necessarily relevant to their studies, also reflected in their willingness to socialise with each other more about relevant issues. The extracts below show many examples of socialising and discussing irrelevant issues:

G1:S3: Even my car don't have technology

G1:S2: hhhhhhhhhh [laughing]

G1:S3: My car has massage technology hhhhh [irony and laughing]

G1:S4: It's not a problem man, radio is technology

G1:S3: hhhhhh my car is Chevrolet model 79 and don't have a radio

G2:S1: Rain... Doctor and vacation... hhhhhh [laughing]... drive us to forget to participate and share

G8:S5: It's raining

G8:S5: I mean is there a lecture with this rain?!!!

G8:S2: Yes and exam... come.

#### *7.4.2 Findings from Observations and Field Notes*

The discussion here will be focused on identifying the major challenges that the pre-service teachers faced in the second iteration. These challenges were identified through the investigation in the second iteration; the field notes and what I had personally observed. For instance, I noted that the students were not the same as when we started this investigation, but were more capable of expressing and defending their feelings and ideas. This is a good sign they had improved. There are potentially several different reasons for this. For instance, it might have been to do with my way of teaching, or the methods I used. I (as the teacher) followed a top-down technique, but encouraged them to get involved with the design of this investigation from the beginning, adopting self-determination techniques.

Furthermore, from what I had observed, giving the pre-service teachers (participants) complete freedom to choose their own group and activities, without any intervention from the teachers might not be a wise decision. Maybe, in the end, the selection criteria were inappropriate and insufficient. For example, they did not depend on efficiency or proficiency when choosing their own group, but rather on existing relationships between the students. I believe this type of selection was not really that helpful in increasing collaboration. On the contrary, in some cases, it prevented others from sharing and even isolated them, because they depended on their good relations with others to do their work.

Moreover, most of the students did not have access to members of the other groups. If they wanted to obtain information which could not be found within their

group, they would ask other groups. Although far from ideal, I prevented this because I feared the groups would interact with each other and it would then become difficult for me to control the experiment, especially as I was working alone with such a large number of students ( $n=59$ ). Therefore, some of the students felt disappointed and not fully supported. Participants always need supervision, guidance and support, but what was useful in this investigation is that such support can also come from peers, not just the teacher.

I noted that some of the students in the second iteration did not benefit from each other's help and knowledge. They did not always depend on each other; some worked alone, not collaboratively to construct knowledge. Furthermore, according to my notes, there was obvious plagiarism in some cases. Another bias is the claim that where the group is smaller, achievement and collaboration will be better. There is no evidence of the effectiveness of the number of group members on enhancing achievement or collaboration in this study. More bias came from my actual performance as a researcher. I felt that at times, I forgot my real role as a researcher and was not focused on the research questions and aims. Instead, I focused more on teaching, preparing the students for the exams and asking questions related to the course.

Moreover, pretending that things are now different in PAAET is simply bias. For instance, some of the teachers claim that classes are now equipped with many tools, such as Smartboards, computers and data show. These claims were true to some extent, as there were some equipped classrooms, but not enough for all students and there was no ongoing maintenance. Moreover, some of the teachers claimed there was a Wi-Fi connection around the campus, whilst I did not find any active, open points of connection.

Additionally, more bias was presented by the head of EDT at PAAET. She declared that we mistakenly assumed the students did not communicate, either in or outside the classroom, when in fact they do. To a large extent, I agree with her. However, I argue that if this kind of communication is not organised and guided by the teacher for teaching and learning purposes, it remains limited and restricted to a small group of learners.

There were some difficult problems to solve. For example, when the students faced problems with enrolment in the LMS. I (as the teacher) tried to resolve these in many different ways, but unfortunately, I could not fix them completely, mainly because of the high number of students and the workload, since I was working alone as a teacher and researcher. As a result of this failure, we agreed to stop using the LMS for sharing in the second iteration and alternatively, we confined ourselves to using WhatsApp for interaction. Therefore, the claim that we benefited in full from using an LMS is inaccurate.

However, I do not think that the only reason for failing to enrol in the LMS (Haiku) was complexity. I believe, from my experience, that I chose one of the easiest LMSs to use. It allows for fast browsing and file uploads and downloads. I believe that some of the students deliberately avoided making any effort to enrol — that makes sense where there are students who typically look for the shortest and fastest ways to do things. Nevertheless, some enrolled in the LMS merely so they could see their grades, while others used WhatsApp to ask me about their grades, instead of logging into the LMS (Haiku).

I also noted that many of the students clearly rejected distance learning methods. I believe this again relates to the way they had previously studied at school; namely, using traditional learning methods. Moreover, most students did not seem to know how distance learning works and considered it less effective than traditional approaches. What further contributes to such rejection is the fact that the Ministry of Education in Kuwait does not approve this type of learning.

However, through WhatsApp, an interesting debate was raised about distance learning, with some of the students accepting these methods and some rejecting them. Those who rejected distance learning methods justified their views by stating that, “teaching in the classroom can be better for the communication process than distance education because it stimulates the students more”. One of the students made the radical claim, “Distance learning, in my view, should not happen at all”.

I will talk now about barriers from the point of view of the 59 pre-service teachers and some of my colleagues (who teach in ETD at PAAET), whom I spontaneously met and talked to during the experiment. The students challenged different kinds

of barriers (e.g. Figure 7.2). Most of these barriers were connected in one way or another and some even appeared to be a result of the effects of other barriers. For example, the Kuwaiti context can influence students' preferred method of teaching. Another example, shyness and carelessness, could be caused by a lack of motivation. I explained all the barriers and offered solutions for some of them. On the one hand, I will use some of these to prove the need for technology and on the other, to prove how technology might sometimes be useless and frustrating, if used inaccurately. All of this will be shown in the following themes and sub-themes. There are three main themes here: Context, general issues and technical barriers.

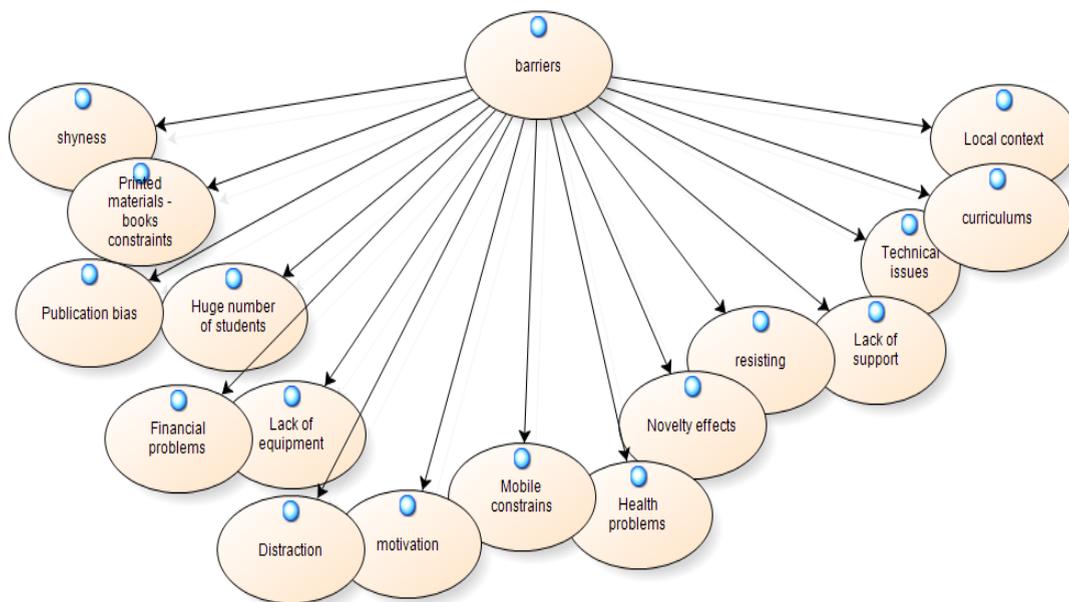


Figure 7.9. Barriers

#### 7.4.2.1 Problems with the Context

##### 7.4.2.1.1 Complaints from Official and Educational Bodies

Many students criticised education officials in Kuwait. For instance, one of the students asserted, “Seriously, I heard two years ago that they would transform traditional learning into E-learning. The first thing they [the officials] said was that they would distribute laptops to high schools; later, they said ‘iPads for all’, but we did not see anything happen”.

Another student criticised ETD at PAAET, claiming, “We are students specialising in education technology. Officials in this department [have] said many times that they will give everyone in this discipline a room in the department to apply his own research and work”. Unfortunately, this had not happened. Sarcastically, students described these announcements as ‘newspaper words’, meaning inaccurate information. One of the students went further and criticised the Ministry of Education in Kuwait. He pointed out, “There is no periodical maintenance for air conditioners inside classrooms”.

What is more, I believe that students at PAAET were unaccustomed to being trained to work collaboratively or share their tasks with others, because of the influence of the Kuwaiti education system.

Furthermore, officials in the ETD usually let us (as part-time teachers) teach after official hours are over (e.g. after 14:00), where students return exhausted (afternoon lectures lasting from 14:00-15:30 or 15:30-17:00). This might affected the students’ ability to engage in activities and interact effectively. I believe earlier hours would have been better, especially with the high temperatures in Kuwait for most of the year. All of the issues discussed in the above paragraphs are evidence of a lack of management support in this department and in the entire local education system in general. Consequently, it seems to me that the environment and education system at PAAET had a major impact on being able to transform students into more creative individuals. Based on my observations and the testimony of my colleagues, it seems that the frustrating, ill-equipped and discouraging environment prevented students from engaging, sharing and collaborating.

To understand the effect of the environment on learning acquisition, let us look at the following example: One of my colleagues from the University of Exeter claimed his daughter acted differently and more politely after studying at schools in the UK. This was in contrast to the local school she attended on weekends (to learn her native language-Arabic). Was this due to mental and psychological issues? Or was it because the UK schools she attended were more organised and attentive and met students’ needs, while at the same time following rules which clearly defined duties and rights? More investigation into environmental effects

and educational system on learning need to be carried out in future. However, technical barriers still exist. Further solutions and suggestions will be presented in the final chapter (the Conclusion chapter) and in the final design principles (Design Framework 3).

It appears to me that the students (participants) tended to focus on the lower-order objectives of Bloom's Taxonomy (i.e. memorisation). They used this word frequently to emphasise their need to memorise information for exams. Some connected the importance of any kind of technology to how much it helped them remember the course content for the exam. Actually, some resistance to technology came from perceiving books or printed materials as being more suitable for memorising information. More discussion about this observable fact will be presented in the following sections.

#### *7.4.2.1.2 The Focus on the Lower Levels of Bloom's Taxonomy*

Many of the students focused on memorising information in this study, but memorisation is the lower level of Bloom's Taxonomy. As I stated earlier, I believe this is related to the way students were used to learning at school. Teachers, parents and peers in the Kuwaiti context frequently push students to memorise as much information as they can and indeed, to a large extent, success depends on being able to memorise the content of the curriculum. This has been confirmed by other researchers in Kuwait (e.g. Al-Fadhli, 2008; Alayyar et al., 2009; Ebrahim, 2012; Gaith, 2013;). Thus, the students themselves accept and live with the idea that the best way to succeed in school is to try and remember information, so they can pass exams. This was obvious from their comments on WhatsApp.

For instance, one of the students asserted, "I prefer it [content] on paper [printed materials] since that has been with me from the beginning [school] and paper is easier for gaining information and faster for memorising than the electronic [E-content]". Another student claimed, "Honestly, I can't study unless I grasp the pen and put lines under the important words, then write it on white paper to memorise it". Another student expressed his perspective by saying, "paper is easier when studying and memorising". I believe that focusing on memorising information

instead of understanding is another negative influence of the education system in Kuwait.

Furthermore, some teachers in higher education (HE) at PAAET do not seem interested in changing their old methods of teaching and lecturing in the classroom. Therefore, how can students acquire collaborative learning skills? Sometimes, however, I cannot totally blame the teachers, since there are large numbers of students, few facilities and a significant amount of work to do. This is again linked to the barriers at PAAET and in Kuwait in general.

As expected, some students linked their acceptance of WhatsApp to the ability to remember/retain information. I used WhatsApp to help facilitate communication and collaboration, where the students turned into facilitators, so they could memorise the course content. One claimed that, “after the lecture, we use WhatsApp to communicate with our peers to remember what we [have] already studied”. In contrast, one of the students linked his lack of conviction concerning the effectiveness of WhatsApp to its failure to assist in the rapid memorisation/retention of information.

However, some of the students rejected this method of teaching. Where a student is forced to remember information delivered by the teachers, the need for students to engage in activities and try things for themselves is neglected. For example, one of the students explained that “students need to try and do things by themselves, not only looking and you [the teacher] tells him to remember”. Therefore, I believe it is important for officials in Kuwait, especially at PAAET to encourage teachers to actively use new methods of teaching that will increase engagement between students and enhance their critical thinking.

#### *7.4.2.1.3 Printed Materials*

This barrier is another example of the old education system which operates in Kuwait, where typically, the curricula are printed in books and as other paper materials. According to one of the students, searching for specific articles or information in a book or other printed material can consume a great deal of time and effort. In contrast, through technology, we can retrieve a specific article from an earlier date much faster, which is time-and labour-saving. The same student

added that a significant amount of space is required to store and archive such materials. Furthermore, paper materials are vulnerable to loss or damage. Other students talked about the back problems caused by carrying heavy books. This barrier proves the need to use/integrate technology into the classroom.

#### *7.4.2.1.4 Lack of Support*

As I noted, a lack of support represents one the most significant barriers that students face. For example, when I (as a teacher) (inadvertently) fail to closely observe the ideas or suggestions posed by students in the classroom, or via WhatsApp, this is expected to demotivate them and cause them to abandon these ideas. Unfortunately, this actually happened to me in this study, due to the large number of students.

Furthermore, a difficult exam, combined with a lack of suitable references and copies of previous exams not being offered, will usually lead to low grades and a lack of support will be cited as the reason. In addition to this, one of the students claimed, “There is a problem that I heard about; there are some teachers who don’t know how to use technology”. From what I have witnessed, this is true. Not all teachers at PAAET accept or know how to use technology.

#### *7.4.2.1.5 Lack of Equipment*

A lack of equipment is another problem in the Kuwaiti education system, particularly at PAAET. I noticed this myself, as did my colleagues and students, when I conducted the focus group. For example, one of the students argued, we cannot blame students for not sharing via WhatsApp if they do not have Internet access. It is the responsibility of policy-makers, stakeholders and officials to provide Internet access in schools and universities.

Personally, I did not see any open or secured Internet access or wireless zones around the male campus at that time, even though the former head of ETD said they existed. Furthermore, I faced a problem with ill-equipped classrooms. I had to change classroom many times because of the shortage of classrooms equipped with technology. This problem was confirmed by many teachers in ETD at PAAET. Actually, one of the teachers complained to me about the lack of equipment and

computers and how this kind of problem affected their own and the students' work. Some of the classes equipped with data show and computers were still outdated and had not been maintained.

A lack of equipment will influence the decisions of some of the teachers to use or integrate types of technological tools. To understand the dimensions of the problem, we should consider the following examples: One of the teachers said, "I have 20 computers and 25 students! How am I supposed to teach them all?" This is a big problem as we can see. However, to overcome it, he asked some of his students to bring their own laptops and Wi-Fi devices.

Additionally, T1 pointed out that, "If I decide to use WhatsApp to communicate with my students, then I will need a new phone number". She continued, "I have to keep my personal life away from my academic life". I believe she meant that she would need a new phone number for teaching purposes. Unfortunately, PAAET does not offer free phone numbers for teachers. Moreover, there were other problems we could not overcome, such as insufficient electricity sockets.

Furthermore, we have to remember that some of the students do not have computers, laptops, or Internet access. Thus, how can they see their grades and the content, or interact with their peers? It is unethical to ask them to participate effectively without offering classrooms/labs equipped with computers, printers and the Internet. This is evidence that there are many problems at PAAET which need to be noted and solved.

#### *7.4.2.1.6 Large Numbers of Students*

Most of the colleges in PAAET, Kuwait suffer due to high student numbers, which are considered a big problem for both teachers and students. Myself and other teachers in this academic institution have witnessed this problem and discussed it on many occasions. It appears to me there is no ultimate solution to this problem.

In fact, the large number of students ( $n=65$  in the first iteration, and  $n=59$  in the second iteration) in this study generated many problems for me, the most important one being that I could not continue to support students who had problems registering in the proposed LMS (Haiku). Hence, I stopped working with

Haiku at this stage — the second iteration — and switched my focus to supporting students through WhatsApp. However, in the end, I could not solve the problem completely because of the large number of students and the short duration of the lecture.

I believe that depending on and effectively employing technology may help to alleviate this dilemma. For example, technology can reduce or cancel the office hours, which are determined by faculty members to meet the students and answer their questions. By using technology like smartphone and the accompanied apps (i.e. WhatsApp or other similar Apps) to communicate, both teachers and students can save valuable time and effort.

#### *7.4.2.1.7 Inappropriate Curricula*

Besides the above, an interesting point was raised by one of my colleagues who claimed that any use or integration of technology may not be totally successful because the curricula in the context of PAAET were not designed to work with technology, but rather with printed material. Even though I share this view, I cannot tell whether he was entirely right or wrong and I still need to conduct new research to confirm such claim.

#### *7.4.2.1.8 Lack of Motivation*

A lack of motivation is one of the barriers I noted. For example, once I (as the teacher) stopped guiding the students, they stopped sharing and interacting. Even though some tried hard to play a genuine teaching role; asking questions, guiding, or encouraging participation, they still failed to get responds from peers. This indicates that students in the Kuwaiti context always need a teacher to guide them; they are not used to being active, but rather most of the time in this study, they were passive.

Also noted over the two week period was a decline in participation. Even with continuous reminders and encouragement. At that point, the students were at the end of their semester and claimed to be very busy with accumulated work required for other subjects. However, an obvious reason for the lack of motivation was resistance.

#### *7.4.2.1.9 Resistance*

Resistance is another barrier which might be evidence of how much some of the students hated change. In other words, they preferred to retain traditional educational methods and avoided risking new ways of learning which could lead to complexity in the learning process. Furthermore, as was demonstrated, some students were simply lazy or careless. Moreover, resistance can arise from other issues, e.g. resistance to collaboration (see the previous sub-theme: Context Problems), because some students are unable to overcome their shyness.

#### *7.4.2.1.10 Shyness*

Shyness is one of the major barriers preventing students from engaging and participating effectively with others in the classroom. I noted this problem and it was also mentioned by other teachers and the students themselves. I realised that some of the students were shy and hesitant about sharing, even within a small group. Furthermore, one of the teachers I had met previously claimed that, “peers feel embarrassed around each other”. He added, “They are ashamed of confrontation”. This is a major dilemma and I had to constantly encourage such students to participate in the classroom. Fortunately, this situation eventually improved. By using WhatsApp to communicate, more students were engaged and enthusiastic about expressing their feelings without fear of criticism from their peers. Thus, this is evidence that WhatsApp can help students overcome their fear and shyness and drive them to be more active.

### *7.4.2.2 General Barriers*

#### *7.4.2.2.1 Health Problems*

A variety of health problems were raised and discussed by the students using WhatsApp. For instance, one of the students mentioned health problems stemming from bearing the weight of textbooks. He claimed that many of the youth in Kuwait have back pain by the age of 20. Although he was exaggerating, I think he has a point here, since the Minister of Education himself recently stated in an interview on Al-Watan TV (a local station in Kuwait) on January 2014 that Kuwaiti students generally carry about 14 kg of books. However, to overcome this

problem, some of the students suggested they should carry iPads loaded with the entire curriculum instead.

Furthermore, there was another health problem discussed by the students. This time it was not caused by books, but by technology, where most of the students considered their eyes to have been affected. In fact, some of the students argued that traditional learning is better, due to such problems. This claim was confirmed by another student, who stated quite frankly when interacting with his peers via WhatsApp, “I support what you say, the mobile is the best invention, but there are harmful things. It significantly affects the eyes”, which may result in headaches, blurred vision and eye fatigue.

#### *7.4.2.2.2 Novelty Effects*

One of the teachers saw the novelty effect as a barrier and clarified this by explaining that after a while, people get bored with things and seek change. This means that the use of technology can be a double-edged sword; it can be both useful and useless. I tend to believe him. People very often have crazes about new things, but after a while they get bored and abandon them. I believe this also includes smartphones and all their associated apps. Thus, we need to be careful before deciding to use any new technology. I believe that the best solution is to let students/participants choose what they prefer. In this way, we can guarantee a minimum level of commitment and participation.

#### *7.4.2.2.3 Financial Problems*

Financial problems are also factors which should be considered as preventing students from using technology. For example, buying devices such as iPads or smartphones can be very expensive for some students. Even if they own such devices, they still need an Internet subscription. Actually, some of the students in this study experienced such financial problems. For example, one justified his failure to share by claiming, “My Internet subscription expired, and I was in the *Chalet* this weekend and last shared on Wednesday. If the service had been available, I really would have shared”.

Another student claimed, “Doctor, my phone was disconnected and I have just gotten it back” (his Internet subscription expired). Some students disconnect from the Internet when they are short of money. Furthermore, I asked one of the teachers I had met previously who had used SMS to communicate with his students whether his messages had cost him money and he categorically replied that they had. Therefore, financial issues are undoubtedly a major problem for many students.

#### *7.4.2.2.4 Publication Bias*

Publication bias is another problem referred to by the students in this study. The students clearly expressed their fears over obtaining information published on the Internet. As one of the students indicated in section 6.5.10, “E-books, especially if the format is in Word, are too much of a problem to trust because they are uploaded on the network without the author or publisher, so there is the probability of misrepresentation”. Another student illustrated that, “on the Internet, there are issues I don’t count on and fear are wrong”.

#### *7.4.2.2.5 Distraction*

According to the students, distraction is another barrier. For example, the iPad has games and apps that might distract the student in the classroom. This was confirmed by many of the students. I believe this also applies to smartphones and other handheld devices.

#### *7.4.2.2.6 Conflict between Ideas and Responses*

Another significant issue I needed to be cautious about was the presence of conflicting ideas or responses from the teachers I met and the students I engaged with. For example, one of the students presented a conflicting view of the acceptance and rejection of technology. He inconsistently confused the advantages and disadvantages of technology in one sentence, by confirming that technology facilitates communication, but isolates people. Another student expressed dissatisfaction over ways of initiating discussion through WhatsApp. He pointed out he needed more space and freedom to share and did not want me

(as a teacher) to lead the groups. With this attitude, he conflicted with his peers, who wanted a teacher to lead the groups and ask them questions.

Moreover, one of the teachers presented a conflicting statement during the interview about the lack of communication among PAAET students. At the beginning of the interview, he confirmed there was indeed communication in the classroom, whereas before the end of the interview, he claimed there was a communication problem. This conflicting data re-emerged on several occasions; for example, on the adoption and use of technology and how teachers perceive collaborative learning.

Assuming that male and female students in Kuwait do not have a problem with the English language is another type of conflict. Idealistically, one of the teachers claimed that the current generation has better English skills than the previous one. In contrast, according to what I had witnessed, many students experienced difficulties with the English language in schools and HE in Kuwait. I believe that PAAET students are no exception in this respect.

#### *7.4.2.3 Technical Problems*

##### *7.4.2.3.1 Complexity of Uses*

Other barriers included the technical problems noted by myself and the students. For example, many students suffered when trying to register and enrol in the LMS. One shouted and said that this process involving Haiku drove him crazy. He complained he had not been able to sleep the night before because of it. This is a clear indication that we sometimes complicate students' lives instead of making them easier.

One of the students faced the same problem and said "Guys, every time I attempt to register, I face a problem". Another student confirmed this was a problem and declared, "In my view, the LMS is slightly complicated and I see WhatsApp is enough for communication and sharing". In contrast, one student's view was that some students have difficulty using WhatsApp. Without doubt, this shows how much the integration of technology can sometimes be a frustrating and complex

process, especially with large numbers of students with different levels of understanding and points of view.

However, the technical problems do not stop there. I witnessed many during attempts to integrate WhatsApp and the LMS (Haiku). New technical problems arose in relation to a weak mobile signal. For example, one of the students complained about this and said, “Excuse me, I could not enrol in the LMS because I am on a farm and the signal is weak”. More technical problems were raised by many students about how skilled they needed to be to handle new devices, such as iPads. They argued that few people know how to use these appropriately. This point was confirmed by one of the teachers I had met previously. This teacher brought up an important issue about the unfamiliarity of some students with using WhatsApp or Twitter. He pointed out, “We have to know that some students do not know what Twitter is. You’re bringing something that they are not familiar with”. He emphasised the fact we have to be cautious about our previous assumptions.

#### *7.4.2.3.2 The Complexity of Reading/Understanding Students’ Comments*

Most of the written comments were in slang. As a result, it was always difficult to understand what the students were actually trying to say and sometimes, it was difficult to translate their words. However, through my knowledge of the local slang I was able to find reasonable translations. Furthermore, writing up and analysing what the students said had to be done before, during and directly following the experiment, while the relationship between the teacher and his students was still ‘warm’ proved to be a good strategy.

According to Ezzy (2002),

“waiting until after data have been collected to begin data analysis can lead to some significant problems during the process. If researchers leave the decision about what sort of data analysis they want to conduct until after they collect their data, they may have precluded, or made difficult, certain types of data analysis” (p. 61).

This will allow the teacher to keep asking about uncommon words or attitudes he does not fully understand. In the end, it is a well-known fact that students usually forget or cut off their relationship with most aspects of their course after a while.

#### 7.4.2.3.3 Mobile Constraints

Mobile constraints are another problem, according to some of the students. The constraints vary from the small screen, to losing significant programmes that are mainly only available on computers. For instance, with regard to the drawbacks of mobiles, one of the students said, “Not the speed, but the mobile screen is small”. Another student criticised his fellow group member and asked him to summarise his words so he could track him easily. The student being critiqued expressed his fear of losing important information if he summarised his own words. This is a genuine dilemma and an indication of how mobiles/smartphones are unsuitable for more extensive text, due to the small screen.

In addition, most smartphones do not provide spelling or grammar tools. Moreover, one of the students noted, “Yet, there are programmes [which] do not work on mobiles, even until now, like Word, PowerPoint and Excel”. As I have stated before, this is true, but the situation is changing. Recently, Microsoft released Office 2013, which works with most smartphones and tablets and includes all the major components that students need (e.g. Word, PowerPoint, Access and Excel).

To sum up, all problems, barriers and limitations must be considered before employing any device, tool, or technology to ensure a successful experiment. Moreover, stakeholders, policymakers, teachers and educators must remedy the present situation in the current educational system in Kuwait. In addition, a consensus must be reached between what the students need and what is actually practiced on the ground, besides what is required from them in the classroom, in order to mitigate conflicts, as I noted that many conflicts exist in such environments. For instance, one of the students wanted to know how we intended to reform the education system if it does not keep up with the requirements of the modern world. Students use iPads and PlayStations at home and teachers are still using blackboards and chalk.

#### 7.5 More Findings on the Second Iteration

Throughout the research, some questions were randomly directed at specific groups in response to the responsibilities I mentioned earlier (see 7.2, p. 3). One

of these questions was: ‘Do smartphones permit a discovery of the world in ways which were previously impossible?’ Implicitly, some students referred to the pedagogical affordances that smartphone apps hold. For example, some pointed to the significance of quality and control of communication, and privacy, while others indicated the importance of socialising (e.g. communication with peers, friends and family), as well as playing a new role (e.g. snapping images and videos to support less knowledgeable students). I will discuss in detail such findings in the following paragraphs.

More questions — different sorts of activities — were discussed with the students to find out more about the pedagogical affordances of smartphone apps. Specifically, I asked three questions: ‘When do you usually use the smartphone for sharing? How do you feel about the smartphone? Does it serve you well?’ These were exploratory questions.

#### *7.5.1 When Do You Usually Use The Smartphone For Sharing?*

I posed this question to prove that control of communication is one of the elements constituting the pedagogical affordances of the smartphone. Students made various comments. Most of these provided clear answers related to the times of participation/interaction with their peers, while some provided general statements about Kuwaiti students in the Kuwaiti environment. What is important is that all declared that they used their smartphones, either constantly or intermittently. Even though the reasons were different, it is a testament to the importance of the smartphone. This handheld device helped them to communicate more at times when it would not normally have been possible, such as in the car, in a *Chalet* (some students spend their holidays/weekends on their families private *Chalet* in Kuwait), before sleeping, at night, on returning home during free time and in the *Dewanya* (a room in a house where men and youth normally gathered in their spare time in Kuwaiti culture). Other students said they used their smartphones when I (as a teacher) asked a question, when they needed to make an enquiry, or as one student humorously commented, “When I remembered”. All of the above comments are a clear indication of the significance of control of communication.

### *7.5.2 How Do You Feel about the Smartphone? Did it Serve You Well?*

I continued investigating the pedagogical affordances of smartphone applications by examining responses from students to the second and third questions, namely 'How do you feel about the smartphone? Did it serve you well?' I decided to combine both questions because the students' answers overlapped. Their responses varied, but were mainly positive about the assistance provided by their smartphones. All the students who had participated in these activities stated that their smartphones had served them well. Furthermore, some declared they felt good about their smartphones and declared they were always using their smartphones and could not stay away from them. It meant a lot to them, because through the various apps on these devices, they remained connected with their friends, family and peers (e.g. through WhatsApp).

Some of the participants benefited from smartphone tools (i.e. screen capture) to capture and display different websites, in particular ones relating to their course. For instance, one of the participants captured an image for a book entitled 'the comprehensive libraries in Educational Technology' and shared it with others via WhatsApp, while another claimed he had tried hard to understand and explain some things to his peers on sound and graphics programmes, but had not been successful in that. Therefore, he simply captured the website and sent it to his group and wrote that he hoped it would be helpful. For more examples, see Figure 7.3, which depicts a sound and graphics programme and Figure 7.4, which represents a writing programme.

برامج الصوت والصورة			
<p>برنامج حائز على جوائز حيث تستطيع ان تقوم بحذف الاجزاء من الاغنيه وتبقي على المقطوعات التي تريدها وتنشئ لنفسك مقطوعات من تصميمك ولا تحتاج ان تعرف اي شي حول الموسيقى والايقاع حيث سوف تحترف باستخدام هذا البرنامج متوافق مع جميع اصدارات ويندوز</p>	14.80	MusiGenesis V1.0	
<p>برنامج يضيف الملفات الازمة الي Windows Media Player ليجعله يشغل ملفات RealPlayer/RealOne QuickTime Player - Player ذات الامتدادات الآتية - rm - ram - rmvb - rpx - smi - smil - ra - و rpm - RealText - ReadPix</p>	8	Real Alternative 1.37	berobo

Figure 7.10: Sound & Graphics Programme

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إمكانية إستخدامها لخدمة أهدافي المختلفة سواء من ناحية التعليم، البحث العلمي أو غيرها.

برنامج Scrivener هو أحد البرامج التي أتباعها منذ فترة، و هو برنامج يوفر بيئة ممتعة، مناسبة و منمّرة للكتابة بعيدة كل البعد عن برامج الكتابة التقليدية مثل مايكروسوفت وورد أو ما شابهه، حيث يتميز البرنامج في أنه يعتمد أسلوب التقسيم إلى أجزاء صغيرة، بحيث يمكن التفرغ لكتابة كل ما تريده في أي من هذه الأقسام بشكل سهل و سلس دون الحاجة إلى استخدام ملف وورد أو عدة ملفات وورد بشكل قد يصعب مهمة الكتابة إلى حد كبير، خصوصا إذا ما كنا نتحدث عن كتابة رسالة للدكتوراة مثلا أو كتاب ما.

البرنامج يستخدم من قبل الكتاب، الباحثين، الصحفيين، المحامين، و الطلاب و غيرهم من حول العالم. يمكنك الاطلاع على الفوائد التي يوفرها البرنامج لكل من هؤلاء . كما يمكنك الاطلاع على قائمة لعديد من الكتاب الذين استخدموا البرنامج لنشر قصصهم، أعمالهم أو كتبهم المختلفة .

من الموقع الخاص بالبرنامج:

“ While traditional word processors effectively penalise experimentation by treating all writing as though it is as simple and linear as composing a letter or memo, Scrivener's feature set encourages you to find the best structure for your non-linear ideas.”

Figure 7.11: Writing Programme

Moreover, the students sent and received YouTube videos and associated links using their smartphones. Without a doubt this helped most of them to construct knowledge collaboratively and some to play the role of in-service teacher. Let us look at Figure 7.5, which was presented by one of the students and represents learning via iPad 2:



Figure 7.12: Learning via iPad 2

Checking what smartphones can do for students continued by posting the following question via WhatsApp: ‘How have smartphones helped you meet your needs and maintained your privacy?’ One of the students claimed, “I can store in it all of my notes, my diaries, and my pictures; plus I can set a password so no one can open it except me”. This was confirmed by one of his peers, who said, “smartphones save my private videos, audio, names, and numbers, as well as allowing me to add a custom lock”. The third student added, “The secret number can keep all things that belong to us like personal information and other private things safe”. Apparently, most of the students focused on privacy as a significant issue in favour of smartphones, since it is customised to their needs.

In an exaggerated way, one of the students commented, “Now, the mobile has become something important for humans, like eating and drinking”. His words found a listener, where his colleague reflected, “Yes, mobiles are significant, to the degree that my little brother, who does not know how to read or write, [was] bought [apparently by one of his parents] a BlackBerry Messenger and is now learning, I swear to God”. He added, “Sometimes, mobiles help to gain information that help us more in doing research and facilitate study or asking a question”. After reviewing the students’ sentiments, I believe the control of communication is one significant element that shapes the smartphone’s pedagogical affordances and makes it useful for the students.

### *7.5.3 Do You Accept Peer-assessment?*

I went further in this investigation and asked students for their opinions of peer-assessment. In other words, what would they think if it was their fellow-students who assessed them, instead of the teacher? Would their teacher give better advice? My aims were, on one hand, to get them to reflect on how such peer-assessment could be a valuable technique, because of the convergence of age and intellect. On the other hand, this technique was supposed to encourage them to collaborate with each other more and offer mutual support, especially via WhatsApp, as well as diluting and redistributing some of the responsibilities incumbent upon me as a teacher. However, since there was no consensus amongst the students about their preferences in this regard, I could not engage in a workshop to train/prepare them for peer assessment, due to a shortage of time. Therefore, I simply tried to identify how they preferred to be assessed and why. I believe this sort of information can and will be useful for other educators and researchers; in particular within the PAAET context in Kuwait, should the institution decide to adopt such apps in future. Moreover, I noted that some of the students took the initiative anyway and started to assess their fellow-participants. Thus, asking this question proved to be useful after all.

Let us now review those participants who were the first to accept peer-assessment and discern why, before also looking at those individuals who rejected the idea. Those who accepted the concept stated it was a good idea for peers or colleagues to evaluate each other's work. In fact, one clearly asserted he could be more comfortable with such assessment. The students who accepted peer-assessment did so because they saw it as a type of collaboration. Their peers in the same group helped them correct their mistakes by offering advice via WhatsApp. However, they linked their acceptance of peer-assessment to the ability of their peers, in order to provide accurate and effective assistance, as well as to their having sufficient knowledge and expertise.

In contrast, there were more students who did not accept the idea of peer-assessment and there were many reasons for this. For instance, some expressed a lack of confidence in the capabilities of their peers. Some believed that peers might not always have as much experience as a specialist teacher. Some went even further and argued that peers could actually treat them unfairly, whereas

teachers are fairer and have more experience. One claimed that if he assessed his peers and gave a poor evaluation, it was expected that this poor assessment would be reciprocated once the roles were reversed, regardless of whether this was justified. However, the students who made such claims did acknowledge they would accept advice from their peers, even if they rejected actual assessment.

#### *7.5.4 Teacher Effects*

Since some of the students had not previously successfully completed this course and yet obtained high grades in their exams, I asked all the students: ‘Who has or has not passed this course (Introduction to Education Technology) before?’ It is important to understand the reason behind failed previous attempts and what has brought about change. Was it due to the BL (i.e. WhatsApp and face-to-face teaching and learning)? Was it the result of the teacher’s performance? In other words, what drove their success under my teaching, where they had been unsuccessful with other teachers? The responses showed that at least three of them had not passed this course previously. One wrote:

*“Yes, I did not succeed before because it was the doctor himself [who] was making the subject difficult. He was asking for a report after every lecture, meaning, he made it very hard for us, but thanks to God...with you, Doctor [pointing to me as the teacher], I discovered that the subject was easier than I thought and all the methods of learning that you adopted were easy.”*

This particular student gave me (as a teacher) and my methods credit. Furthermore, some of his peers praised the teaching methods (Blended Learning), my efforts (as a teacher) and their preferred technology (i.e. WhatsApp) as having increased communication with their peers. Additionally, some talked about their performance and how it had evolved as a result of this course. Below is a quote on this topic:

*“My performance evolved more than before and what drove me... the ease and the clarity of the course and how it was enjoyable.”*

These claims were confirmed by another student, who stated, “The performance evolved through communication”. It appeared they were expressing their satisfaction.

### *7.5.5 Satisfaction*

The satisfaction in this case is not completely the same as in section 6.5.3. Each iteration had its unique response and expressions of satisfaction. However, after reviewing the students' opinions and perspectives on the use of technology in the first iteration, I believe it is suitable now — in the second iteration — to estimate their satisfaction with the teaching method and with the teacher's efforts to acknowledge the extent of their satisfaction.

Fortunately, some students hoped this experiment would prevail with all our teachers because using WhatsApp to communicate and collaborate proved to be efficient. Their satisfaction can also be seen in another comment from another student who claimed that, "this method of teaching — combining WhatsApp with face-to-face interaction — without doubt refined our knowledge and what we look for. In addition, it increased our knowledge". Likewise, a final quote expressed one student's satisfaction with the teacher's efforts by declaring, "Special thanks to you, Doctor, because you left a great imprint". Satisfaction with the teaching methods and the teacher's performance did not emerge from a vacuum; it came through vigorous and structured efforts to link the planned targets to the needs of the students. In addition, I (as a teacher) provided a great deal of support and encouragement.

At all times, I encouraged, monitored and participated with the students, both within and outside the classroom, through WhatsApp, continually considering their opinions, perspectives and needs. However, the same set of students who demonstrated improved satisfaction, also criticised the limitations of smartphones. They asserted that there are programmes which have not hitherto worked on mobiles, like PowerPoint and Excel. Although this was once the case, things are changing and Microsoft has now issued Office 2013, adapted for most tablets and smartphones. Furthermore, some students argued that the computer is better in some respects (e.g. it has a big screen). This means the students were aware of the limitations of such devices and apps. Nonetheless, they were keen to use their smartphones and accompanying apps.

### 7.5.6 WhatsApp Increases Social Interaction and Motivation

Due to the increased use of WhatsApp by the students in the second iteration, I asked them the following question: ‘Do you think WhatsApp enhances the way you learn?’ On a positive note, most of the students (29) agreed, eight disagreed and two were undecided, as shown in (Figure 7.6).

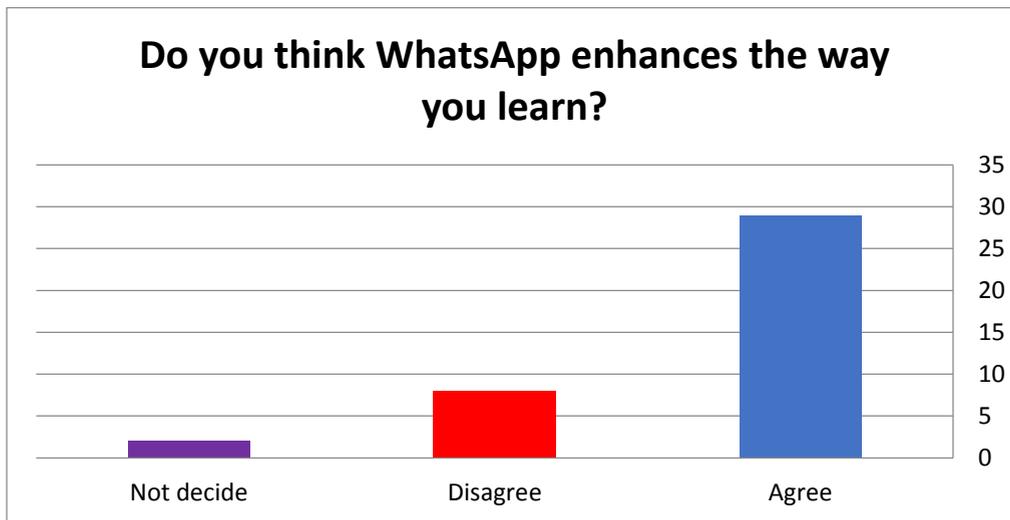


Figure 7.13: Percentage of Acceptance of WhatsApp

Examples of agreement can be seen in quotes from some of the students. For instance, “communication via WhatsApp facilitates learning in a direct and rapid transit”. Another student agreed: “Yes, WhatsApp increases the social interaction through allowing us to engage and participate with interactive groups”. Unpredictably, one student claimed, “I swear to God, I didn’t open the book; I was following the group and I obtained a good grade”. All of this was a clear indication of how the students accepted WhatsApp.

In contrast, a few participants did disagree with the usefulness of WhatsApp and provided many good reasons; for example, some believed that face-to-face discussion is better than discussion via WhatsApp. Along the same lines, others justified their views by explaining that the student cannot review content through WhatsApp. They also stated they believed WhatsApp was for communication, not for learning. Lastly, they were uncertain of the validity of their peers’ responses.

Finally, there were two students who were undecided, but presented a persuasive argument. For example, the first stated,

“I say yes and no at the same time. Yes, because communication with my peers gives me the feeling that I am not alone, offers a helping hand, gives me new information and opinions on the subject... and makes it easier for me to find answers where it is almost impossible to find them in the summarised notes”.

He continued, “...and no, since arguments from my peers probably suffer from a lack of validity”. The second student, on the other hand, argued that learning usually depends on the learner’s desires and methods, unrelated to WhatsApp. Oddly, students showed a high percentage of acceptance of WhatsApp, where previously (see 6.6.8), they had shown a greater acceptance of traditional learning and less orientation towards E-learning. In fact, some rejected distance learning. Again, encouragement, training and workshops are greatly required in the context of PAAET to drive students to accept new methods of teaching and learning.

#### 7.6 Ethical Issues Related to the Second Iteration

I encountered many ethical issues in this period — the second iteration. In spite of having completed half the course, there were still some students who had not participated via WhatsApp. This drove me to think seriously of deducting grades from them and activating principles of reward and punishment to get them to engage with their peers. However, on second thoughts, my supervisor and I found this to be unethical, so we abandoned the idea. This does not mean we should not offer extra grades as a bonus, to encourage students to participate more, as one teacher suggested.

What is more, there are other ethical issues in this study that deserve attention. For instance, I have an obligation to push everyone to share/participate. However, is this ethical? How about the students who dislike this kind of learning method, or who simply do not own a smartphone? Additionally, as stated previously, PAAET does not provide a computer lab or Internet access (see 7.5.4.1.4, a Lack of Equipment) for students and yet we are asking the students to subscribe by themselves to WhatsApp and Haiku! This is an ironic, paradoxical and unreasonable request.

## 7.7 Summary

As results suggest in the second iteration, most of the participants succeeded in achieving the ILO (see 6.2.1) and the determined activities (see 6.2.2). As results showed, most of the students were able to use WhatsApp to communicate and collaborate with their peers, but not the Haiku LMS. Most importantly, there was evidence of quality communication, control of communication, social construction of knowledge with new media, playing new roles and socialising among the participants. These themes are the five local pedagogical affordances that enhance collaborative learning for pre-service teachers at PAAET.

To be specific, the results show that participants use their WhatsApp smartphone app to discuss issues relevant to their topic, to start bidirectional communication between two members of the same group, and to share information which will motivate other members of the same group to discuss relevant or irrelevant issues. They also used WhatsApp in an expanded range of places and at an expanded range of times, e.g. in cars, malls or *Dewanya*, and shared at their convenience. Furthermore, some brought new information from the Internet instead of merely depending on the predetermined curriculum book and offering links as resources. Besides, they showed a capability to choose and decide what was relevant and compatible with the curriculum, e.g. traditional learning or e-learning.

The students made many statements on WhatsApp. For instance, some illustrated that the smartphone met their needs, besides keeping them informed about what was going on in the world. Furthermore, their own smartphone and accompanying apps were always near them when needed. However, the results show that most of the students were not happy with the idea of peer-assessment, since counting on a peer to assess their work is a risky and challenging responsibility.

I noticed that specifying in advance my responsibilities and role, besides the students' roles and responsibilities, was a fruitful technique in the second iteration. It seemed that effective communication was enhanced and there was increased focus on exchanging information relevant to the topics of the course. Additionally, the focus on helping peers and playing the role of a real teacher, instead of submitting answers individually increased. The results suggest that playing the

role of a real teacher (in-service teacher) to support less knowledgeable peers was a beneficial technique. The focus in the second iteration was more on constructing new knowledge collectively and collaboratively.

Although most of the students involved did not explicitly state that they faced specific conceptual difficulties in their exams (i.e. the mid-term and final exams), there was some debate (see 7.4.2, p. 239) revealing that a few had actually encountered such problems. For instance, some of the students struggled to comprehend the concept of distance learning (DL). This might be because the students concerned had never been involved in such an approach and therefore had no direct experience of it. However, the co-construction of knowledge among them seemed to help some of those who had misunderstood the concept of DL and motivated them to change or re-think some of their perceptions of it.

In the second iteration, the six-phase process suggested by Braun and Clarke (2006), helped me greatly in extracting accurate meanings of what was said or done by participants during the data collection phase, as well as recognising the influence of their context and environment on what was said or done. Furthermore, the methods used to collect the data and the sample were sufficient. It appeared that the formative evaluation I conducted during the second iteration was effective. It helped me identify the challenges and obstacles once they emerged and try as far as possible to avoid them or alleviate their impact, e.g. to stop using the Haiku LMS, because of its complexity.

By counting on IA, my observation and field notes, I noticed that there were many challenges, i.e. context, general and technical, that needed to be considered before integrating any type of technology at PAAET in Kuwait. These challenges confirm what other global and local researchers mentioned earlier in the Literature Review chapter. The second iteration helped me reach the final design principles (Design Framework 3).

### 7.8 Final Design Framework 3

In this section, the final design framework is presented. The suggested final design principles were repeatedly tried and tested in two iterations. However, there are two points which must be mentioned before presenting the final design framework.

The first one, more encouragement and support, is always welcome to alleviate resistance and social loafing. The second one: It is better to think of M-learning as a support to rather than a replacement of traditional learning, is better applied to a blended approach, as also Xing et al. (2011) recommend. The final design principles are summarised below in (Table 7.1) Design Framework 3;

Design principle 1	Design principle 2	Design principle 3	Design principle 4
<ul style="list-style-type: none"> <li>• Students should be encouraged to use their hand-held devices in order to search for theoretical and authentic information from new resources (the Internet or surrounding environment) outside the lecture hall walls, by e.g. capturing photos and movies to connect both knowledge (theoretical and authentic knowledge) in order to enhance students' knowledge and retention of their topics.</li> </ul>	<ul style="list-style-type: none"> <li>• Students should also be encouraged to share social and academic issues with others (whether relevant to their topics, e.g. offering links, YouTube videos, photos and movies, or irrelevant e.g. shooting special events) to maintain the flow of mutual communication which may enhance CL.</li> </ul>	<ul style="list-style-type: none"> <li>• Students should be encouraged to use their own hand-held devices to carry out new roles, e.g. in-service teachers. Combining WhatsApp and a PS approach seems to be a useful technique for the HEI context in Kuwait, which can enhance CL, once the students rely on their roles and responsibilities properly.</li> </ul>	<ul style="list-style-type: none"> <li>• Students should be allowed to choose the technology they prefer (to communicate and collaborate with colleagues), but not their own group, in order to achieve more productive collaboration. Some behaviour rules are needed.</li> </ul>

### 7.8.1 The Final Design Principles

1. Theoretical and authentic information should become embedded in the informal learning activities taking place outside the lecture hall walls. Students should be encouraged to use their smartphones to offer relevant, accurate and detailed information about the courses they are studying (present websites links, YouTube videos, capturing photos and movies), or on irrelevant issues (e.g. shooting special events). This is compatible with Traxler's (2009) view, where students are required to engage in exploration and enquiry for better learning. Information no longer comes merely from books and predetermined curricula, but from other resources, which include theoretical and real authentic data.
2. Students should be allowed to combine their social and academic lives. It seems it is difficult to prevent students from sharing irrelevant issues, e.g.

their feelings, thoughts and social lives with other. Thus, it might be better if teachers permit this type of action and encourage the flow of mutual communication between group members. According to Sharples et al. (2005), "Learning is interwoven with other activities as part of everyday life: Learning cannot easily be separated from other everyday activities such as conversation, reading, or watching television, and these activities can be resources and contexts for learning" (p. 5). Findings confirm the theoretical basis (Vygotsky's theory of the 'genetic law of development') which tells us that learning is a social act and the learner makes sense by socialising with others, before building his own understanding (see, e.g. John-Steiner & Mahn 1996; Wretsch, 1991).

3. Students should be encouraged to use their own hand-held devices to adopt new roles, e.g. that of an in-service teacher. Combining WhatsApp and a PS approach seems a useful technique for the HEI context in Kuwait to enhance collaborative learning, once the students properly realise their roles and responsibilities. I suggest this can be more useful on mathematics and science courses, where more knowledgeable students explain equations, etc. to less knowledgeable peers.
4. Students should be allowed to choose the technology they prefer to communicate and collaborate with colleagues, but not their own group, in order to achieve more productive collaboration. It seems that less heterogeneous groups mean better collaboration. The collaboration of a few heterogeneous group members (5-7 members) is better than the collaboration of large homogeneous group (7-9 members). There is a need for grounded rules (e.g. behaviour), but it should come from them as Littleton and Mercer (2013) suggested.

## Chapter 8: Discussion

### 8.1 Chapter Outline

This chapter discusses the outcomes and observations from this study. I will go back over all the evidence to show how I answered related research questions and link them to the Literature Review (LR). The chapter is divided into seven sections, each section addressing one of the research questions. I will start with the main research question (see 8.2 below), followed by the six sub-questions.

### 8.2 Research Question 1

1- Is WhatsApp (as a smartphone app) useful in enhancing collaboration amongst pre-service teachers at PAAET? If so, then how and why?

Observations drawn from the study suggest the answer to this question is 'Yes', but the question remains of 'How?' and ultimately, 'Why?' The results from the two

iterations suggest that WhatsApp holds a pedagogical affordance that can enhance collaborative learning for pre-service teachers at PAAET (see Evidence, in 6.5.1 and 7.4.1). Although it is a local pedagogical affordance which differs from what is cited from other researchers in the LR (i.e. Klopfer et al. (2002); Pea & Maldonado (2006); Woodill (2010); Clough et al., (2009); Cochrane & Bateman (2010); Traxler (2009); Chu, Lin, Tan & Liu (2012)), it confirms what these researchers found or suggest, namely that there are various pedagogical affordances for PDAs, mobiles and smartphones.

The results show that the WhatsApp smartphone app enhanced the quality of communication between participants (168 examples in the 1<sup>st</sup> iteration, and 183 examples in the 2<sup>nd</sup> iteration, see Appendixes B-1 and B-2), allowing them to discuss issues relative to their study, start a conversation (two members of the same group; bidirectional conversation), and share information that stimulates and motivates their peers (see 6.5.1.1 and 7.4.1.1). Furthermore, WhatsApp permitted control over communication (9 examples in the 1<sup>st</sup> iteration, and 41 examples in the 2<sup>nd</sup> iteration, see Appendixes B-1 and B-2) by offering a chance for students to share and collaborate with their fellow group members from an expanded range of places and at an expanded range of times, e.g. cars, malls or Dewanya, as well as sharing freely at their convenience (see 6.5.1.2 and 7.4.1.2).

Moreover, WhatsApp permits the social construction of knowledge (46 examples in the 1<sup>st</sup> iteration, and 170 examples in the 2<sup>nd</sup> iteration, see Appendixes B-1 and B-2) by offering a chance for participants to bring new information from new resources, e.g. the Internet and to decide on their own what is relevant, useful and compatible with their curriculum, e.g. accepting technology, rejecting distance learning, or their preferred learning content (printed or electronic) and methods (e-learning or traditional learning, see 6.5.8).

What is more, there is evidence that WhatsApp helped some of the students take on a new role, becoming more active instead of remaining passive. Some played the role of an in-service teacher (a real teacher), rather than that of a pre-service teacher by supporting less knowledgeable students – applying Vygotsky's ZPD principles (39 examples in the 1<sup>st</sup> iteration, and 43 examples in the 2<sup>nd</sup> iteration, see Appendixes B-1 and B-2). They therefore occasionally taught or learned from

others (see 6.5.1.4 and 7.4.1.4). Finally, the results show that the WhatsApp smartphone app provides opportunities for socialising with others ('Off-task communication'), including the teacher (45 examples in the 1<sup>st</sup> iteration, and 193 examples in the 2<sup>nd</sup> iteration, see Appendixes B-1 and B-2). At times, the students asked for help, guidance and support from the teacher, merely by sending a question or enquiry through WhatsApp at their convenience. Furthermore, the teacher offered help and support, without waiting for students to ask. Additionally, students were able to discuss any challenges they faced and report absences, as well as using the app for communication which did not relate to their studies, like congratulations and blessings (see 6.5.1.5 and 7.4.1.5).

The results show that WhatsApp enhances collaborative learning activities for pre-service teachers at PAAET by helping group members to network outside the walls of the lecture hall. Therefore, it was no longer necessary for them to wait until they met up on the premises to discuss issues concerning their course of study. Moreover, absence from a lecture is no longer such an important issue, as the results suggest (see section 6.5.1.5, p. 50, and 7.4.1.5, p. 33). This is because WhatsApp provides a potential means of keeping students in touch at all times. Moreover, due to its ease of use and familiarity amongst most of the students, WhatsApp seemed to be an effortless means of communication for the groups and this factor may increase the potential for communication and subsequently, collaboration (see 6.5.2)..

Besides the above, WhatsApp appeared to enhance social interaction and motivation in informal ways, with an increasing number of students agreeing it had assisted their learning, while also developing classroom dynamics, where students actively supported their peers (see sections 7.4.1.2 (B) and 7.5.6). This corresponds to findings from other researchers (Clough, Jones, McAndrew & Scanlon, 2009; Al-Shehri, 2011; Moura and Carvalho (2009). Moreover, it became evident from this study that smartphones and their accompanying apps are already widely used for communication and socialising with others, e.g. family members and friends, and have become central to students' lives (see sections 6.5.1.5, p. 50 and 7.4.1.5, p. 33). This could certainly be exploited by other teachers at PAAET to promote communication. Moreover, teachers should also

engage with their colleagues on courses, in order to reduce resistance to change and increase collaboration.

It follows from the above that WhatsApp can enhance relationships between group members in an educational context (see 7.5.7). It was found from the study that the customary acknowledgement of special events (e.g. Friday as a spiritual day for Muslims), by means of exchanging messages on smartphones, could also be harnessed as a means of encouraging learners to communicate with each other more outside class, with the possibility of educational use (see 6.5.1.5 and 7.4.1.5 (D)). Furthermore, WhatsApp motivated the majority of students in the study to interact and collaborate with their peers, in order to find answers relevant to their course (see sections 6.5.1.1 and 7.4.1.1). Numerous outcomes of the study therefore support the idea that WhatsApp helps and motivates students to engage with each other and partially increases their self-confidence (see section 7.5), whereas in Kuwait, as a consequence of the education system and various other challenges (see 7.4.2), some Kuwaiti students suffer from a lack of confidence. This was confirmed earlier in the LR by Al-Fadhli (2008). Furthermore, students are less likely to feel isolated if they are linked through such a user-friendly network (see section 7.5.6, p. 61). Consequently, it may be stated that a smartphone app, such as WhatsApp, affords social interactivity, as indicated in the LR (Klopfer et al., 2002).

Consequently, WhatsApp enabled the participants to collaborate with each other and with their teacher at their convenience, without any limitations of time and place. The ubiquity of the smartphone became clear from how the students declared they used such devices, including when travelling out of the country (see sections 6.5.1.2 and 7.4.1.2). In other words, WhatsApp eliminates the constraints of time and place, thus offering more freedom and control over shared time. For instance, the majority of participants stated they usually interacted with each other and shared ideas via their smartphone in the evenings or at night (i.e. after 21:00), or at their convenience. This is evidence of the accessibility of smartphone apps; namely that freedom and control over sharing times can impact students' feelings towards their activities. Furthermore, observations from the study indicate that WhatsApp can increase the total amount of collaborative time available to students, as it became clear there was no need to establish fixed locations (e.g.

in front of a computer or laptop screen) in order to be able to share, interact, or collaborate with others.

In addition to the above, due the small size of smartphones, they can fit in a pocket and students and teachers can carry them everywhere, thus demonstrating portability and a constant means of communication. The constant accessibility of smartphones therefore represents greater scope for locating, recording and sharing both relevant and irrelevant events in the educational context.

A further important point in favour of WhatsApp is that it offers more privacy than other recommended apps (e.g. Twitter or BlackBerry Messenger), since its use merely requires an exchange of personal phone numbers between individuals or groups (see section 5.6.2, p. 17). Furthermore, smartphone allows for privacy in large public spaces, like the *Dewanya* [a room in a Kuwaiti home, where friends and relatives gather on special occasions] (see section 7.7.2).

The outcomes of this study support the notion that an individual's needs and usage can be customised through WhatsApp, which means that WhatsApp affords privacy and individuality (see section 7.4.1.3, p. 25). Furthermore, it was demonstrated that WhatsApp is useful as a data collection tool. Students gathered relevant and irrelevant data from various sources and shared it with others at different times, affording the social construction of knowledge with new media, Klopfer et al. (2002) call it 'context sensitivity'. For example, the participants browsed the Internet, sending website links and YouTube videos. Additionally, they took photos and made videos to enhance the clarity of their messages and share them with their peers (see sections 6.5.1.3 and 7.4.1.3).

Another finding derived from the research is that WhatsApp can serve as a documenting and storage app (see section 7.5.2, p. 56). For instance, users can immediately document what they see, hear or read, without any fear of losing significant data. The mobile phone provides students with powerful data collection (Cochrane & Bateman, 2010; Kim et al., 2006; Naismith et al., 2004). For instance, for several months, students' details, comments, photographs and videos may be stored in my WhatsApp account (for research purposes). However, all this data will be deleted once the study is complete, in order to avoid ethical issues (see section 5.2). It must be emphasised here, however, that the capacity to collect,

access and share data conveniently is helpful for knowledge-building, knowledge evaluation and giving meaning to an activity (Brown, 2005; Evagorou & Avraamidou, 2008; Cinque, 2013; Gikas & Grant, 2013).

Observations from this study illustrate that WhatsApp is in fact more useful and effective than many LMSs (e.g. Blackboard, Moodle or Haiku) in delivering learning to pre-service teachers at PAAET in Kuwait. For one, it is less complex to use (see section 6.5.2, p. 52). Moreover, it is free of charge, highly accessible and can serve Arabic-speaking participants well (see section 6.9). In contrast, the Haiku LMS proved to be complex in use and most of the students in the study suffered as a result (see section 7.4.2.3.1).

As indicated at the very beginning of this chapter, we need to ask the question 'Why?' when considering the use of a new technology for learning. The findings of this study support the claim that the quality of communication, control over communication, the social construction of knowledge with new media, playing new roles and socialising as a pedagogical affordance are beneficial components of WhatsApp in facilitating the success of collaborative learning. Moreover, evidences collected during the study confirm what a long list of researchers (e.g. Klopfer et al., 2002; Pea & Maldonado, 2006; Clough et al., 2009; Moura and Carvalho, 2009; Woodill, 2010; Cochrane & Bateman, 2010; Welsh & France, 2012; Traxler, 2009; Chu, Lin, Tan & Liu, 2012) have illustrated; namely that the many pedagogical affordances of hand-held devices like PDA's, mobiles and smartphones make collaborative activities achievable.

### 8.3 Research Question 2

2- What type of apps did the participants favour?

The students indicated a preference for using WhatsApp to communicate and collaborate when performing their learning activities (see section 5.4). This is mainly because this app is already widely used by Kuwaiti youth, who have consequently become familiar with it. WhatsApp also has the advantage of offering a level of privacy (see sections 6.5.2 and 7.4.1.3). The latter feature is one which is also highlighted by Raftree (2014), but contradicts claims that anonymity is not guaranteed in M-technology (Zheng & Ni, 2010). Furthermore,

although many young people around the world are now familiar with apps for games, social networking, work and personal productivity tools, in less affluent countries or sectors of society this is still not entirely the case (ASTD staff, 2013; Raftree, 2014).

#### 8.4 Research Question 3

3- What are the perspectives of students and teachers at PAAET on collaborative learning and WhatsApp?

On one hand, the outcomes of the study indicate that the teachers (a three-teacher sample from ETD at PAAET) were aware of the collaborative learning concept, even if they could not explicitly define it (see section 5.6.1.6). The research also revealed that two members of the sample had previously used such a communication tool (WhatsApp Messenger is a cross-platform mobile messaging app and Twitter is an online social networking service) and found it useful for enhancing communication among their students and delivering course information. Furthermore, both these teachers had implemented the CL approach, but later stopped, due to numerous barriers, e.g. social and cultural barriers (see section 5.6.1.8).

On the other hand, most of the students observed appeared to understand what is meant by collaborative learning and appreciated its value. Furthermore, they demonstrated a positive attitude towards collaborating with their peers and most seemed to accept and be satisfied with using WhatsApp for communication and collaboration (see sections 2.2.3; 6.6.2 and 7.5.5). Feelings of enjoyment/amusement (see sections 7.4.1.5 and 7.5.4), freedom and convenience associated with their mobile phones influenced their feelings towards their activities. However, some initially rejected WhatsApp as a result of various challenges, e.g. shyness, lack of confidence and the unwillingness to share one's thoughts with others (see section 3.4).

#### 8.5 Research Question 4

4- Does WhatsApp allow pre-service teachers to play the role of in-service teachers in order to achieve more collaborative learning?

This type of action can be called participatory simulation (PS). The results show that the advantages and disadvantages of employing smartphone apps were amongst the major themes emerging from this research, where the advantages outweighed the disadvantages and challenges. This rendered the affordances of smartphone apps more acceptable and suitable for enhancing role-play; namely the role of in-service teacher played by the students themselves.

As the results illustrate, WhatsApp allows more knowledgeable students to help (scaffold) their less knowledgeable peers in an informal way. This enables pre-service teachers to play the role of in-service teachers, or to offer peer-support by empowering and equipping them to send instant feedback, instructions, useful and relevant comments (see sections 6.5.1.4 and 7.4.1.4). Furthermore, such role-playing allowed some students to support/teach their peers and learn from them in turn. Helping others may help them to reflect and expand their understanding of the topics they study, give them experience for the future and really alleviate my workload as a teacher.

#### 8.6 Research Question 5

5- What are the barriers preventing the full integration of technology into PAAET in Kuwait?

There are many barriers in this context, e.g. contextual/cultural, general and technical.

##### *Contextual/Cultural Barriers*

It became clear during the course of the research that students' criticism was levelled against officials and the education system in general. Some officials in the Ministry of Education and at PAAET had promised to make positive changes in education, but had not been able to fulfil such promises (see section 7.4.2.1.1). Furthermore, the education system currently encourages students to focus more

on memorising than analysing information and so the focus is normally on the lower levels of Bloom's Taxonomy (see section 7.4.2.1.2) and students do not often get to the stage of a more complex synthesis of ideas. These study outcomes support the idea that the education system and teaching methods generally encourage students to be passive, rather than active. Both teachers and students depend very heavily on printed resources, e.g. books and printed materials, either published by faculty members at PAAET, or elsewhere, where most of the information needs to be updated (see section 7.4.2.1.3).

As indicated from observations during the research activities, shyness, a lack of self-confidence and a lack of motivation are visible constraints in this context. This confirms what was cited earlier from Al-Fadhli (2008) in the LR. This may in fact be linked to the education system in Kuwait, which does not support engagement or collaboration in school, so students do not have the chance to become familiar with such an approach earlier on in their education. This has also been stated by Alayyar et al. (2009) and Ghaith (2013). These factors are expected to increase students' resistance (section 7.4.2.1.9) to collaborative learning and the use of new technological tools for learning.

On the other hand, it was also revealed that some of the students already frequently used WhatsApp to socialise with family members and friends, or for entertainment purposes, but this did not extend to their learning. In other words, WhatsApp was used for fun and the students were not prepared to let anyone invade this aspect of their leisure/fun time (see section 6.6.8, p. 69).

As a general observation, PAAET tends to encounter problems due to high student numbers. In this study, I experienced this ( $n=65$  in the 1st iteration and  $n=59$  in the 2nd iteration). This is to confirm what Al-Ali (2010) found in her study. What is more, the curriculum in this context is not designed to accommodate technology, but rather printed material (see section 7.4.2.1.7). The study also identified further challenges, namely financial (see section 7.4.2.2.3), as there was no financial support or discount available for students once their Internet subscription had expired.

### *General Barriers*

Findings from the study support the idea that WhatsApp (as a smartphone app) is like any technological tool in that it can lead to health problems through improper or excessive use, e.g. back pain or eye problems, resulting in headaches, blurred vision and eye fatigue (see section 7.4.2.2.1). Moreover, due to the novelty effect, the preference for WhatsApp might not last long. The study suggests that employing any new technology can be a double-edged sword, since I believe it is difficult to keep people interested in a single tool for long. Technology has constantly evolved (Steinfeld et al., 2010; Bacigalupe, 2011). Boredom is a serious concern in the long-term. This raises new arguments against the views of some researchers, e.g. Ekanayake and Wishart (2014), Moura and Carvalho (2009), Banks (2013), who claim that due to this novelty effect, mobile phones can engage students in, for example, a science lesson. This may very well be the case, but my argument is that their attention span might not be sustained for long. We need to bear in mind that people have moved from desktop PCs, to laptops, iPads and smartphones. Eventually, the hardware of choice could be something like a 'smartwatch'.

Other challenges raised in this study consist of the potential for WhatsApp to distract students in the classroom (see sections 7.4.2.2.5 and 6.6.5). Distraction is a serious problem for many reasons. Instead of WhatsApp helping students engage with and collaborate in formal and informal ways with others, it can turn out to be a tool of distraction. This may hinder learning or isolate students even further, as they engage in activities centred in the technology and outside their learning. This potential emerged from this study and was referred to by students who had observed the anti-social aspects of smartphone use in other situations, even socially (see section 6.6.5), which was contradictory to the aims of the study, namely to promote collaboration. In any case, there are strict, albeit unwritten rules inhibiting students from using their smartphones in lessons – or even bringing them into class - due to the fear of them being distracted from the lesson.

### *Technical Barriers*

The investigation into technology use at PAAET revealed that most of the lecture halls were small and not equipped with technology. The few that were equipped had outdated computers in them with no routine maintenance or updates.

Furthermore, PAAET suffers from a lack of ongoing technical support from teachers, other faculty members and the college administration. It is also important to note that while there were some claims of the existence of a Wi-Fi connection on campus, I did not find any active or open points (see section 7.4.2.1.4).

One specific challenge revealed during observations of WhatsApp use in the study was that most of the comments were written in (Arabic) slang. As a result, it was difficult to understand what the students actually meant a lot of the time and this also posed a problem when translating their statements (see section 7.4.2.3.2). In addition, some of the smartphones, aside from WhatsApp, do not provide spelling or grammar correction tools. Finally, smartphone screens are generally small, which means they are unsuitable for long tracts of text (see section 7.4.2.3.3).

Besides observing smartphone use, a Haiku LMS was introduced, but despite the fact it did not appear complex (section 6.7), it still proved to be a technical barrier. This confirms what Ali and Magalhaes (2008) state in the literature; namely that system crashes, difficulties of use and inaccessibility can present obstacles. In the first iteration, even WhatsApp brought some challenges with it, because not all the students were familiar with it.

## 8.7 Research Question 6

6- Can WhatsApp overcome obstacles, e.g. contextual, cultural and technical barriers related to Kuwait?

Observations made during the study revealed that WhatsApp helped overcome some obstacles, e.g. contextual, cultural and technical hurdles. For instance, WhatsApp offers equal opportunities for all to share, interact and collaborate with others, regardless of their background (even though all the participants were Kuwaiti students, they came from different social backgrounds), or intellectual abilities. It was demonstrated in the study's activities that all the participants' voices could potentially be heard via the application, WhatsApp (see section 7.5.7). Moreover, it was observed that students can overcome cultural challenges, e.g. shyness, or a lack of confidence by using WhatsApp to collaborate with each

other and express their feelings and opinions more comfortably (see section 7.4.2.1.10).

The study outcomes suggest that due to ease of use, familiarity and ubiquity (see section 5.6.2, p. 17), WhatsApp can be used to largely replace an LMS, thus avoiding the technical complexity of some of these learning platforms and the problems of sustaining their accessibility. By contrast, WhatsApp is free of charge and easy to download and use. It therefore offers new teaching and learning opportunities for both teachers and students. It was also revealed in the study that the performance of some of the students evolved as a consequence of increased communication and collaboration with peers via WhatsApp (see section 7.5.4).

A further outcome of the research activities was that the students were able to search for different information without relying totally on text books or printed materials. With WhatsApp, they could go beyond the predetermined syllabus and search for more extensive resources, including posts from peers (see sections 7.5.2). Moreover, the new hand-held devices, like the iPad and smartphone, can be loaded with large parts of the syllabus, instead of depending solely on resources which are already available, such as books and printed materials.

Importantly, the study highlighted the capacity of technology to partially free up the teacher from some of his responsibilities, enabling the students to take on new roles. For example, WhatsApp allowed the more knowledgeable and communicative students to share some of my responsibilities (as teacher) and to act as in-service teachers in support of less knowledgeable or confident peers (see sections 7.5.3). Furthermore, WhatsApp can make teachers more aware of students' concerns in an immediate and consistent way and can help build a community of practice (e.g. with the students). For instance, I was able to offer instant help, support and guidance, whenever it was needed. Students no longer needed to travel far to meet me as their teacher during office hours (the ETD campus at PAAET has one branch serving all students around Kuwait). This kind of smartphone app (i.e. WhatsApp) could also support part-time teachers who do not have offices at PAAET. WhatsApp makes them more available to help their students and this has particularly practical applications for female students, given the constraints on gender integration in the context.

## 8.8 Research Question 7

What are the guidelines for the successful implementation of WhatsApp in teacher training? This question was captured through two iterations (two micro-cycles) of investigation. The guidelines can be seen as the final design principles (Design Framework 3), summarised and presented earlier in Chapter 7 (see Table 7.1).

## 8.9 Summary

In this chapter, I discussed the research questions and answers to this study. The main focus was on understanding why and how, if at all, the pedagogical affordances of WhatsApp can enhance collaborative learning among pre-service teachers at PAAET. I found through two iterations of investigation that there are five local pedagogical affordances, i.e. 1- Quality of communication, 2- Control of communication, 3- Social construction of knowledge with new media (i.e. WhatsApp), 4- Playing new roles, and 5- Socialising. I have apprehended that the application pre-service teachers at PAAET favour is WhatsApp. The concern here is that, with the constant change and evolution of technology, these participants or others might change their mind rapidly, especially if they find new applications that suit them better or seem more inspiring, fashionable or appealing.

I found that the three teachers I interviewed (faculty members at PAAET) and the majority of students before and during the investigation appreciated, owned and accepted smartphone apps and were familiar with concepts like collaborative learning. As the results suggest, most were already using their own smartphone and accompanying apps for socialising with friends and family members, but not for learning, except for two of the teachers – T2 used WhatsApp and T3 used Twitter (see 5.6.1.1). However, some of the participants rejected WhatsApp, because of many challenges they perceived in connection with it.

There is evidences that WhatsApp allowed pre-service teachers to act as in-service teachers, supporters and caregivers for their peers. WhatsApp opened up new opportunities for more knowledgeable students to teach less knowledgeable peers and sometimes these roles were reversed. Participatory simulation is a useful approach to increase and enhance collaborative learning, as results show.

The LR and what I found in this study confirmed that there are many barriers in this context, e.g. contextual/cultural, general and technical. I reviewed some of these and reached the conclusion that we need to consider such challenges before any attempt to integrate technology into the classroom and lecture halls. Fortunately, WhatsApp, as the results suggest in this study can overcome some of those barriers and challenges. For instance, students do not need to be physically present in the computer lab on campus at specific times to study or learn something, especially with the lack of equipped classrooms and lecture halls. Furthermore, students can find new sources of theoretical and authentic information, instead of relying exclusively on course books. Finally, through the revision and testing of two iterations (two micro-cycles) of investigation, I specified four local design principles (Design Framework 3). This set of design principles could be very useful for any researchers or teachers in Kuwait, who are thinking of employing smartphone apps in future.

## Chapter 9: Conclusion

### 9.1 Chapter Outline

This chapter presents a summary of the key findings of the study, juxtaposing these with the research questions and theoretical framework. The new knowledge gathered using all the methods applied in this study and subsequent recommendations for further research or implementation will be presented in this chapter, along with some of the limitations encountered. Overall, a possible road forward will be defined for Kuwaiti teachers, or any other professionals interested in implementing this kind of research, e.g. using smartphone apps to support collaborative learning.

The main reason for undertaking this qualitative study was to explore the usefulness of WhatsApp as a smartphone app in enhancing collaboration amongst pre-service teachers at PAAET. Moreover, if the usefulness of WhatsApp was to be established, then the underlying reasons for its usefulness also needed to be ascertained. In responding to this and other research questions, several other lines of enquiry were pursued, such as the preferred apps amongst Kuwaiti pre-service teachers at PAAET, with an exploration of the perspectives of students and teachers at PAAET on collaborative learning and WhatsApp. For example, does WhatsApp allow pre-service teachers to play the role of in-service teachers to achieve more collaborative learning? Moreover, what are the barriers preventing the full integration of technology at PAAET in Kuwait and to what extent can WhatsApp help overcome or alleviate the impact of certain obstacles, e.g. the contextual, cultural and technical barriers characteristic of Kuwait? Finally, what

are the guidelines for the successful implementation of WhatsApp in teacher training?

## 9.2 Summary of Findings

1. WhatsApp holds a pedagogical affordance that can enhance collaborative learning for pre-service teachers at PAAET (see evidence, 6.5.1 and 7.4.1), i.e. the quality and control of communication, social construction of knowledge with new technology, playing new roles (participatory simulation) and socialising.
2. The students indicated a preference for using WhatsApp to communicate and collaborate when performing their learning activities (see section 5.4).
3. I found that teachers (a three-teacher sample from ETD at PAAET) and students were aware of the collaborative learning concept, even if they could not explicitly define it (see section 5.6.1.6). Furthermore, most demonstrated a positive attitude towards collaborating with their peers and most seemed to accept and be satisfied with using WhatsApp for communication and collaboration (see sections 2.2.3; 6.6.2 and 7.5.5).
4. WhatsApp allows more knowledgeable students to informally help (scaffold) their less knowledgeable peers. This enables pre-service teachers to play the role of in-service teachers, or to offer peer-support by empowering and equipping them to send instant feedback, instructions, and useful and relevant comments (see sections 6.5.1.4 and 7.4.1.4).
5. There are many barriers in this context, e.g. contextual/cultural, general and technical.
6. Observations made during the study revealed that WhatsApp helped overcome certain obstacles, e.g. contextual, cultural and technical.
7. I found four local design principles (Design Framework 3) which can lead researchers and teachers in Kuwait to make better use of smartphone apps in future, both inside and outside the classroom and lecture halls (see section 7.8).

### 9.3 Contributions to Knowledge

This study presents implications and contributions to knowledge. To theory, it provides affordances (of WhatsApp) and enhanced collaboration; to practice, it provides: a) The effectiveness of WhatsApp for PS (role play), and b) The final local design principles (Design Framework 3). To methodology, it offers improved DBR with literature reviews.

#### *9.3.1 Implications for Theory: The Pedagogical Affordances of WhatsApp*

Implementation of Theory 1:

In this study, I have tested a theory on the pedagogical affordances of the WhatsApp smartphone app. This study adds new understanding of how collaborative activities can be successfully performed in this context at PAAET and the technological artefacts which should be used or avoided, due to various challenges. This study contributes to the body of knowledge by providing rich insights into the pedagogical affordances that WhatsApp holds to enhance collaborative learning, i.e. quality of communication, control of communication, social construction of knowledge with new media, playing new roles (participatory simulation) and more opportunities to socialise with others (see evidence in 6.5.1 and 7.4.1). It also offers a chance for future research to be implemented with a clearer vision of the challenges and advantages that accompany any attempt to integrate technology into this context.

Implementation of Theory 2:

The premise of social constructivist theory provides a significant axis for collaborative work in this study, where there are many examples to show that each group learnt something relevant to their subject areas and many students made individual contributions to this learning. This is reflected in the enhancement of my own knowledge and demonstrates the effectiveness of the CL approach. The participants were more connected and less isolated than in the teacher-centred approach. Moreover, the social process of knowledge construction offered by other group members helped some of the participants to modify or re-think their own viewpoints.

Further to the above, the social construction of knowledge became easier with the CL approach, applied in combination with WhatsApp, since it allowed most students, including shy and more resistant individuals to express themselves more freely. Playing a new role (as an in-service teacher), which is another approach to support collaboration and scaffolding amongst students, served to facilitate the social process of knowledge construction and raised the level of self-confidence amongst the participants.

This study sheds new light on the extent to which CL can be effective in this context, especially given the reasons why myself and other teachers at PAAET (see sections 3.3.9 and 5.3) were not sure that CL using a communications app for Smartphone would work in the specific cultural context of Kuwait. Demonstrating the effective implementation of social constructivist learning theory in this context is therefore a distinct modest contribution to knowledge.

#### Implementation of Theory 3:

There is a great deal of evidence in this study to show that 'socialising' or 'off-task communication' was essential to the success of 'on-task communication' and collaboration among the participants (see 6.5.1.5 and 7.4.1.5). This is mainly because 'socialising' and 'off-task communication' permitted a flow of communication between the participants in this context. Therefore, allowing participants to submit a combination of both 'on-' and 'off-task communication' would seem to be an effective technique for encouraging them to participate, communicate and collaborate more. Conversely, preventing students from engaging in 'off-task communication' may cause unnecessary and undesirable resistance, or worse, inhibit 'on-task communication'. While this confirms the findings of other studies (e.g. Kirschner and Neelen, 2015), having this confirmation in the cultural context of Kuwait is new and interesting, making this aspect of the study a further modest contribution to knowledge.

### 9.3.2 Implications for Practice

#### 9.3.2.1 Combining the Participatory Simulation (PS) approach with WhatsApp

Combining WhatsApp and PS in the study design, where some of the pre-service teachers succeeded in playing the roles of in-service teachers to help and scaffold their peers, was an original pedagogical approach for trainee teachers in Kuwait. The results suggest that pre-service teachers or students can play new roles to help their own and each other's future careers, as well as supporting their teachers with WhatsApp. There was evidence of the positive effect of this design on supporting learning amongst less knowledgeable students and of students teaching and learning from each other as an enhancement of CL, presented in sections 6.5.1.4 and 7.4.1.4. The results suggest, however, that WhatsApp can only enhance CL amongst pre-service teachers when we apply a careful structure involving PS and the freedom to control learning. This is in addition to considering preferences and the surrounding environment with its complexities, e.g. social, cultural and technical challenges, which is a small, but significant contribution to knowledge.

#### 9.3.2.2 Final Local Design Principles (Framework 3)

A contribution of this study consists of four local design principles, tested in both iterations and modified to suit the PAAET context (see section 7.8). By identifying these four local design principles, I answered the sub-question: 'What are the guidelines for the successful implementation of WhatsApp?' However, instead of considering the above principles as internal guidelines, or merely as end products, my intention was for them to function as guidelines for use by teachers and educators at PAAET in future, informing the curriculum design of Educational Technology courses, wherever teachers endeavour to integrate smartphone apps into the Kuwaiti educational context.

### 9.3.3 Implications for Methodology

#### a) Introducing DBR into the Kuwaiti context

In this study, DBR was presented as a flexible qualitative research approach, offering an alternative to the quantitative statistical approach adopted by the

majority of Kuwaiti teachers and researchers, which has dominated the field for a significant number of years. Here, the flexibility of the DBR approach was an important factor in gaining insights and adding to our understanding (thus contributing to theory), since it normally consists of two or more iterations, as many researchers suggest (see e.g. Oliver et al., 2011; Herrington et al., 2007). It allows us to improve (contribute to) practice by subjecting experience to several trials until an attempt is successful. This has particular value in the respective context, as previous attempts by teachers to integrate and use technology at PAAET have not been completely successful and have usually faced many barriers. The subsequent frustration has then discouraged further trials. The implications of these findings from DBR are that any Kuwaiti teachers and researchers who may be interested in undertaking the same trial just need to modify it, without having to establish new research aims, questions or methods.

DBR therefore allows teachers and researchers to retain all the previous relevant research questions, aims and methods, merely necessitating changes to the intervention and a new implementation, before discussing and presenting findings in an attempt to develop new theory or practice. Hence, DBR represents an ongoing work in progress, with subsequent savings in terms of finance, time and effort. This study consequently contributes to the understanding of teachers in Kuwaiti as to how HEIs can adopt other approaches, e.g. DBR, which can prove more useful than experimental approaches. Having such possibilities at their disposal would then inspire teachers in this setting to conduct more educational research and inform practice and theory.

#### *b) Suggesting an improved version of the DBR*

Herrington et al. (2007) suggest that DBR methodology can be practicable for PhD students, only if they amend it to suit the context and accompanying conditions and challenges. The flexible nature of DBR (Van den Akker et al, 2006; Wang & Hannafin, 2005) and constant need for guidance and support for PhD students has driven me to suggest an improved version of DBR.

To my knowledge, no study has used DBR to instruct PhD students to adhere to the literature review from the beginning to the end of a thesis. LR can guide, support and direct students, confirming or negating the results. The contradiction

I noted was that DBR is presented as a pragmatic and flexible approach, but some PhD students stick to a traditional (standard) thesis structure and merely add iterations. Since they mostly work on their own, they frequently need guidance and support at all stages. Hence, I recommend that LR is embedded in all stages of the thesis. This does not mean cancelling the LR chapter, but rather retaining it and constantly revisiting it for guidance, wisdom, clarification, confirmation, negation or more. For me, this makes more sense and proves that DBR is really flexible and practical for PhD students. As I mentioned earlier in the LR chapter, there is a need for “(ongoing) function and (more distributed and flexible) timing/place of literature review, [And] focused literature searches may be useful in later stages in order to address emerging specific questions” (Jan van den Akker, personal communication, 04/05/2015). Furthermore, “[A] sort of ‘continuous check of literature’ should be done.” (T. Plomp, personal communication, May 1, 2015).

#### 9.4 Limitations of the Study

This study might present a number of limitations. First of all, DBR engages in the highly ambitious methodological goal of seeking to improve the development of educational designs, while working with teachers and applying theory within a classroom setting. While it is possible that these goals can be achieved, DBR often involves large-scale, long-term projects that require “intensive and long-term collaboration” (Herrington et al., 2007, p. 4089). Further, small sample sizes, an absence of control groups and the iterative, pragmatic nature of the designed intervention, make it difficult to identify exactly what factor or factors have contributed to the success or failure of the product.

Another limit is presented by the exclusion of the teacher and females from the study. From the very outset, I had no intention to investigate anything related to the teacher or females, because I was mainly interested in understanding the pedagogical affordances of smartphone apps (like WhatsApp) for collaboration amongst male pre-service teachers at PAAET. Females were excluded from this study due to policy and cultural reasons related to PAAE and Kuwaiti society. This type of research and these activities require the exchange of phone numbers between participants and the researcher to activate

smartphone applications and this could cause ethical problems with females, since they usually prefer to remain anonymous.

Another limitation was the lack of opportunity to run a technical session preceding the intervention. Unfortunately, the one-day workshop was not entirely sufficient to increase awareness of how to use the LMS (Haiku) or WhatsApp. Consequently, there is a shortage of qualified staff at PAAET who can offer the requested/relevant technological training sessions. Indisputably, if the students (i.e., pre-service teachers) had received apt training before the course started, fewer students would have withdrawn (i.e.  $n=65$  in the first iteration, and  $n=59$  in the second iteration) and more students would have engaged effectively. Furthermore, many barriers and challenges could have been avoided.

Prior false assumptions are another limitation in this study. Mistakenly, I assumed that as all Kuwaiti students own smartphones, they can use them correctly or are familiar with all the communication applications (e.g. Twitter, WhatsApp and BlackBerry Messenger). I discovered that preferences play an important role here — I mean that the students' focus on becoming familiar with what they prefer to use, which might relate to the preferences of their friends, family members, or community. I do not believe that anyone chooses to use any communication app that is not widespread within their community, simply because they will be trying to operate alone and no one will share their interest.

Another problem limiting this study was that most of the data collected on the students' interactions and collaboration took place through WhatsApp out of my sight and so there was the risk of me losing or misunderstanding some of the students' expressions and ideas. Despite me joining all the groups through WhatsApp, I could not observe their emotions, actions, or reactions face-to-face may and so some evidence could have been missed or omitted. Sometimes, I did not know exactly why certain students were driven to say things or what they meant. In other words, some of the methods I used (i.e. Interactional Analysis) could not describe exactly what had happened, what the student had felt at that moment, what action he had taken, or why.

Furthermore, working alone as a teacher and researcher did not give me enough time to use all methods efficiently and sufficiently. For example, the focus group

was convened just once, between the first and second iterations. It might have been better to use such a technique at the end of the investigation to collect more data about students' feelings and perspectives, if required. Furthermore, requests for help from others (assistants, technicians, or other teachers) would have been a good idea in such a situation. Besides, translating my work (the collected data) from Arabic to English posed some risks, such as losing some of the nuances of participants' thoughts, ideas, or perspectives. Even worse, some may have been misinterpreted. Therefore, there is no point seeking to generalise any part of this study, because the findings are grounded in special contexts/environments, with unique participants.

Another limitation of this study was that the sample from ETD at PAAET was selected conveniently for the intervention ( $n=65$  in the first iteration and  $n=59$  in the second iteration) and may not have been representative of the whole population of pre-service teachers in the ETD or at PAAET. I had to choose my sample and present it here in this study. It is therefore clearly impossible to claim that this is a random sample. In the end, it is difficult to generalise the results because this study is a small-scale empirical enquiry, interpretive in nature. It was therefore necessary to discuss issues of trustworthiness and generalisability in this study.

### 9.5 Suggestions for policy and practice

Based on the findings and the four final local design principles (i.e. Design Framework 3), tried and tested in this study, I suggest:

- A. That policy-makers and officials in higher education institutions (HEIs) in Kuwait encourage their teachers and researchers to allow students to use their own hand-held devices outside the lecture halls, when searching for new and up-to-date information from the latest resources, e.g. on the Internet rather than solely in course books and printed materials.
- B. More efforts to be made by policy-makers and officials in HEIs in Kuwait directed towards working on transferring the curriculum from print to electronic media. Hopefully, this will encourage more teachers to integrate technology into their lectures and the classroom.

- C. More studies are needed to gain a better understanding of the influence of M-technology on students' achievement and performance in this context, i.e. PAAET or in other academic institutions in higher education (HE) like Kuwait University, especially amongst female students.
- D. More studies are needed to understand the real effects of distraction, potentially caused by smartphones in students' learning. On occasions, the fear of distraction may prevent many teachers and educators from allowing their students to use their own smartphones in lecture halls.
- E. Comparison studies, required for determining what is more beneficial for student learning in this context (Kuwait): A learning management system (LMS) or smartphone.
- F. More studies aimed at finding out if there are further pedagogical affordances for smartphones and their accompanying apps are needed. Additionally, it should be determined which other apps (e.g. Twitter, BlackBerry Messenger Messenger, or Kik Messenger) can be useful for enhancing CL amongst students in HEIs in Kuwait.

## 9.6 Recommendations for Teaching and Research in Kuwait

Teachers, educators and researchers should start to search for an alternative to the quantitative statistical approach. I recommend focusing on the use of further qualitative approaches to gain more insight into what was going on in classrooms and lecture halls. DBR is a recently developed approach adopted in many developed countries, e.g. USA, UK, the Netherlands, etc. Many scholars, e.g. Reeves (2006); Herrington et al. (2007); Oliver et al., (2011); Plomp (2013), and Nieveen and Folmer (2013), amongst many others, illustrate that it is pragmatic and flexible. The flexibility of DBR was also witnessed by the researcher in this study. As stated previously (see 9.3.3), DBR can lead to both theory and practice of significant importance for other teachers and educators who plan to use or integrate any type of technology into the classroom in the Kuwaiti context in future.

Another recommendation made here is for teachers, educators and researchers to avoid trying to integrate or use any type of technology into the classroom without first consulting the end users themselves (e.g. the students). For instance, even

though this study suggests that pre-service teachers at PAAET favour WhatsApp over other applications (Twitter or BlackBerry Messenger), other samples or populations may choose another app or even another technology, not necessarily smartphones. People's tastes, modes and choice of technology will constantly change alongside the evolution of new technology and this is what should guide our decisions regarding the type of technology we use, not because we are merely familiar with them as teachers. Very often, people, especially the youth, will change their minds about a type of technology, as soon as they get bored, or a new technology becomes 'cool' and popular. Thus, teachers, educators and researchers must expect this constant change and be ready to be flexible to avoid more unsuccessful attempts to integrate technology into classrooms and lecture halls in Kuwait.

I believe it is preferable to provide what students can deal with to achieve better interaction and what will eventually enhance the co-construction of knowledge. At all times, teachers must keep their eyes on what students do, while at the same time supporting, encouraging and guiding them. This is really an exhausting mission, but a necessary one for the success of any attempt to integrate technological innovation into the classroom. In fact, I believe that smartphone apps (in this case WhatsApp) helped some of the students in this study to overcome certain socio-cultural problems, such as shyness and embarrassment with their peers. I can therefore offer educators and teachers some recommendations:

- A. Give students what they want, not what the teacher wants.
- B. Do not exaggerate. No tool will replace substantial and effective support from the teacher.
- C. Think about how students will feel about the tool and how they will use it in the real world.
- D. Consider Cathy Moore's statement: "Our job is to design an experience, not present information." (Moore, n.d.).

- E. Think carefully about the local context, norms and cultural effect, technical barriers and perspectives and keep things as simple as you can.
- F. Eliminate top-down orders.
- G. Offer and allow for more collaboration.
- H. Consult more with the students.
- I. Be specific and clear and ask yourself, why must they use this tool?
- J. Follow the advice of one teacher [T3] I personally met in the informal exploratory technique: “I use it [the technology] for a purpose and because I need it, not for show”.

### 9.7 Reflection on Findings

Based on many evidences collected from various methods, e.g. Focus group, observation, and field notes I found WhatsApp was useful to enhance the collaboration, interaction and communication amongst pre-service teachers at PAAET. For example, features like the absence of any fees, privacy, and the ease with which it can be downloaded and used make WhatsApp one of the most popular apps for students and it has consequently become embedded in their daily lives, round the clock and seven days a week. This increases opportunities to engage in communicative and collaborative activities which can enrich students' learning experience within their areas of study – collectively building and sharing knowledge and facilitating understanding. Moreover, given its nature and existing associations, WhatsApp can blend students' social lives into their academic lives, allowing for better relations and collaboration with peers, with more informal connections between them. Changing group members constantly and keeping groups heterogeneous can maintain dynamic collaboration. Overall, this approach offers new chances to break the strict rules of traditional learning, which force students to sit and listen to teachers with little or no engagement. Students' smartphones can therefore be a means of learning and communication which solves the problem of students merely being 'spoon-fed' information in HEIs in

Kuwait. In other words, students are given the chance to be active, as opposed to passive, engaging them in any decision-making relevant to their learning.

WhatsApp is an aspect of smartphone use which offers a unique opportunity for pre-service teachers to interact and engage more actively with their environment by spontaneously snapping photos and recording videos, whether directly, indirectly or even unrelated to their course of study, e.g. shooting scenes of special events or places their peers have never visited. This can enhance the clarity of messages and add authenticity to tasks and activities accomplished on an individual or collective basis. Such material can influence the acceptance and interest of peers and teachers. In addition, camera and video features can overcome the word limits imposed on text messages.

To complement the above, an embedded smartphone app has the ability to store many types of data, e.g. audio, video, Snapchat and text over long periods of time, which means they can be revisited by students or their teachers. Such stored data may constitute evidence of actions or statements that can be relied on in assessing students' performance and achievements, or for future use in research. WhatsApp, for example, consequently offers students the opportunity to control the amount of information they share with others and the times at which they share it, thus reducing the pressure involved in meeting deadlines or coordinating with others. In general, smartphones and their accompanying apps create more chances for communication and information exchange amongst students in this context, namely Kuwait. This is particularly relevant to informal means, inducing a move away from the stereotyped thinking associated with classroom-based learning in Kuwait. It represents the audacity to think outside the academic content in ways which can help develop students' learning strategies and knowledge.

WhatsApp therefore permits the discussion of both relevant and unrelated issues on a course, which means there should be an overlap between fun and learning. This is something which must be acknowledged and accommodated by teachers and policy-makers at PAAET, especially as it may raise the level of motivation amongst students and encourage a more positive attitude to the curriculum they are studying within. As indicated above, WhatsApp can break down the boundaries between students' social and academic lives, although there is

concern that some students may regard this as invasive of their private lives, resulting in their rejection of such technology for learning purposes. Moreover, the question arises of whether it is right to eliminate all boundaries between students' academic and social lives.

Nevertheless, in this study, the pre-service teachers were able to see that their mobile phones and accompanying apps were no longer confined to socialising with friends and family, or to having fun, but their use could be extended to include learning and interaction with peers via their own devices. Their perceptions of these devices appeared to be positively affected, which could have implications for their future work as in-service teachers. The concern here is that the use of smartphones and their accompanying apps could potentially lead to unhealthy dependence, to the exclusion of the positive aspects of traditional learning, with its well-established resources and tools and even leading to concomitant undesirable health problems, namely, poor posture and eyestrain, arising from long periods leaning over small devices. It is not our aim to develop students' intellectual skills at the expense of their health, or to sacrifice well-researched material and teaching methods, which been proven to be effective, in favour of the latest technology. Any use of innovation needs to be justified by its usefulness and results.

That said, the constant communication enabled by WhatsApp can strengthen bonds between peers and add new friendship links with fellow group members, thus creating a collective sense of mutual support. In a traditional classroom at PAAET, this advantage is usually difficult to gain, as the participants tend to struggle to extend relationships beyond their existing circle of friends. However, the benefits of a greater collective awareness can even be outweighed or cancelled out if students fail to find the support they seek when they need it. The disappointment involved may in turn lead to greater resistance to the introduction of smartphone tools and CL into this context.

With the above-mentioned constant communication permitted by WhatsApp, the need to specify places or times for performing tasks becomes less important. WhatsApp also eliminates the need for a computer lab with the capacity to accommodate the number of students. Furthermore, there is no need to confine

the performance of tasks to the campus or to the usually limited library opening times. Instead, the work can be done at any time and in any location, e.g. day or night, at home or elsewhere, in fitness clubs or Dewanya, etc. This feature can enhance students' control over their learning and allow them to accomplish tasks effectively and at their convenience.

The constant communication permitted by WhatsApp also shows that collaboration can take place on an ongoing basis, without interruptions, even while students are on the move between their homes and the campus or in the Dewanya. This suggests that WhatsApp renders all environments equal, with learning potentially taking place anywhere. In addition, WhatsApp allows students to express their feelings more freely and comfortably, thus building self-confidence, especially as they can use it on their own smartphones. These hand-held devices afford personal associations, while also safeguarding students' personal information and output, reminding them of their duties on an individual basis (individuality). Moreover, in this study, WhatsApp allowed students to move freely between groups (without the teacher's permission) to discover what members of other groups were saying, or to find out how they had accomplished a task. This would be difficult in a traditional classroom, due to students' shyness and a lack of confidence. WhatsApp can therefore help expand students' knowledge of the topics they are studying, broadening the scope of how information is accessed, and making it easier and faster to obtain.

In addition to the above, through collaboration and shared knowledge, WhatsApp can help bridge the gap between what is understood and what remains inaccessible or unclear. In this study, the activities undertaken through WhatsApp by students, together with the guidance and support provided by the teacher and more knowledgeable peers encouraged many of the hesitators to participate, which increased discussion and debate within most of the groups. I even noted that some students demonstrated an increased entrepreneurial spirit, where one student asked his fellow group members to participate in a project related to their area of study. This is something which rarely happens on regular courses, where there are large numbers of students. It is a positive indication of the usefulness of technology in education, especially with regard to smartphone apps like WhatsApp.

In general, most students played the role of a mutual in-service teacher (real teacher) to varying degrees, according to their understanding and acceptance. Most of the students actively contributed to their group in building a common understanding of certain activities and coming to an agreement about some answers. In some activities, which involved informal questions being answered using WhatsApp and related to the course of study, the group leaders (more knowledgeable individuals) played a clearer role in encouraging other students to participate more effectively and helped me (the teacher) motivate those students to participate, thus alleviating some of my workload.

In fact, my role shifted for some time to that of mentor, mediator and facilitator - as with anyone applying constructivist theory (Wink & Putney, 2002), rather than a teacher. In this sense, I followed the advice of Baines and Stanley (2000) (cited in Gordon, 2009, p. 40): “[C]onstructivist teachers do very little formal teaching but merely ‘set up the learning environment, know students preferences, guide student investigations, and then get out of the way’”. In addition, Tansey and Unwin (1969) emphasised that “the role of teacher as a judge or disciplinarian no longer exists when a simulation is in progress” (p. 27). Adopting such a principle was helpful in releasing me from certain extra tasks.

In one way or another, this role made the activity more interesting, gave it life and made it memorable, which confirmed Ment's (1988) view. Despite the challenges, I achieved both aims behind integrating the PS principle. I was then able to infer that smartphone apps (i.e. WhatsApp) are able to facilitate, motivate and increase students' interest in playing the role of an in-service teacher and also to provide genuine expertise for pre-service teachers before entering the teaching field. In addition, I found support for Colella (2000) point of view that, simulations offer chances for collaborative learning.

I have to say, however, that this was not enough. Playing a role or integrating the PS principle into the Kuwaiti educational context needs more than the presentation of information, guidance and instruction on how to accomplish things; it needs clear evidence that learning takes place within simulation and can transfer to other situations and settings, as Naismith et al. (2004) illustrate. In addition, more and clearer evidence is needed, as well as more trials and investigations

being conducted by other researchers in Kuwait or GCC countries, to conceptualise the significance of Participatory Simulation (PS). In other words, I believe the integration of such principles into the GCC region and Kuwaiti educational environments is still in its embryonic stages and needs more time and effort. We, as teachers, educators, and policy-makers in GCC countries and specifically in Kuwait must conceptualise the anticipated challenges when trying to integrate mobiles and smartphones into teaching and learning.

WhatsApp, as one of many applications accompanying smartphones, has increased and enhanced interaction among students inside and most importantly, outside the classroom, especially where these were familiar and widespread amongst them. Usually, in the context (PAAET), this kind of interaction is lacking, especially outside the classroom. Unfortunately, as I noticed as a part-time teacher for more than two years in PAAET, once the students left the lecture halls, the connection between them no longer existed, except in a limited way amongst friends. Thus, WhatsApp bridges such a gap, increasing and enhancing interaction between pre-service teachers, but we have to understand that not every interaction can lead to substantive learning. This supports Woo and Reeves' (2007) ideas, discussed earlier in the LR. I found that less than half the interaction between students in this context could be called meaningful interaction; sometimes, it was merely an exchange of congratulations or irrelevant questions about courses.

I also found that Tangney's argument (2005, cited in Herrington & Mantei, 2009) about the usefulness of M-learning, gained through a collaborative, contextual, constructionist and constructivist learning environment, holds true. I can now argue that smartphone apps (WhatsApp) is useful for creating a special environment, where students can interact, collaborate and construct knowledge effectively, inside and outside the classroom.

If we consider what happens outside the classroom as being parallel to informal learning, we will find that Kumar et al.'s (2010) findings are compatible with my findings, where cell phones offer an ideal opportunity to facilitate informal learning outside the school walls. Furthermore, I can now understand why Duncan-Howell and Lee (2007) consider M-technologies as a means of bridging the gap between

formal and informal learning. Smartphones simply keep students constantly connected and linked with each other. My findings also support Sharples et al.'s (2005) view that education in the mobile age, "offers a way to extend the support of learning outside the classroom, to the conversations and interactions of everyday life" (p. 23).

Since all the pre-service teachers who participated in this investigation were Kuwaiti, they largely shared the same culture, background and values in addition to norms and traditions. Thus, it was not totally strange that they connected socially with each other. This kind of social interaction maximises their co-construction of knowledge. As time went on, for the most part in the second iteration, most of the students learned from each other more through social interaction, gained more confidence to express their own ideas, and corrected their colleagues' mistakes or misunderstandings, which led to collectively constructing new knowledge. I now support Wood and O'Malley (1996) and Zurita and Nussbaum (2007), who assert that the influence of social interaction on collaborative activity is significant.

This also endorses Jonassen's (1999) view that learning takes place through conversation, dialogue and negotiated meaning between students who can grasp the same or different perspectives and thoughts, based on their own experiences. Furthermore, the students in this study no longer merely waited for their peers to participate, but became initiators. I found that they constructed "a temporarily shared social world, a state of intersubjectivity", as pointed out by Wertsch (1985, p. 161). It confirmed my beliefs that this is a transformative process that takes place in a social context and students have to change some of their original thinking patterns and thoughts to accommodate new ones; referred to by Vygotsky as 'internalisation', as Wertsch (1985) describes it. However, we need to bear in mind that change is usually slow in traditional Arab culture (Robinson, 2008). As a result, we must accept any change in students' attitudes or thinking, however small.

I found that the role of teachers and students alike is significant for the success of any attempt to integrate technology within the lecture hall walls. Knowing and fulfilling roles and responsibilities can facilitate teaching and learning. This

research also provides more information on the validity of my own theory, as well as the practical guidelines suggested for teachers (in this case, me) and students, which evolved during the investigation. As a point of fact, this started with more enthusiastic notions (smartphones and accompanying apps capable of enhancing CL) and then evolved into something more realistic (smartphones and accompanying apps which can enhance CL, but only if we consider students' needs, abilities, context and various types of challenge). This confirms the linear causality implicit in Plomp (2013, p. 34), discussed earlier (section 4.4.3, p. 12), which tells us that the proposed intervention will only be successful if certain contextual characteristics are considered:

“[I]n context Z the intervention X (with certain characteristics) leads to outcomes Y1, Y2... Yn” (Plomp, 2013, p. 34)

The study suggests that, by using WhatsApp or any other apps associated with students' personal smartphones, teachers may be able to balance a difficult equation, promoting greater collaboration between students, without having to expend a great deal of effort on training them and without having to spend large amounts of money on the required technology. All that is needed is already in their hands, namely their smartphones, but teachers should first understand how to take advantage of these hand-held devices and their accompanying apps, in order to increase collaboration among students. In contrast, learning management systems (LMSs) need trained teachers with sufficient expertise, time and resources to prepare and transform printed resources into e-resources, as well the ability to train students in the use of the LMS.

Greater collaboration will mean that teachers from different HEIs in Kuwait have the chance to exploit new individual or collective tasks and activities - whether relevant or unrelated to study topics - which can blend fun with learning. It is expected after such effective collaboration that students' knowledge will expand in relation to what they are studying, bringing in fresh information on the topics being studied. For their part, the teachers will be able to maintain a balance between what they have to teach – the syllabus - and informing their students on new perspectives and developments in the respective areas of study. In this way, students' experience and knowledge can be enriched, which is the real objective.

On the other hand, neither collaboration nor technology is an end in itself in this context; they merely represent a means of enriching the learning experience and its outcomes. In this study, for example, some of the students helped promote collaboration with their peers in the same group (through exchanged Text, and visual data), in order to widen their perceptions and understanding of the educational technology concept, various applications of technology and the potential benefits of these for their future careers as teachers.

As an important aside, this study supports the idea of using WhatsApp as a data collection tool. Teachers at PAAET can use such apps to link theoretical knowledge with its practical application, in order to bridge gaps in students' knowledge. In fact, WhatsApp can store substantial amounts of data, e.g. as images videos, or text. Teachers at PAAET should therefore encourage their students to retain data obtained from their respective group members at least until the end of their courses. In this way, they can return to authentic data, as required.

More specifically, the findings of this study can be used to develop precise activities to suit the students' environment, creating a consensus between the context and the course content. Furthermore, the outcomes of this research present potential avenues for engaging students in a greater decision-making role as regards their chosen area of study. Teachers who think of using such apps in Kuwait or elsewhere must allow this to unfold, i.e. enabling students to take on new responsibilities, as in scaffolding each other's learning and sharing in decision-making from the beginning. On one hand, this can build their experience and prepare them for future professional life, while on the other, it can alleviate some of the workload incumbent on their teachers.

The results of this research also support the idea of giving students the freedom to express themselves as they wish within certain parameters, even in slang. Slang can sometimes be difficult for the uninitiated to read or understand, but in the study context, having this freedom of expression can encourage Kuwaiti students to communicate and collaborate more. Teachers should not always be quick to insist on the use of, e.g. standard Arabic, since this might create new obstacles and reinforce resistance to the innovative approach. Adding a burden

such as language criteria, where this is not an objective or object of assessment can work against the intentions of the educator or researcher.

The study's activities and the students' responses to them add to our understanding that the use of a smartphone tool for learning can create a sense of fun, freedom and convenience, with a consequently major impact on students' attitudes to their activities. The more positive and intense the feeling, the greater the acceptance and motivation amongst the participants. Teachers can use such feelings to create activities that inspire fun and freedom and which can be accomplished at the students' convenience, potentially enhancing their learning. The concern is that not all activities will be welcomed or enjoyed by all – given that the students will have been highly conditioned by traditional learning methods.

What therefore emerges is that students have sufficient freedom to choose their own groups and activities under the supervision of the teacher, since they are not necessarily capable of relying completely on themselves to steer their learning. They might also need to control the extent of their freedom, given the above-mentioned educational foundation already established in Kuwait. Thus, teachers should make allowances for freedom, but with ongoing supervision. This study therefore adds to our understanding of the vital role of the teacher in facilitating and monitoring the integration of technology into the classroom, with a consequent decisive influence on the level of acceptance of same amongst the students.

## 9.8 Summary

In Kuwait, most attempts at integrating technology into the classroom or lecture hall have focused on measuring the impact of technology on students' perspectives or achievement. The focus in this context has therefore tended to be on 'What?' instead of 'Why?' Moreover, this is usually concentrated on blending e-learning, face-to-face learning and an LMS, which the teacher is familiar with. Using an LMS (Haiku) is important for covering material that is difficult to view on devices with small screens, like mobile phones, e.g. course content, large assignments and the discussion board, but it is less important for individual or group communication. One of the contributions of this study is that it shows how the use of WhatsApp reduces the need for the type of LMS generally implemented

in HEIs in Kuwait, such as Blackboard. In other words, an LMS is especially useful for sharing overall course aims, chapters of text, announcements and for publishing grades, but not so much for instant or easily accessible discussion and collaboration.

In contrast, this study has focused on discovering many of the aspects related to using WhatsApp for enhancing CL amongst pre-service teachers at PAAET, including discovering the pedagogical affordances of such apps (i.e. in this case WhatsApp), besides how and why WhatsApp is useful for enhancing CL. The results support the implementation of such apps (i.e. WhatsApp) in HEIs in Kuwait and show their value in this regard, particularly outside the classroom and in informal ways. This is especially relevant for educators and researchers who subscribe to social constructivist practices. This study is therefore unique in its context and because of that, specific problems were encountered, such as a limited pool of existing experience to draw upon in implementing the study, cultural barriers to the introduction of innovation and change, and poor infrastructure to support the latter. Nevertheless, these could also be seen as advantages, given that the study has strong exploratory aspects.

One significant issue revealed in this study is the need to specify in advance the role and responsibilities of both the teacher and students before asking them to participate in similar experiments which include integrating technology into their teaching and learning methods. Furthermore, it would be better for them to have the opportunity to receive training in the use of the technology assigned to them, to ensure they gain at least the minimum level of skill required to participate in such experiments.

In the light of the above, the study adds new understanding of how collaborative activities can be successfully facilitated at PAAET and what technological artefacts should be used or avoided. If they are used, there is now more of an idea of how to bring about successful implementation. The research contributes to the existing body of knowledge by providing rich insights into the pedagogical affordances of smartphones, while at the same time providing some direction for future research, with a clearer vision of the potential challenges and benefits to be expected in any attempt to integrate technology in this context.

The limitations of this project point to its very specific scope, namely PAAET in Kuwait, the exclusively male sample and the selection of students from within just the one discipline, i.e. teacher-training. The potential for generalisability is therefore compromised, except that the cultural and infrastructural challenges encountered are typical of Kuwait and other GCC countries, with possible relevance for the Arab world in general and some implications for the developing world – given the disparity between the developed and developing world in terms of technology implementation in education. Future research would need to address responses from female participants and examine the perspectives of teachers and how collaboration via smartphone apps could positively impact their work. There is clearly still very broad scope for further study on the use of smartphone apps in HEIs in Kuwait, but as a researcher, my intention was to make an important inroad into this largely uncharted area, in the hope of inspiring and informing further work – with the ultimate goal of positively impacting approaches to teaching and learning in that context.

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## Certificate of ethical research approval

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I hereby certify that I will abide by the details given overleaf and that I undertake in my thesis to respect the dignity and privacy of those participating in this research.

I confirm that if my research should change radically, I will complete a further form.

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# Certificate of ethical research approval

## TITLE OF YOUR PROJECT:

- The pedagogical affordances of Smartphone applications for collaborative learning within the context of pre-service teacher in education in Kuwait
- 

### 1. Brief description of your research project:

I will conduct this research to investigate the pedagogical affordances of smartphone for collaborative learning within pre-service teachers from one college in one of the Gulf States. Focusing on what Klopfer & Squire (2007, p.95) identified as the most frequent affordances of mobile learning "portability, social interactivity, context sensitivity, connectivity, and individuality".

I will start this research by conducting informal exploratory study to see some of the teachers within the same context to collaborate with and to investigate existing problems. For example, lack of communications between the students, how do we find solution to improve communication and learning? What do they think about the concept of collaborative learning? How about utilizing some known and preferable Smartphone Apps (WhatsApp, Twitter)? Further, if such tools will work and enhance communication and subsequently collaboration to construct knowledge?

The first problem was the lack of communication among pre-teachers in PAAET to collaboratively construct knowledge. In an attempt to use a new tool to facilitate communications among the learners and make communications easier, smartphone apps were the rational alternative, providing several advantages as previously discussed. Yet this raised a big question not about whether it will work or not, but rather why will it work or not? To find a solution, the researcher investigated the pedagogical affordances of smartphone apps for collaborative learning to assess features such as portability, social interactivity, context sensitivity, connectivity, and individuality in this particular context.

A second issue was how to deliver the content, announcements, assignments, and grades using such a tool (smartphone)? LMS (e.g., Blackboard) was the choice, but it is considered a complex tool to be used or adopted. For instance, it has many components that make it slow to browse or navigate and that might not be required by teachers or students. These claims came from the personal experience of the researcher himself.

To find a solution, the researcher sought to choose an alternative (LMS) with fewer components that was easier to browse. This led the researcher to choose <http://www.haikulearning.com/>, combining it with smartphone apps. Hopefully, this will facilitate communication and collaboration among the students and help deliver content and other issues appropriately.

Third, it was important to understand to what extent is the in-service teacher's role or guidance useful for them and their colleagues. To find a solution, the researcher situated and

encouraged all students to play the role of in-service teacher and provide guidance. Notes were taken through their progress, such as what they say or do to help others. More questions arose, such as: What do they think now? Have their perspectives changed? The questions arising through the implementation process need answers, which is what justifies the adoption of a flexible approach such as DBR.

Finally, what challenges might prevent integrating technology in this particular context in PAAET? How can we overcome such challenges? To what extent do pre-teachers accept technology, particularly smartphone apps? To answer these questions, various challenges were first identified, and then practical and theoretical solutions will be suggested. This requires exploring the issues with some practitioners, teachers, or researchers by conducting an informal exploratory study.

**2. Give details of the participants in this research (giving ages of any children and/or young people involved):**

The selected sample will be around 59 (male) adult. They will be pre-service teachers with different backgrounds and varied subjects like special education, computer science, Arabic language, and Islamic studies. The participants are in their first academic year mostly, except few whom in the second year. Their ages in this stage normally range between 18 and 20 years old, beside few who exceeded 25, but no one above 32 years old. No children or young people included.

**Give details (with special reference to any children or those with special needs) regarding the ethical issues of:**

**3. Informed consent: Where children in schools are involved this includes both headteachers and parents). Copy(ies) of your consent form(s) you will be using must accompany this document.** a blank consent form can be downloaded from the GSE student access on-line documents: Each consent form **MUST be personalised with your contact details.**

I will seek to obtain a verbal permission from the head of the department under study. Further, I will seek to obtain a written consent form from the participants prior to their involvement in this research using the consent forms on the GSE ethics website. The participants will also be informed that participation is voluntary, so withdrawal is always their choice at any time during the research period without the need to give a reason for this and no penalty exists for not participating. Also, the participants will be informed that interviews may be voice recorded. Data will be downloaded from recording devices at the earliest possible opportunity, and then deleted immediately from those devices to the storage details. Along with the consent form, there will be information sheet in the participants' language which explains to the participants what the study is about and what participation will involve.

**4. anonymity and confidentiality**

Anonymity, privacy, respects and confidentiality is among the ethical issues born in the researcher will's mind to be taken for granted at all the research stages. I will protect the confidentiality and privacy of all people participating in and affected by the research. Respondents in all phases of the study will be assured confidentiality. Data will be treated with strict confidentiality and privacy. In addition every reasonable effort will be made to ensure that no output will provide information

which might allow any participant or institution to be identified from names, data, contextual information or a combination of these.

The instruments that will be used to collect the data will not ask participants any identification questions, and their data will be labelled only with numerical codes (e.g. S1, S2, or S3 in Group 8) for administration purposes. All data will be handled with care during the entirety of the study and remain secure and confidential as outlined by the Data Protection Act (1998), while the researcher will be the only one who has access to them. Moreover, all participants will be aware that all the copies of recorded interviews will be destroyed once the study is finished, as recommended by Bell (2005). Moreover, the observation technique that will be involved in tracking the learners' comments in the Apps, and the events that happened during the classroom activities will be protected and anonymous. All of the information, activities, and behaviours will be recorded and labelled with numbers and codes, not with names.

**5. Give details of the methods to be used for data collection and analysis and how you would ensure they do not cause any harm, detriment or unreasonable stress:**

First, I will conduct a pre-analysis phase as a planning stage so-called informal exploratory study with three teachers in Education College. Second, I will use unstructured interviews with the pre-service teacher. The interviews conducted during the first week. Next, an unstructured observation and field notes will be conducted twice weekly during the course. Also, a focus group will take place after finishing the first iterative, and before the second iterative starts. Finally, I will employ a constant online observation and note taking via a smartphone App (WhatsApp) to record different activities, actions, reactions, comments by Apps, barriers, and environment.

I will analyse the data which is supposed to emerge from the informal exploratory study. Such initial data will serve as a preliminary foundation to understand various issues related to the pre-service teachers. The interview with the three teachers will be translated from Arabic to English, then transcribed and themes coded by using Nvivo10. This step will help me to gain insight about important issues and to plan the first implementation of the first iterative.

To make sure that the collected data from the three teachers were accurate and reliable I will check them again with the participant in the first induction week via unstructured interviews. The data collected from those techniques will be analysed and coded by Nvivo10. Worth mentioning, the analysis process will be an ongoing process. All data will be translated, transcribed, reread, and coded. These codes will constantly compare against ongoing observations. Further, Microsoft Office Excel 2007 was used to make comparisons between emergent data.

Data will be analysed through a thematic analysis approach. This approach was conducted in three steps. First the exploratory step which is called open coding, then while the coding scheme developed new forms of coding will be needed so-called the axial and selective coding. It is important to clarify that I analysed the data through the three stages but not all of the steps proposed by (Ezzy, 2002) adopted.

To ensure that such procedures will not cause any harm I will follow the BERA Revised Ethical Guidelines for Educational Research. I will inform the participant about the aims, methods, and procedures of the study and the level of commitment that will be involved. They will be informed



**GRADUATE SCHOOL OF EDUCATION**

**(Bader Alfelaj Translated CONSENT FORM)**

Title of Research Project: *The pedagogical affordances of Smartphone applications for collaborative learning within the context of pre-service teacher in Kuwait*

I have been fully informed about the aims and purposes of the project.

I understand that:

There is no compulsion for me to participate in this research project and, if I do choose to participate, I may at any stage withdraw my participation and may also request that my data be destroyed.

I have the right to refuse permission for the publication of any information about me.

Any information which I give will be used solely for the purposes of this research project, which may include publications or academic conference or seminar presentations.

If applicable, the information, which I give, may be shared between any of the other researcher(s) participating in this project in an anonymised form.

All information I give will be treated as confidential.

The researcher(s) will make every effort to preserve my anonymity

.....  
(Signature of participant)  
.....

.....  
(Date)  
.....

(Printed name of participant)

(Printed name of Researcher(s))

One copy of this form will be kept by the participant; a second copy will be kept by the researcher(s)

Contact phone number of researcher(s): +965-55188558.....

If you have any concerns about the project that you would like to discuss, please contact:

..... Prof. Rupert Wegerif ... [R.B.Wegerif@exeter.ac.uk](mailto:R.B.Wegerif@exeter.ac.uk).....

\* when research takes place in a school, the right to withdraw from the research does NOT usually mean that pupils or students may withdraw from lessons in which the research takes place

Data Protection Act: The University of Exeter is a data collector and is registered with the Office of the Data Protection Commissioner as required to do under the Data Protection Act 1998. The information you provide will be used for research purposes and will be processed in accordance with the University's registration and current data protection legislation. Data will be confidential to the researcher(s) and will not be disclosed to any unauthorised third parties without further agreement by the participant. Reports based on the data will be in anonymised form.



## GRADUATE SCHOOL OF EDUCATION

### (Bader Alfelaj translated INFORMATION SHEET)

#### ***The research aim:***

In this research, we (the researcher and the participants) going to explore "*The pedagogical affordances of smartphone applications for collaborative learning within the context of pre-service teacher in Kuwait*".

#### ***The course name, time and place:***

*Introduction to education technology, for time and place (see your schedule)*

#### ***Researcher role/responsibilities will be;***

- A. Provide a complete instructions about what learners have to do, why they do it, where and how they do it before the course start.
- B. Ask the students to download the most desirable application that they prefer to communicate, choose their preferred group, and the preferred time to share (e.g. daily or weekly).
- C. Encourage them to collaborate with other colleagues' peer-to-peer and group-to-group to find solutions/answers for any problem or enquiries.
- D. Illustrate the significant of smartphone affordances within the accessibility to record, and take pictures.
- E. Always, monitor all groups to make sure they are functioning effectively.

#### ***Students' rights, and role/responsibilities:***

- A. Students have the right to use any kind of mobile device as long they can install the pp that they choose (e.g. WhatsApp, Blackberry, or Twitter).
- B. Students can choose any group they like as long they will communicate effectively with members of their own group.



## GRADUATE SCHOOL OF EDUCATION

- C. Groups have the right to choose the activities for their own sake as long as the activities do not contradict with the curriculum and the scheduled lessons. For example, they can choose to answer one or more questions by identifying the problems and what questions call for communication in order to find the answers.
- D. Groups have the right to determine how many times they will communicate, whether after each lesson or weekly.
- E. Students have to engage into the activities effectively (e.g. provide persuasive and influential answers) and collaborate with other learners for the success of the experiment,
- F. Activities must be derived from what has been learned during the lectures in the classroom,
- G. Students must record, share and reflect on teaching events individually and with peers,
- H. Students have the right exchange thoughts and ideas among different group.
- I. Students can use their own mobiles or smartphones to report any absent or for an enquiry.

## CONSENT FORM

عنوان الدراسة: الامكانيات التربوية لتطبيقات الهاتف الذكي للتعلم التعاوني للمعلمين قبل الخدمة في الكويت  
Title of Research Project: *The pedagogical affordances of Smartphone applications for collaborative learning within the context of pre-service teacher in Kuwait*

استمارة الموافقة على المشاركة بالدراسة

إطلعت على أهداف الدراسة المعنونة " الإمكانيات التربوية لتطبيقات الهاتف الذكي للتعلم التعاوني للمعلمين قبل الخدمة في الكويت". علما بأنه لم يجبرني أحد على المشاركة بالدراسة، وتم إعلامي بأنه سيتم تسجيل المقابلات وأن جميع البيانات التي سأدلي بها ستجمع لأغراض البحث العلمي فقط وسيتم إخفاء إسمي. أدركت أن لي الحق بالانسحاب من الدراسة في أي وقت ودون إبداء أي أسباب. كذلك لي الحق برفض نشر المعلومات المتعلقة بي.

I have been fully informed about the aims and purposes of the project.

I understand that:

There is no compulsion for me to participate in this research project and, if I do choose to participate, I may at any stage withdraw my participation and may also request that my data be destroyed

I have the right to refuse permission for the publication of any information about me

any information which I give will be used solely for the purposes of this research project, which may include publications or academic conference or seminar presentations

if applicable, the information, which I give, may be shared between any of the other researcher(s) participating in this project in an anonymised form

all information I give will be treated as confidential

the researcher(s) will make every effort to preserve my anonymity

  
(Signature of participant )

(Date) 0-/04/2014.....

N  airi  
.....  
(Printed name of participant)

(Printed name of Researcher) ...BADER ALFELAIJ....



One copy of this form will be kept by the participant; a second copy will be kept by the researcher(s)

Contact phone number of researcher(s):.....+9-5-551--55-

.....

If you have any concerns about the project that you would like to discuss, please contact:

.....Prof. Rupert Wegerif

...[R.B.Wegerif@exeter.ac.uk](mailto:R.B.Wegerif@exeter.ac.uk).....

OR

.....Dr. Kleine-Staarman, Judith.....

[J.KleineStaarman@exeter.ac.uk](mailto:J.KleineStaarman@exeter.ac.uk).....

\* when research takes place in a school, the right to withdraw from the research does NOT usually mean that pupils or students may withdraw from lessons in which the research takes place

Data Protection Act: The University of Exeter is a data collector and is registered with the Office of the Data Protection Commissioner as required to do under the Data Protection Act 199-. The information you provide will be used for research purposes and will be processed in accordance with the University's registration and current data protection legislation. Data will be confidential to the researcher(s) and will not be disclosed to any unauthorised third parties without further agreement by the participant. Reports based on the data will be in anonymised form.

Revised March 2013

(ورقة معلومات)  
(Information Sheet)

هدف البحث:

في هذا البحث سوف نقوم (الباحث والمشاركين) باستكشاف " الامكانيات التربوية لتطبيقات الهاتف الذكي للتعلم التعاوني للمعلمين قبل الخدمة في الكويت"  
اسم المقرر التعليمي، الزمان والمكان:  
مقدمة في تكنولوجيا التعليم، لمعرفة الزمان والمكان (أنظر جدولك).  
دور/مسؤوليات الباحث:

- أ. تقديم تعليمات كاملة عن دور المشارك، ولماذا يشارك، أين وكيف يشارك قبل بدء المقرر التعليمي.
- ب. الطلب من المشاركين تحميل التطبيق المرغوب والمفضل لهم للتواصل، واختيار المجموعة والوقت المفضل للمشاركة (يومي أو اسبوعي).
- ت. تشجيع المشاركين على العمل التعاوني، بين زميل وآخر، وبين مجموعة وأخرى لإيجاد حلول وإجابات للأسئلة والمشكلات.
- ث. توضيح الأهمية التربوية للهواتف الذكية، مع امكانيات مثل التسجيل والتقاط صور.
- ج. المراقبة الدائمة لكل المجموعات للتأكد من قيامهم بالعمل بشكل فعال.

دور/مسؤوليات وحقوق المشارك:

- أ. الطلاب لهم الحق في استخدام أي هاتف طالما يستطيعون تحميل التطبيق الذي تختاره المجموعة (على سبيل المثال، WhatsApp, Blackberry, or Twitter).
- ب. المشاركين لهم الحق في اختيار أي مجموعة طالما يتواصلون بشكل فاعل مع مجموعتهم.
- ت. المجموعات لها الحق في اختيار الأنشطة الملائمة لها طالما لا تتعارض مع المنهج واوراق الدروس.
- ث. المجموعات لها الحق في تحديد عدد مرات التواصل، بعد كل محاضرة أو أسبوعياً.
- ج. المشاركين لهم الحق في تبادل الأفكار والآراء مع مختلف المجموعات.
- ح. المشاركين يجب عليهم المشاركة في الأنشطة بشكل فاعل (على سبيل المثال، تقديم إجابات مقنعة ومؤثرة) والتعاون مع الآخرين من أجل نجاح التجربة.
- خ. الأنشطة يجب ان تكون مستفاهة من الدروس المقدمة في المحاضرة.
- د. المشاركين يجب عليهم تسجيل ومشاركة الأحداث التي تحصل الفصل بشكل مفرد ومع الزملاء.
- ذ. المشاركين يمكنهم استخدام هواتفهم الخاصة (العادية والذكية) لارسال حالات التغيب او للاستفسار.



## **GRADUATE SCHOOL OF EDUCATION**

**Data Protection Act:** The University of Exeter is a data collector and is registered with the Office of the Data Protection Commissioner as required to do under the Data Protection Act 1998. The information you provide will be used for research purposes and will be processed in accordance with the University's registration and current data protection legislation. Data will be confidential to the researcher(s) and will not be disclosed to any unauthorised third parties without further agreement by the participant. Reports based on the data will be in anonymised form.

Revised March 2013

that they can participate and withdraw if they feel at any stage uncomfortable or their privacy under threat.

**6. Give details of any other ethical issues which may arise from this project - e.g. secure storage of videos/recorded interviews/photos/completed questionnaires, or**

Assurances are given that all information will be treated in the strictest confidence, and that all participants will remain anonymous in the presentation of research findings. During the data collection, data analysis and write up, data (audio recordings, interview data and individual data) will be securely stored in a locked cabinet in a secure building. In addition, audio and video data will be downloaded from recording devices at the earliest possible opportunity, and then deleted immediately from those devices. Electronic information will only be accessed by me with username and password. It will be used only by me and for research purposes only; then destroyed. Hard copy data, including signed consent forms and any document which matches names with pseudonyms, will be stored in a locked cabinet or drawer; digital data will be stored in my password-protected account on the University of Exeter U-drive.

**7. special arrangements made for participants with special needs etc.**

No known special arrangement needed for participants within this context.

**8. Give details of any exceptional factors, which may raise ethical issues (e.g. potential political or ideological conflicts which may pose danger or harm to participants):**

No known potential political or ideological conflicts will face the participants in this study since all of them Kuwaiti and study in Kuwaiti context.

---

*This form should now be printed out, signed by you on the first page and sent to your supervisor to sign. Your supervisor will forward this document to the School's Research Support Office for the Chair of the School's Ethics Committee to countersign. A unique approval reference will be added and this certificate will be returned to you to be included at the back of your dissertation/thesis.*

*N.B. You should not start the fieldwork part of the project until you have the signature of your supervisor*

**This project has been approved for the period:**

**until:**

1/10/2016

**By (above mentioned supervisor's signature):**



**date:**

30/9/2014

*N.B. To Supervisor: Please ensure that ethical issues are addressed annually in your report and if any changes in the research occur a further form is completed.*

**GSE unique approval reference:**

D141504

## Appendix A-1

### Appendix A.1 Consent Form

عنوان الدراسة: الإمكانيات التربوية لتطبيقات الهاتف الذكي للتعلم التعاوني للمعلمين قبل الخدمة في الكويت

#### استمارة الموافقة على المشاركة بالدراسة

إطلعت على أهداف الدراسة المعنونة " الإمكانيات التربوية لتطبيقات الهاتف الذكي للتعلم التعاوني للمعلمين قبل الخدمة في الكويت" وورقة المعلومات المرفقة والتي تبين ما يتطلبه المشاركة بهذا البحث. علما بأنه لم يجبرني أحد على المشاركة بالدراسة، وتم إعلامي بأنه سيتم تسجيل المقابلات وأن جميع البيانات التي سأدلي بها ستجمع لأغراض البحث العلمي فقط وسيتم إخفاء إسمي. أدركت أن لي الحق بالانسحاب من الدراسة في أي وقت ودون إبداء أي أسباب. كذلك لي الحق برفض نشر المعلومات المتعلقة بي.

(التاريخ)

.....  
.....  
(توقيع المشارك)

(اسم الباحث -

.....  
.....  
(إسم المشارك - طباعة)

طباعة)

نسخة واحدة سوف يحتفظ بها المشارك، ونسخة سوف يحتفظ فيها الباحث.

رقم الاتصال الخاص في الباحث : (00965-55188558)

إذا كان لديك أية استفسارات حول الدراسة ترغب في مناقشتها، يرجى الاتصال ب:  
(Prof. Rupert, Wegerif- [R.B.Wegerif@exeter.ac.uk](mailto:R.B.Wegerif@exeter.ac.uk))

❖ عندما يأخذ البحث مكانه في المدرسة، الحق في الانسحاب من البحث لا يعني عادة أن التلاميذ أو الطلاب يحق لهم الانسحاب من الدروس.

\* when research takes place in a school, the right to withdraw from the research does NOT usually mean that pupils or students may withdraw from lessons in which the research takes place

Data Protection Act: The University of Exeter is a data collector and is registered with the Office of the Data Protection Commissioner as required to do under the Data Protection Act 199-. The information you provide will be used for research purposes and will be processed in accordance with the University's registration and current data protection legislation. Data will be confidential to the researcher(s) and

Revised March 2013

## Appendix A-2 (Information Sheet)

(ورقة معلومات)

هدف البحث:

في هذا البحث سوف نقوم (الباحث والمشاركون) باستكشاف " الامكانيات التربوية لتطبيقات الهاتف الذكي للتعلم التعاوني للمعلمين قبل الخدمة في الكويت"  
اسم المقرر التعليمي، الزمان والمكان:  
مقدمة في تكنولوجيا التعليم، لمعرفة الزمان والمكان (أنظر جدولك).  
دور/مسؤوليات الباحث:

- أ. تقديم تعليمات كاملة عن دور المشارك، ولماذا يشارك، أين وكيف يشارك قبل بدء المقرر التعليمي.
- ب. الطلب من المشاركين تحميل التطبيق المرغوب والمفضل لهم للتواصل، واختيار المجموعة والوقت المفضل للمشاركة (يومي أو اسبوعي).
- ج. تشجيع المشاركين على العمل التعاوني، بين زميل وآخر، وبين مجموعة وأخرى لإيجاد حلول وإجابات للأسئلة والمشكلات.
- د. توضيح الأهمية التربوية للهواتف الذكية، مع امكانيات مثل التسجيل والتقاط صور.
- هـ. المراقبة الدائمة لكل المجموعات للتأكد من قيامهم بالعمل بشكل فعال.

دور/مسؤوليات وحقوق المشارك:

- أ. الطلاب لهم الحق في استخدام أي هاتف طالما يستطيعون تحميل التطبيق الذي تختاره المجموعة (على سبيل المثال، WhatsApp, Blackberry, or Twitter).
- ب. المشاركين لهم الحق في اختيار أي مجموعة طالما يتواصلون بشكل فاعل مع مجموعتهم.
- ج. المجموعات لها الحق في اختيار الأنشطة الملائمة لها طالما لا تتعارض مع المنهج واولقات الدروس.
- د. المجموعات لها الحق في تحديد عدد مرات التواصل، بعد كل محاضرة أو أسبوعياً.
- هـ. المشاركون لهم الحق في تبادل الأفكار والآراء مع مختلف المجموعات.
- و. المشاركون يجب عليهم المشاركة في الأنشطة بشكل فاعل (على سبيل المثال، تقديم إجابات مقنعة ومؤثرة) والتعاون مع الآخرين من اجل نجاح التجربة.
- ز. الأنشطة يجب ان تكون مستفاهة من الدروس المقدمة في المحاضرة.
- ح. المشاركون يجب عليهم تسجيل ومشاركة الأحداث التي تحصل الفصل بشكل مفرد ومع الزملاء.
- ط. المشاركون يمكنهم استخدام هواتفهم الخاصة (العادية والذكية) لارسال حالات التغيب او للاستفسار.

## Appendix B-1

### Themes representing the pedagogical affordances of the smartphone app- WhatsApp for CL in 1<sup>st</sup> iteration:

The screenshot shows the NVivo software interface with a tree view on the left and a data table on the right. The table contains the following data:

Name	Sources	References	Created On	Created By	Modified On	Modified B
Quality of communication	5	168	4/29/2015 7:37 PM	B	12/20/2015 7:43 PM	B
Name						
Relevance to the topics of the study	5	51	4/29/2015 7:38 PM	B	1/4/2016 6:26 PM	B
bidirectionality	3	67	4/29/2015 7:38 PM	B	12/18/2015 12:13 PM	B
Share information that stimulate & motivate other peers	5	50	4/29/2015 7:39 PM	B	5/8/2015 10:25 PM	B
Control of communication	4	9	4/29/2015 7:41 PM	B	5/16/2015 11:19 AM	B
Name						
expanded range of places and an expanded range of times (e.g. car, Mall, or Dewanya)	2	4	4/29/2015 7:43 PM	B	5/10/2015 1:23 PM	B
Sharing freely at their convenient	3	5	4/29/2015 7:43 PM	B	5/8/2015 9:38 PM	B
Social construction of knowledge with new media	5	46	4/29/2015 7:46 PM	B	5/16/2015 11:07 AM	B
Name						
Bring new information's, from new resources e.g. Internet	4	12	4/29/2015 7:48 PM	B	5/8/2015 9:35 PM	B
Students decide by their own what relevant, useful and compatible with their curriculu	5	27	4/29/2015 7:48 PM	B	1/4/2016 7:07 PM	B
Playing new roles Playing in-service teachers instead of pre-service teachers	3	39	4/29/2015 7:50 PM	B	5/17/2015 4:18 PM	B
Name						
Support less knowledgable students	3	37	4/29/2015 7:51 PM	B	1/4/2016 7:05 PM	B
Socialising with other & with the teacher	5	45	12/21/2015 12:33 PM	B	12/21/2015 12:34 PM	B
Name						
Challenges	3	9	12/20/2015 12:46 PM	B	5/17/2015 6:54 PM	B
Guidance and support from teacher	5	27	5/1/2015 7:21 PM	B	5/17/2015 6:16 PM	B
irrelevant issues	2	5	5/1/2015 7:19 PM	B	12/20/2015 12:45 PM	B
report absence	1	4	12/20/2015 12:47 PM	B	5/17/2015 7:03 PM	B

1. Quality of communication (168 examples):
  - 1.1 Relevance to the topics they study (51 examples)

- Group1:
- S-: I want to bring to you a small information about the role of the teacher in education tech [sharing is expanding after a while]
- S-: which is the e-learning
- S-: 21:3- أكتوبر 11 - +9-5 -515 ----: <http://genie-inezgane.ibda3.org/t20-topic>
- S2: I see that the first element of learning that you love the subject that you to study
- M.: 0 [it mean he follow the interaction - they create their own language/symbol]
- S-: secondly, know what is the subject.. not necessary that he only study it
- S2: and he should connect it to his live ..
- M.: if everyday .. on the internet .. one or two topic you read them and summarize them .. and take what benefit you .. it will become very easy .. currently, I am searching for the printed materials, its significant, and its types..
- M.: and I'll send them to you
- S-: I concur.
- 09:-1M.: Guys who didn't attend the lecture yesterday  
 ط مرزوق: شباب لي محاضر محاضره امس  
 جيت كم شغلنا عن درسنا ام كان عن المخططات  
 I bring few issues about our topic, about charts  
 وخذت هالنوع المخططات )  
 09:-1 ط مرزوق:

( هي نوع من الرسوم البيانية (أو الأشكال البيانية) التي تستخدم لإعادة تمثيل البيانات باستخدام الرسوم مثل الأعمدة والخطوط والدوائر. Charts  
 He define it

ما هي فائدة استخدام المخططات؟  
 تقوم المخططات بتجميع وتنظيم وتلخيص البيانات العديدة بصورة تساعد على فهم هذه البيانات بصورة أفضل خاصة لمتخذي القرار. غير ذلك تعتبر المخططات من الأدوات الهامة المستخدمة في علم التحليل الإحصائي.

Present advantages

ما هي أنواع المخططات؟

من الأنواع الرئيسية للمخططات:

Identify types of charts

1. المخطط الدائري: يستخدم لعرض قيمة واحدة لكل متغير نسبة إلى مجموع المتغيرات الأخرى، ولا يمكن لهذا المخطط التعامل مع أكثر من سلسلة بيانات واحدة ولذلك يعتبر من أبسط أنواع المخططات.

- 09:-1 like this image ط مرزوق: ومثال عالصوره
- 10:-1 he sent the image ط مرزوق: حتم استبعاد الوسائط<
- 10:-1 أكتوبر 1 - ط مرزوق: 2. المخطط العمودي: يستخدم لعرض أكثر من قيمة لكل متغير للمقارنة بين عدة عناصر، ويمكن لهذا المخطط التعامل مع vertical chart: used to display more than the value of the variable to compare several elements, and this scheme can deal with several strings of data
- 10:-1 present image of Vertical chart ط مرزوق: حتم استبعاد الوسائط<
- 10:-1 أكتوبر 1 - ط مرزوق: 3. المخطط الخطي: يستخدم لعرض اتجاهات المتغيرات عند فترات زمنية متساوية، ويمكن لها المخطط التعامل مع عدة Linear chart: used to display directions variables at even intervals, and can have a plan to deal with several strings of data
- 11:-1 present image of Linear chart ط مرزوق: حتم استبعاد الوسائط<
- everything about charts...كل شي عن المخططات وانواعها وشكلها 12:-1 أكتوبر 1 - ط مرزوق: هذا المصدر <http://kuwait10.net/2010/0-/04/charts/>
- there are many types of charts....See the rest on the link above 13:-1 أكتوبر 1 - ط مرزوق: في انواع واجد وذكرت لكم 3. منها
- [I as a teacher] Thanks M., keep being active and you will have A [ I am trying to encourage him and others] 34:-1 أكتوبر 1 - تكنولوجيا التعليم: بارك الله فيك يا مرزوق .. خلك على هالنشاط وابشر

- But, I tried to participate into the Haiku and didn't know how, so I share via WhatsApp ... And see the topics inside Haiku عادي... is it Ok? Ok doctor... 1-40, أكتوبر 1 - ط مرزوق: حاضر دكتور
- S1: 1-0-1-9-5 9999 ---- Good evening everyone. مساكم الله بالخير: -0-1-9-5 9999, أكتوبر 1
- (أهميته - 03:33, أكتوبر 19 - ط مرزوق: شباب يمكن يفيدكم هالموضوع توني شفته وقرينته وملخص جدا عن عناصر التدريس اللي خذناه M.: Guys I bring information about the teaching elements... its level and the procedures مو طبيعي بحظلكم نبذه عنه واحط المصدر وشوا وكملموه... ميسط بتشكل procedures
- M.: first: The concept of planning 03:35, أكتوبر 19 - ط مرزوق: أولاً: مفهوم التخطيط. أو التخطيط في الاصطلاح التربوي. عملية تصور مقصود ومسوق للمواقف التعليمية وما يجري فيها من فعاليات وأنواع نشاط يراها المعلم مناسبة لتحقيق أهدافه المخطط لها. أو هو طريقة السير التي يرجع إليها المعلم في تنفيذه للمواقف الصفية.  
second: the significance of planning ثانياً: أهمية التخطيط
- إن التخطيط الجيد مهم جداً لكل من المعلم والمتعلم على حد سواء ويبدو ذلك جلياً من خلال ما يأتي:  
1- تمكين المعلم من تحديد أهدافه واختيار وسائله وأساليبه وتنظيم النشاط المناسب للمواقف التعليمية.  
2- تمكين المعلم من الاطلاع على المحتوى الدراسي بصورة مباشرة.  
3- تبعد المعلم عن الارتجال والتخبط والاضطراب.  
4- يمكن المعلم من مراعاة حاجات المتعلمين للمعرفة.  
5- يمكن المعلم من زيادة درجة تفاعل المتعلمين في المواقف الصفية.  
- يمكن المعلم من إدارة الصف بفاعلية.  
- يمنح المعلم الثقة بالنفس.  
- يسهم في توفير الجهد والزم والتكلفة.  
- يجعل للتعليم معنى.
- M.: 3:35 principles of planning 3, أكتوبر 19 - ط مرزوق: مبادئ التخطيط:  
تقوم عملية التخطيط على جملة من المبادئ والمركزات التي يحسن بكل واضع للخطة وساع للنجاح في عمله أن يراعيها ومنها:  
1- الفهم الصحيح لفلسفة التربية وأهدافها.  
2- الفهم الصحيح للأهداف بمستوياتها المتعددة من تربوية وتعليمية وسلوكية بحيث تكون متناسقة ومتناغمة وغير متعارضة.  
3- تنوع مجالات الأهداف.  
4- معرفة خصائص المتعلمين.  
5- مراعاة الفروق الفردية بين المتعلمين.  
- مراعاة البيئة المادية للعملية التعليمية.  
- الإلمام بالمادة التي يتولى المعلم تدريسها قبل الشروع بعملية التدريس ووضع الخطط التفصيلية أو الخطط العامة.  
- الإفادة من التغذية الراجعة.  
9- ترتيب المحتوى الدراسي ترتيباً متسلسلاً ومنطقياً.
- M.: 03:3, أكتوبر 19 - ط مرزوق: واللي حاب يشوفه كامل هذا المصدر:  
• <http://www.egyscholars.com/vb/showthread.php?t=1329->
- S1: advertisement which I liked.. about the differences between the new and the traditional learning http://t.co/LZBjrz0S عن الفرق بين التعليم التقليدي والحديث
- M.: 22:49, أكتوبر 19 0-34, أكتوبر 20 - ط مرزوق: حلوه فهد M.: I like it.Fahad... they want learning by computer .. not by books and left of and heavy .. thank you ..  
بيون التعليم بالكمبيوتر مو الكتب والشيل والنقل شكررا
- M.: 0-35, أكتوبر 20 - ط مرزوق: شباب مدته دقيقه مايكلف شوفوه M.: [He motivate his colleagues ... he guide now]
- M. 1-:04, نوفمبر 1 - ط مرزوق: صور جمعت شباب:مرزوق ط - - نوفمبر 1-:04
- M.: 1-:05, نوفمبر 1 - ط مرزوق ط - - نوفمبر 1-:05, نوفمبر 1 (مرفق الملف) IMG-2012110--WA0000.jpg:مرزوق ط - - نوفمبر 1-:05, نوفمبر 1
- M: guys, I collect images in details about the device that we talked about today .. which is Display device Transparencies .. [he connect the classroom topic to using App to complete it .. also send pictures of the device] .. [clearly using the App in his favor] ..
- M.: 1-:0, نوفمبر 1 - ط مرزوق ط - - نوفمبر 1-:0, نوفمبر 1 الاضاءه ادوات تحكم...مرزوق ط - - نوفمبر 1-:0, نوفمبر 1
- M.: 1-:0, نوفمبر 1 - ط مرزوق ط - - نوفمبر 1-:0, نوفمبر 1 (مرفق الملف) IMG-2012110--WA0003.jpg:مرزوق ط - - نوفمبر 1-:0, نوفمبر 1
- M.: 1-:0, نوفمبر 1 - ط مرزوق ط - - نوفمبر 1-:0, نوفمبر 1 ماتشوفون نفس للتوهويه فتحات وفيه....الثاني الوجه وهذا:مرزوق ط - - نوفمبر 1-:0, نوفمبر 1
- 1-:0, نوفمبر 1 - ط مرزوق ط - - نوفمبر 1-:0, نوفمبر 1 (مرفق الملف) IMG-2012110--WA0004.jpg:مرزوق ط - - نوفمبر 1-:0, نوفمبر 1
- 1-:0, نوفمبر 1 - ط مرزوق ط - - نوفمبر 1-:0, نوفمبر 1 الجهاز خلفيه وهذي:مرزوق ط - - نوفمبر 1-:0, نوفمبر 1

بها ويوجد  
الجهاز سلك لحفظ مكان -





with it technology means.... it mean that the child at home have iPod, or plays station and something like these stuffs .. and when he go to school .. see the board and pen .. there is contradiction ..

- S1: 13:25, 4 أكتوبر - learning is something gained from the life in systematic ways and follow objectives like academic institutions or accidental like anything gained such as general information or as a result of experimental .. .. Mohamed ,, logical words..
- Mo:13:2-, 4 أكتوبر - thank you
- S1:13:55, 4 أكتوبر - you are welcome , lets here the rest of opinions ..
- 13:5-, 4 أكتوبر -
- S3: I agree with Mohamed statement, but there is disadvantages: they might face difficulty to express their views and ideas in the side of expressing or writing because of staying along time in front of computer ..
- I: 1-:49, 4 أكتوبر, التعليم تكنولوجيا - ببساطة اعتقد التعاوني والتعلم: التعليم تكنولوجيا - 4 أكتوبر, 1-:49, 4 أكتوبر, collaborative learning .. simply, its what we do now
- I: 1-:50, 4 أكتوبر, التعليم تكنولوجيا - ولماذا؟ فائدة؟ فيه ترى هل: التعليم تكنولوجيا - 4 أكتوبر, 1-:50, 4 أكتوبر, Do you see benefit from it? and Why?
- S4: yes, it have a benefit.. whereas cooperate and sharing in searching for the goals .. and also to get information's through exchanging ideas among the students .. and in the end, sure.. Transcends cooperation among students ..
- I: where is the role of technology in education?
- S5: 21:25, 4 أكتوبر - Contributed to the ease of delivery of information through modern equipment industry and also in the development of science of all kinds ..
- S4: The technology has a very important role in terms of education make it easier for students to get the information and gain the largest amount of important information from the lesson ... and where it easier for students to deliver [maybe he meant receive] the information in a simple and easy way
- S-: I agree with Zaied and Bader .. have many contributions .. and overcame difficulties... and technology has facilitated for us many things.... ease for the pupils many things .. not only the pupils .. even the teachers and professors ..
- S1: Save time and zoom the image to the mind of the learner..
- S-: provide a lot of advantages ..
- S-: I thing technology is the only way which improve the education, especially, in Kuwait.. where we surprised .. not using technology appropriately in Kuwait .. influence in a big way .. best prove the progress and development of UAE more than us .. because of the independence of technology in positive way..
- S-: I agree my colleagues, technology contributed in many things .. and facilitated also .. but I am talking about positive technology because there are people who use technology negatively .. in my opinion its facilitate many thing for us .....For example, technology facilitate .. if I want to travel I book through the internet instead of going to the airport ..and there are many examples to use technology positively ..
- S-: technology have very important role in education because we live in the internet era and computer .. and exchanging the information easily and conveniently ..... Sure, sure, especially in the initial learning .. for instance, Language of communication ... and two-sided speech and other
- S4: the role of technology in education is provide the necessary tools of learning ... one of this is the projector device to explain specific topic for example ... and through it we can exchange information's .. and information delivered easily ..
- S1:one of the teaching elements is Message: It is the content, any concepts, ideas and values that the sender wants to deliver for the receiver .....Its impact on learning: It is possible for the teacher through the story in public life which attracts the attention of the learner and arrive to the end of shows where his message and the method is interesting and there are many of these things or student teacher to do disgraceful punished in front of all students between and connects them with the message that this disgraceful and unacceptable behavior and so the rest of the students take their lesson..... The second element It means (communication channel) is the tool that carry the message from the sender to the receiver. The student above discuss the same points (teaching components) that one of his colleagues presented in another group .. I suspect that he was informed of what is

written by members of other groups (even this is not acceptable) but it show how they affect each other's and may increase their learning of the topics of the study.

- S1: I Apologies for writing errors
- S4: - 19:2-, أكتوبر 11 - Videos and Publications best to process a private learning for age groups for small that this quality of students might be thinking and Tejelhm limited in, for example, if we got anthropomorphic Falcon and we talked to all beak and the formation of the mouth of the falcon image will become the nearest student can receive the information easily in addition it feel to accept the explanation being moved away from the traditional method or theory .. Thanks
- S10: - 19:2-, October 14 - +9-5 -555 ----: Elements of contemporary teaching effective:  
  
1 represents the student teaching in the modern educational process axis, without the teacher or the curriculum or the community.  
  
2 fit the principles and procedures of the state of contemporary teaching students cognitive, emotional and physical, vary the methods used in the training depending on the quality of students.  
3. contemporary teaching aims to develop the cognitive and emotional powers, and physical and motor for pupils formats balanced, taking into account the importance of each of them for the life of the individual and society.
- S10: 19:2-, October 14 - +9-5 -555 ----: follow ...
- S10: 19:2-, October 14 - +9-5 -555 ----: takes care of contemporary teaching the principle of exclusivity in its interventions and practices in this regard, employing the following concepts:
- S10: A knowledge of the intellectual and physical and value characteristics of individual pupils +9-5 -555 51--: received comments (motivate other to respond)10:3-
- S1: Second week, third activity .. the best between the printed materials and the learning pictures .. I think the pictures is better than the printed materials .. because in my opinion .. Be easier on the teacher and be interesting for the learner especially for small people ... where it break the barrier of the boring traditional learning... and entrenched in the mind of the learner well .. And affect it too much ... but, The printed materials is close to the study of traditional learning to some extent ... Book and a pen and paper and pictures ... Impractical many pictures ...

#### Group 4:

- G4:S1: one of the significant points that technology play in education, the development of smart phones that are the focus of attention for the students to use in the field of science and taken as a guide or teacher-mail in its various social networking and various functions in the field of learning and the development of mental abilities
- G4:S2: the role of the teacher in the traditional teaching is providing facts and info for the learner .. whereas, in education technology its transform his role to teach the learner .. how to learn, and teach him how to be active researcher for the information's not receiver for it .... The teacher also provide the necessary tools and techniques.
- G4: S2: the significant of education technology in the learning process:  
  
perception: where the illustrations and forms an important role in clarifying the written language of the learner.  
understanding: where education technology tools help Learner categorize discrimination stuff.  
thinking: the means of education technology play a significant role in the training of the learner to organized thinking and solving problems he faced.
- G4:S-: teaching elements:  
  
Give information and experience for the learner to reach the success. accuracy education for learners  
\* information about teaching communication ..... And teaching the learner in the classroom consider better communication process than distance education because it stimulates the learner more!!!!
- S-: "Distance learning in my view.... Must not happen at all" !!!!
- S5: and I agree in blend the electronic .. because I [it] almost easier and all can use it ..
- S-: because the non Arabic countries have means of communications make the learner .. learn through distance learning!!
- S5: S19:2-, أكتوبر 20 - +9-5 999- ----: <http://ejabat.google.com/ejabat/b-thread?tid=1fc35c9f34d-40a9>

- G4:S-: Schemes ... are a complex charts for education ... and I do not agree with this type of learning.. [we] can discover easier way [for learning] than this ... .. Catgory is the best way to compare things .... Cartoons attract children .. make them love learning and become easier for the child study

- S5: 01:40, 12 نوفمبر +9-5 999- ----: المطبوعات مزايا من : Advantages of printed materials

١. الطبيعية الاضواء فية استخدامها يمكن
٢. النقل سهله
٣. التكلفة قليلة

- S5: 01:44, 12 نوفمبر +9-5 999- ----: سلبياتها ومن : Disadvantages of printed materials

١. محتواها يفهم ان الاوقات بعض يصعب
٢. المتعلم على صعوبة لغة فية احيانا تكتب
٣. التحوار على القدرة عدم
٤. المعلم يناسب محتواها ان بالضرورة ليس

Group 5:

- G5: S1: 14:14, October 10 - +9-5 ---- 91-4: teaching communication components
- G5: S1: 14:14, October 10 - +9-5 ---- 91-4: sender and receiver
- G5:S3: 14:32, October 10 - +9-5 9995 ----: methods and types of learning.....it includes four aspects of learning style of the learner is in: cognitive style, patterns, trends, and his interests, and his tendency to search for the positions corresponding to the learning patterns of learning, and its tendency to use specific learning strategies and not others.

## 1.2 Bidirectionally (67 examples):

- [<Internals\1st iterative transcriptions\\_G1>](#) - § 13 references coded [11.52% Coverage]
- M.: Is there any one who didn't attend the lecture today.
- M.: Now teacher [... he was pointing to me] with us
- S4: I didn't attend .. I was tired
- S2: I am not convinced about learning from developed devices like laptop and other, because you can only hear, read, but you can't discuss with it ..
- M.: me, same like you
- S2: correct.
- Marzouk: that every lesson we take .. everyone bring information by himself and put it here.
- S2: Guys, could you send the website..
- M.: not needed
- S-: Allow me, I could not come to the last lectures because of private circumstances..
- M: Welcome .. its ok [respond to his colleagues]
- S-: thank you .... Marzouk, for Continuous communication for the group [ thank one of his colleagues]
- M: Welcome.
- S4: can I know why? 1-:5- - - +9-5 551 ---- ليش اعرف اقدر :-
- S4: in contrary, facilitate the explain process.. because it used to display pictures .. and as we said .. the easies way of explain is by picture .. and picture is better than thousand words. 1-:59, - - +9-5 551 ---- تسهل بالعكس : كلمه الف عن تغني الصورة ان بالصور الشرح طريقه اسهل ماقلنا ومثل الصور عرض فيها تستخدم لانها الشرح عمليه
- S2: because all of what you done .. zooming the book .. 1-:59, - - +9-5 9999 55-3: كبرتلكم انك سويته الي كل لك الكتاب
- 1-:00, - - +9-5 551 42245: عمرك طال غلطان بالعكس
- 1-:00, - - +9-5 551 42245: اختصرت
- 1-:00, - - +9-5 551 42245: ووفرت
- 1-:00, - - +9-5 551 42245: والجهد الوقت
- S4: In contrary, you are wrong ... (shortened), (saved .. time and effort) ..
- 1-:00, - - +9-5 9999 55-3: غلط فهمتني انت يابدر لا
- S2: no you did not understand me ..
- 1-:00, - - +9-5 551 42245: تكلمت إذا فهمني
- S4: explain, kindly
- 1-:00, - - +9-5 9999 55-3: الصور تحط تقدر انك مافيها احسن الشيفيه انه قصدي انا
- S2: I mean that the transparencies .. the best of it is that you can put picture in it..
- 1-:01, - - +9-5 551 42245: واحد وقت يشوفونه كلهم والطلاب: مرزوق ط - -

- يوريه ذالب كل مايفر
- M: all the students see in the same time ..
- 1:-01, - - +9-5 9999 55-3: لي بالنسبه فاشل مشروع يشوفونه الطلابه وتخلي كلام تحط انك اما
- S2: or you put words .. and let the students see it .. it's a failure project for me
- 1:-02, - - +9-5 551 42245: وواضح مختصر ويكون شيء اخر ع مبسط فيها الي الكلام تكون راح ف وحده شفافية مجرد هي
- S4: its one transparence .. so the words will be in it as simple as could .. and shortened and clear ..
- 1:-02, - - +9-5 9999 55-3: وينسون يقرون بيون لانه يستفيدون مراح بس يسهل انه معاك انا
- S2: I agree with you that it will facilitate .. but they will not benefit because they want to read and forget!!
- 1:-02, - - +9-5 9999 55-3: احسن اوراق عليهم وزع
- S2: distribute papers will be better
- 1:-02, - - +9-5 551 42245: يعني الكتابه لنا عرضت انت
- S4: you confront[ or show] the writing
- 1:-03, - - +9-5 551 42245: حفظ بس والكتابيه المعلومه تعرف مراح مافهمت إذا
- S4: if you did not understand you will not know the information .. writing is only for maintain..
- 1:-03, - - +9-5 9999 55-3: مثال يعني
- حلو يتكلم وقام لكم وعرضها كلام فيها شفيفه جابلكم المدرس تخيل
- S2: for example, imagine that the teacher bring transparence .. and display it for you and start talking good
- 1:-04, - - +9-5 551 42245: اوكيه
- S4: Ok
- 1:-04, - - +9-5 9999 55-3: تتذكر مراح بالشفيفه المدرس قال شنو واقولك سبوع بعد اجيك او تسمع راح بس انت
- S2: you will hear .. and after one week if I came to you .. and ask you what the teacher said in the transparence you will not remember.
- 1:-04, - - +9-5 551 42245: نظرك وجهه احترم
- 1:-05, - - +9-5 551 42245: وحلوه خفيفه طريقه حيل الشفافية اشوف أنا بس
- S4: I respect your point of view .. but I see that the transparent more mild and sweet [good] method ..
- 1:-05, - - +9-5 551 42245: تختلف مدرس لي مدرس من الطريقه وشرحه ياشباب واحد كل: مرزوق ط
- M: guys, the way of using it differentiate from teacher to another .. each one and his way of explaining..
- 1:-05, - - +9-5 9999 55-3: اسهل بشكل المعلومه توصل راح بالشفيفه واشرحلكم اوراق اعطيتكم لو اما
- S2: but if a give papers and explain by the transparence .. the information will be gained easier
- 1:-05, - - +9-5 551 42245: وتاريخ جغرافيه فيها الي المواد اصعب الثانويه ايام تنكر
- 1:-05, - - +9-5 551 42245: بالشفافية العرض جهاز يستخدمون المادتين وبكل
- S4: remember, in high school .. the difficult topics were geography and history .. and in both they used the transparence display device..
- 1:-0, - - +9-5 9999 55-3: صح كلنا انه الله شاء ان وبالنهايه رايب وهذا رايب هذا لكن صح وكلامي صح كلامك
- S2: you are correct.. and me also ..

- الشفافية فيها الي العرض اجهزه يستخدمون تلاحظ راح والاجتماعات بالشركات الامور باغلب فكر انت: 42245 551 5-9+ - - نوفمبر 0-:1
- للموضوع النظر عمليه لتسهيل ومخططات
- S4: look to the majority of companies and meetings .. you will notice that they use the display devices with the transparent and schemes .. to facilitate the process of how to look to the topic..
- يفيدك يمكن وانواعها تستخدم وشلون الشفافيات وشوف الرابط ادخل فهد: مرزوق ط - - نوفمبر 09:1
- M: enter this link and see how the transparent used and its kinds .. it may help..
- بالمتوسط الي الطلاب عقل مثل مو عقلم بالشركات الي بس كلامك صح: 9999 55-3+ - - نوفمبر 09:1
- S2: its true, but who's in companies not having the same brain like the students in medium stage ..
- مبسطه صور تعرض تقدر بالشفافيه بعد لاتنسى بس وياك أنا: 42245 551 5-9+ - - نوفمبر 10:1
- S4: I agree , but don't forget also that the transparence can display simple pictures ..
- معاه تفهم راح الناس كل مو انه اشوفه الي انا بس وقت ويوفر الشرح يسهل انه ادري انا بالربع: 9999 55-3+ - - نوفمبر ,
- S2: guys, I know that it facilitate the explanation and save time .. but what I see that not all people will understand it ..
- غلط اي مافيه كلامك صح: 42245 551 5-9+ - - نوفمبر 12:1
- بالفهم وقدراته واحد كل بس: 42245 551 5-9+ - - نوفمبر 12:1
- S4: you are correct , but everyone and his ability in understanding..
- ويستفيد يفيد الكل ياشباب ماعليه: مرزوق ط - - نوفمبر 12:1
- الاستفاده شي اهم تختلف لابد النظر ووجهات
- Marzouk: it's not a problem guys, everyone be useful and benefit .. points of view have to distinguish .. what's important the beneficent ..

<Internals\1st iterative transcriptions G4> - § 1 reference coded [3.3-% Coverage]

- S-: 20:54, أكتوبر 22 - +9-5 505 -----: ؟ بالإمتحان معناه هذا ... كملناه ما وايد طلع بالدرس شي نكمل بغينا اليوم شباب
- S-: 20:54, أكتوبر 22 - +9-5 505 -----: \*معانا
- S3: 20:55, أكتوبر 22 - +9-5 ---1 0234: والثاني الأول الفصل معانا إلي إحنا
- S3: 20:55, أكتوبر 22 - +9-5 ---1 0234: العيد بعد الدكتور يكمله راح أكيد بس
- S-: 20:55, أكتوبر 22 - +9-5 505 -----: العافيه يعطيك .. اوك اها
- S3: 20:5-1 - +9-5 ---1 -----: شيء ماسويينا يعافيك الله

<Internals\1st iterative transcriptions G5> - § 53 references coded [13.-1% Coverage]

- G5:S4: guys, I see that learning by technology is negative!!!! .... Don't sets the stage to study!! ... and not encourage you so that you expand in information !!!..
- G5:S3: its depend....Brother
- G5:S4: Imagine ..
- G5:S3: if the individual is search .. he will benefit..
- G5:S4: searching on the internet ...
- G5:S4: can't be complete ....

- G5:S4: like searching in academic library
- G5:S2: you can search information that benefit you and read about it.
- G5:S4 except that, and of course .. the internet might transfer wrong info for you ...!
- G5:S3: you must make sure about the source ..
- G5:S4: because its difficult you go.. and search from references ..... its impossible to be inclusive ..
- G5:S3: because most of the sites follow specific encyclopedia..
- G5:S4: you see the book name ..
- G5:S4: and you unsure ..
- G5:S3: I can benefit you on the part of references .. because I study library [subject]
- G5:S4: because it's the origin of info ...
- G5:S4: all from books ..
- G5:S3: sure ..
- G5:S4: further, when you open a book and search for specific info ..
- G5:S3: but, technology is useful in our life !
- G5:S4: you will gain more than one info...
- G5:S3: without technology, we cannot speak to each other now...
- G5:S4: ... other than what you search for ..
- G5:S4: I am with you ... technology facilitate [many things] for you ...
- G5:S3: if individual have no time .. he can gain information's from the internet..
- G5:S3: hhhhh [lughing]
- G5:S4: yet, in my view the best is the classical learning ..
- G5:S3: I disagree with you in this thing ..
- G5:S4: the traditional ..... because it offer environment for study
- G5:S3: now, everything you can see it on the internet ..
- G5:S3: because its difficult to search on books...
- G5:S4: I am with you in this thing ..
- G5:S3: because it have many topics ,, you should know the specific book name ..
- G5:S4: just , tell me ...
- G5:S4: we are surely in agreement ..
- G5:S3: I can benefit you in a certain thing of course ..
- G5:S4: it's the internet easier ..... and faster
- G5:S3: for example, if you want to read about the pyramids
- G5:S4: and more simple ..

- G5:S3: you could look for it in the International Arabic Encyclopedia ... Ok.
- G5:S4: but the amount of information on book is more ..
- G5:S4: and deeper ..
- G5:S3: books is difficult ,, because you will feel of pain in your brain .. before reaching the specific info ..
- G5:S4: yes ..
- G5:S4: this is what I want to discuss..
- G5:S3: surely, deeper and books , of course the right sources ..
- G5:S4: until you reach the topic that you want ... you will find yourself obtained many information ..
- G5:S3: further, in the internet there are issues I don't count on .. and fear to be wrong ... gain info from books..
- G5:S3: technology facilitate to you communication ..
- G5:S3: but the internet is the easiest and fastest way to deliver info
- G5:S4: in search for info...
- G5:S3: sure, .. this is what they call it .... Because of that technology benefit us in our life ,,,,, for example, there is no home without internet ... if you are going to talk about those who read books .. you will find very little .. in particular, in Kuwait!!!
- G5:S4: correct..
- G5:S3: or what do you think brother? (... they always used this word as concept of respect) .. if the people read books .. They became consciousness of and Culture..
- G5:S3: your words are correct ... but where (ya haji) ??
- G5:S3: but, when they walk on the internet they will be mistake.. and if you ask them from where you get the information .. they get stuck ...
- G5:S4: our folks on twitter [this a clue that there is a big amount of user] ... and Instagram they are lost ..
- G5:S3: except from books they will answer you and tell you the book name and you go and verified by yourself..
- G5:S4: which culture ..
- G5:S3: Instagram .. we are not benefit from it in right way..
- G5:S3: people snap food hhhh [laugh]
- G5:S4: everything has negatives and positives ..

### 1.3 Sharing information that stimulates & motivates peers (50 examples)

[<Internals\1st iterative transcriptions G1> - § 44 references coded \[10.-4% Coverage\]](#)

- S2: I am not convinced about learning from developed devices like laptop and other, because you can only hear, read, but you can't discuss with it ..

- S2: secondly, because if you heard the information without a convincing, you will not be able to maintain it immediately..

M.: me, same like you.. best thing is ..

Face-to-face فيس تو فيس

حتى الواتس اب

احسن شي

Even WhatsApp I am not convinced of it مو مقتنع فيه

- S2: correct.
- M.: that every lesson we take .. everyone bring information by himself and put it here.
- S2: Because, if I read a topic or information and I am alone .. if I felt bored from it .. I will leave/skip it..
- M.: there is something related to the technology I want to show it to you..
- S2: I see that the first element of learning that you love the subject that you to study
- M.: 0 22:05, 11 أكتوبر ط - □
- [it mean he follow the interaction - they create their own language/symbols]
- 22:0-، 11 أكتوبر -
- S:- secondly, know what is the subject .. not necessary that he only study it
- 22:0-، 11 أكتوبر -
- S2: and he should connect it to his live ..
- 22:0-، 11 أكتوبر -
- S2: so, individual supposed to apply his work more than once .. and try as much as he can from the new methods.
- S:- and know what it is useful for in live .. and how to make use of it ..
- S2: and I see that.. first thing apply on the government institutions because we live in Retardation ..
- S:- I concur.
- S4: guys, I am following a channel .. while I am eating
- S4: I saw in japan and the development countries .. even in the primary school .. they making the learning easier.
- M.: How?
- S4: they use the ipad .. don't left heavy stuff and take book with them ..like us
- M.: nice and lighter..
- S4: seriously, I have been heard from two year that they will transform the study to electronic ..... the first thing that they say .. we will distribute laptops for high schools ..... later they said ipad for all .. and we did not see anything happened.
- M.: I don't know.. [irony] .. I don't have experience.. go to the net and you will know..
- S4: who's disagree with me speak .. guys we want to make it a discussion..
- S4: I see it fun , give special color and taste of fun in studying
- M.: in this, I agree..!!
- S4: give advancement .. communication be easier like what we do now.
- M.: correct, its nice

- S4: and in the bases of your disagreement that study not good with technology
- S4: I am meant it .. I want to see you .. with me or against me.. [he mean Marzouk]
- S4: it's good that I persuade you.
- M.: technology have advantages and dis advantages .. and from this side its good and useful...
- S4: everything in live have good and bad.
- M: look, if you entered any (Dewanya) = [room in the house .. friends & relatives gathered in] everyone catching his phones in his hands [busy] and no one talk to you because of technology [disadvantages – isolate people] .. and accidents raised because of it [ no prove – he assume]..
- S4: your words is correct.. and I agree with you
- S4: as I said, everything have good and bad..
- S4: what's important that the idea is clear ..
- 14:21, 13 أكتوبر, +9-5 551 ----: الدراسة الكترونيا حولونها بي انهم اسمع سنتين صارلي أنا جد يعني والله
- 14:21, 13 أكتوبر, +9-5 551 ----: بس الثانويه ع لابتوبات بنوزع قالو شيء اول
- 14:21, 13 أكتوبر, +9-5 551 ----: شيء ماشفنا بس للكل باد اي لم قالو وبعدها
- S4: seriously, I have been heard from two year that they will transform the study to electronic ..... the first thing that they say .. we will distribute laptops for high schools ..... later they said ibad for all .. and we did not see anything happened.
- S4: and in the bases of your disagreement that study not good with technology
- S4: I am meant it .. I want to see you .. with me or against me.. [he mean Marzouk]
- M.: technology have advantages and dis advantages .. and from this side its good and useful...
- S4: it's good that I persuade you.
- S4: seriously, we are in new era .. everything develop .. Must keep pace with the times .. accept its issues .. and its interaction with our live ..

[<Internals\1st iterative transcriptions G2> - § 1 reference coded \[-.5% Coverage\]](#)

- G2 S4: "despite the circumstances that I went through .. and I could not attend the previous lectures .. but I was able to know the content of the lessons that have been teach to my colleagues as I am been their .."
- G2 S4: Thanks first to God and then to the scientific development which contributed significantly to the transfer of information's that have been discussed ..
- G2 S4: this is respond on the teacher question (what is the role of educational technology?) ... .. this is me have learnt all of what have been discussed and checked the lessons contents .. and communicate with my colleagues through the WhatsApp and the group .. which many thank for the teacher who insist to do it .. and which I call it the moving hall that contain our teacher and my colleagues .... and who's using technology in positive way ... his learning method will change, this is an opportunity for whom want to learn and understand faster.. its contribution is big as I said and its effective role ...

[<Internals\1st iterative transcriptions G3> - § 2 references coded \[3.59% Coverage\]](#)

- S-: technology have very important role in education because we live in the internet era and computer .. and exchanging the information easily and conveniently ..... Sure, sure, especially in the initial learning .. for instance, Language of communication ... and two-sided speech and other..
- S-: I thing technology is the only way which improve the education, especially, in Kuwait.. where we surprised .. not using technology appropriately in Kuwait .. influence in a big way .. best prove the progress and development of UAE more than us .. because of the independence of technology in positive way..

- S1: Save time and zoom the image to the mind of the learner..
- S-: using technology benefit a lot.. especially students ... Students who suffer from the slow absorption .. and its benefit us as a whole community not only as a students ...and if we look to current teaching method in the Arabic world .. I don't mean specific country ... Mostly .. they depend on the printed book and pen and paper ..... its quite possible that .. using communication technology and information's in the service of student .. and put the learning curriculum on the internet web ..
- [<Internals\\1st iterative transcriptions G4> - § 1 reference coded \[4.-2% Coverage\]](#)
- S-: "Distance learning in my view.... Must not happen at all" !!!!
- I: [taking to students] for your information, distance learning succeeded in many countries ..except the Arabic countries!! Why? Try to recognize?
- S5: and I agree in blend the electronic .. because I [it] almost easier and all can use it ..
- S-: DL success in some countries except Arabic countries ... because the non-Arabic countries have means of communications make the learner learn through teacher from distance
- S4: The means of communications exist in Arab , .. But the culture of dealing with it is lost compared to the West .... Simply, and in General, Arab are nation that dislike changing in its norms – whether educational or in all life issues ..

## 2. Control of communication (11 examples):

### 2.1 Expanded range of places and an expanded range of times, e.g. cars or malls (6 examples)

### 2.2 Sharing freely at their convenience (5 examples):

#### Expanded range of places and an expanded range of times, e.g. cars or malls (- examples)

[<Internals\\1st iterative transcriptions G1>](#) - § 3 references coded [0.42% Coverage]

- ✚ M.: guys, now I am in the cafe in the **Mall** [Any place].
- ✚ M.: they put issue related to technology which is
- ✚ M.: A small car, .. you set and in front of you screens and as you actually driving it .. its free to try it .
- ✚ S4: excuse me, I could not registered because I am in the **Farm** and the signal is weak.. [ use the App for justification].

- ✚ 00:21, 9 أكتوبر - S2: excuse me, I want to sleep ... [it may be a sign that he is already in bed – look at the time & his comment].

<Internals\1st iterative transcriptions G4> - § 1 reference coded [1.-5% Coverage]

- 
- ✚ S-: my service is empty [subscription end] .. And I was in the **Chalet** this weekend and shared last time on Wednesday .. if the service is available I really shared [ the problem of missing the connection – financially]

#### Sharing freely at their convenience (5 examples):

- ✚ <Internals\1st iterative transcriptions G3> - § 3 references coded [4.95% Coverage]
- ✚ S-: I prefer the learning content .. electronic .. because of the simplicity and easier than the printed/paper ..
- ✚ S5: electronic because it easy to browsing ..
- ✚ S-: I prefer the electronic because 1- easy to use .... 2- precision .. 3- speed ..
- ✚ S9: 02:45, 5 أكتوبر - +9-5 -551 ----: للجميع الورد صباح Good morning everyone
- ✚ S9: 02:45, 5 أكتوبر - +9-5 -551 ----: حيهم بالله welcome all
- ✚ S9: 02:4-, 5 أكتوبر - +9-5 -551 ----: اعتذر عن عدم اشتراكي بالمحادثة التعليميه بالسابقه apologies for not sharing with the previous learning conversation
- ✚ S1: 19:2-, 11 أكتوبر - In the same path .. And away from the activity I see that the traditional way sometimes more positive, especially in material such as mathematics .. This subject needs to practice continually to resolve the issues .. It is difficult to explain by Projector way of solving the issue .. and the image become too far to the mind of the learner ..
- ✚ S9: 20:42, 11 أكتوبر - Doctor, I see the web is slightly complicated .. and I see WhatsApp is enough for communication and sharing .. this my view ..

<Internals\1st iterative transcriptions G5> - § 1 reference coded [0.5-% Coverage]

- ✚ G5:S4: guys, I see that learning by technology is negative!!!! .... Don't sets the stage to study!! ... and not encourage you so that you expand in information !!!.. [They share any thought cross their mind at their convenience]
- ✚ S2: its depend..
- ✚ S2: if the individual is search [surf the net].. he will benefit..

### 3. Social construction of knowledge with new media (55 examples):

#### 3.1 Bringing in new information from new resources, e.g. the Internet (12 examples)

#### 3.2 Students decide on their own what is relevant, useful and compatible with their curriculum (27 examples) – p. 21.

#### ✚ Social construction of knowledge with new media (3- examples)

<Internals\1st iterative transcriptions G5> - § 1- references coded [24.01% Coverage]

- G5:S6: guys, I couldn't understand what the teacher said ... about projectors components..hhhh [laughing]
- G5:S1: its not difficult..
- G5:S6: I was browsing Twitter ....hhhhh [challenges, sign of distracting]
- G5:S6: my football team will play after two hours...hhhh

- G5:S1: projectors components are lenses, screen, memory, remote control, air filter, interactive pen, 3D glasses and more...
- G5:S3: Allow me to add, what Mohamed mentioned are the basic components.... we have to remember that there are other important accessories like... head set, interactive pen, speakers, camera.
- G5:S1: yes, true
- G5:S1: but, analysing in my head what is more important ... I think we can live without ...accessories.. [evidence of analysing]
- G5:S3: without interactive pen ...how can you point towards important things.. With big audience!!! [evidence of evaluation].
- G5:S2: thanks Ahmed [pointing to S3]... I didn't recognise the significant of interactive pen or accessories.. hhhh .. I thought that I need only... the screen ... [clue of comprehend]
- G5:S1: you need to reverse your words....hhhh ... you need the device [projector] and can neglect the screen... no need.. any surface is good..[I think he ment any wall]
- G5:S2: hhhhhh.. thanks brother..

• **Bringing in new information from new resources, e.g. the Internet (12 examples)**

<Internals\1st iterative transcriptions\_G1> - § 5 references coded [4.01% Coverage]

- M.: guys this a summary of what I found on the internet .. and the lecture today was about the technological means and communication .. First: the importance of technology in the learning process .. [copy & paste .. not is his own words]..
- S-: I want to bring to small information about the role of the teacher in ET [sharing is expanding after awhile] .... which is the e-learning
- S1: advertisement which I liked.. about eh differences between the new and the traditional learning
- والحديث التقليدي التعليم بين الفرق عن <http://t.co/LZBjr20S>
- 0-:34: فهد حلوه :مرزوق ط - 20 أكتوبر
- M: I like it.. they want learning by computer .. not by books and left of and heavy .. thank you ..
- والثقل والشيل الكتب مو بالكمبيوتر التعليم بيون
- شكررا
- 0-:35: شوفوه مايكلف دقيقه مدته شباب :مرزوق ط - 20 أكتوبر
- M: Guys, the duration of the movie... its just one minute .. [He motivate his colleagues ... he guide now]
- الشفافيات عرض جهاز وهو اليوم خذيناها اللي الجهاز عن بالتفصيل صور جمعت شباب :مرزوق ط - - نوفمبر 04-1-
- 1-:05: مرفق الملف) IMG-2012110--WA0000.jpg :مرزوق ط - - نوفمبر
- M: guys, I collect images in details about the device that we talked about today .. which is Display device Transparencies .. [he connect the classroom topic to using App to complete it .. also send pictures of the device] .. [clearly using the App in his favor] ..
- الاضاءه تحكم ادوات
- 1-:0-: مرفق الملف) IMG-2012110--WA0003.jpg :مرزوق ط - - نوفمبر
- الثاني الوجهه وهذا :مرزوق ط - - نوفمبر 0-1-
- ماتشوفون نفس للتهويه فتحات وفيه
- 1-:0-: مرفق الملف) IMG-2012110--WA0004.jpg :مرزوق ط - - نوفمبر

• 1-:0-: نوفمبر - - ط مرزوق :وهذي خلفيه الجهاز

• ويوجد بها

- مكان لحفظ سلك الجهاز

- بكرة للتحكم في حامل مجموعة الإسقاط للتحكم في وضع الصورة علي شاشة العرض

• 09:11-1 نوفمبر - - ط مرزوق (IMG-2012110--WA0005.jpg: الملف مرفق)

• 09:11-1 نوفمبر - - ط مرزوق :وهذا ياشباب الجهاز من الداخل ويحتوي علي

- مروحة

- مرآة مقعرة لعكس الضوء المنبعث من الللمبة الى أعلى

- عدسة مجمعة للضوء

• 10:11-1 نوفمبر - - ط مرزوق :واللي ما عرف من هذا كله

• هذي رسمة فيه تخطيط علي كل شي بالجهاز وشنو يسوي

• وان شاء الله تفيديكم

• 10:11-1 نوفمبر - - ط مرزوق :IMG-2012110--WA000-.jpg (مرفق الملف)

<Internals\1st iterative transcriptions G3> - § 2 references coded [5.--% Coverage]

• عمدت الحين ذلك ومنذ (19نازار)، 192- عام في تعليمية آلة أول بتطوير بيرسي قام:دور التكنولوجيا في التعليم :-52- 22- 1+9-5-0-، أكتوبر 5 - البروجكتور وأجهزة الفيديو ومسجل الصوتي والمسجل الأفلام عارض مثل كثيرة أجهزة استخدام إلى التعليم تكنولوجيا بتطبيق المختصة التعليمية المعاهد من الأخير الثلث شهد الطب، مجال في الحديثة الأدوات واختراع التعليم، طرق في الأبحاث وزيادة الحاسوب، أجهزة في السريع وبالتطور .الحاسوب وأجهزة التكنولوجيا الثورة مجال في هائلة ثورة العشرين القرن

• S:- Percy has developed the first educational machine in 192- (Nazar 0.19--), and since then proceeded educational institutes competent application of educational technology to use many devices such as film viewer, voice recorder and video recorder and projector devices and computers. The rapid evolution in computer hardware, and increase research in teaching methods, and the invention of modern tools in the field of medicine, the last third of the twentieth century saw a huge revolution in the field of technological revolution. [Copy & paste but still new resource]

• G3: S:- touchable screen from Disney company which can distinguish between users [using links]

• 10:45: المستخدمين بين التمييز تستطيع ديزني شركة من لمس شاشات :تقنية# تكنولوجيا#: 3421 9000 5-9+ - 10 أكتوبر, 14:3-@techarabi (عبر http://t.co/FPGdG3rP)

<Internals\1st iterative transcriptions G4> - § 4 references coded [21.44% Coverage]

• S4: guys, this is book called ( the exclusive libraries in education technology) in pdf .. [links to books] <http://al-mostafa.info/data/arabic/depot3/gap.php?file=0119--.pdf>

• G4: S5: 20:43, أكتوبر - - 9-5 999- --30: <http://www.khayma.com/education-technology/TCHH1.htm>

• [sent links through the App as a resource]

• 21:1-، أكتوبر - -

• S5: Each area or academic knowledge base system depends upon practice and application and concludes this theoretical knowledge consisting of concepts, principles and assumptions of research or practice, which provide us with information as a result of the passage of the individual experience.

• التعليمية الوسائل عرض أجهزة بعض :---- 9-14 9-5+ - 9 نوفمبر, 03:09

الشرائح عرض جهاز

الجهاز مكونات

الداخلي الجزء n

. للإضاءة قوي مصباح

إليها القادم الضوء تجمع مباشرة المصباح خلف تقع مقعرة مرآة

. وعكسه المصباح من

. الشفافة الشريحة على للضوء ومركزة للضوء مجمعة عدسات

بحاجة ليست الأجهزة وهذه ، أوتوماتيكياً معاً التيارين على تعمل أخرى أجهزة وهناك ، فولت 220 و فولت 110 تيارين على يعمل مرن فالجهاز ، العام التيار مع تحويل إلى .

- 03:09, نوفمبر 9 - +9-5 9-14 9-9-: IMG-20121109-WA0000.jpg (مرفق الملف) A
- : مكونات جيباز عرض الشفافيات؟ الجزء الداخلي: ---1 ---9-5+22:59, نوفمبر - -
- S3: the elements of the transparence display device ... [respond – talking about one of the topic in the course]
- S2: - 9 نوفمبر 03:09, 9-14 9-5 +9-5: IMG-20121109-WA0000.jpg (الملف مرفق)
- S2: 03:09, نوفمبر 9 - +9-5 9-14 9-9-: للجهاز صورة وهذا
- S4: 11:59, نوفمبر 9 - +9-5 ---2 2309: ...ثانية و٢٠ دقيقة المقطع مدة .. بالفيديو يشوفه حاب الى المعتمة الأجسام عرض جهاز: [http://www.youtube.com/watch?v=RBLPJOSZ45w&feature=youtu\\_be\\_qdata\\_player](http://www.youtube.com/watch?v=RBLPJOSZ45w&feature=youtu_be_qdata_player)
- مدته المقطع .. الجهاز عمل وكيفية الأساسية الجهاز اجزاء معرفة في منه الاستفادة ممكن .. يدوية بطريقة صناعته وكيفية الشفافيات عرض لجهاز آخر فيديو دقائق ٩
- S4: Another video OHP and how its manufacture manually .. possible benefit from it to know the basic parts of the machine and how they work its duration 9-minute ..... [http://www.youtube.com/watch?v=-lKTwn-gAzU&feature=youtu\\_be\\_qdata\\_player](http://www.youtube.com/watch?v=-lKTwn-gAzU&feature=youtu_be_qdata_player)

<Internals\1st iterative transcriptions G5> - § 1 reference coded [2.02% Coverage]

- G5: S1: 14:14, October 10 - +9-5 ---- ----: teaching communication components
- G5: S1: 14:14, October 10 - +9-5 ---- 91-4: sender and receiver
- G5: S1 14:2-, October 10 - +9-5 ---- 91-4: Definition of Educational Technology at UNESCO: Education technology is the curve systems for the design of the educational process and implementation of all straightened and depending on specific targets stemming from research in the field of education and human contact results using human and other resources in order to give Education more effective (or access to learn better and more effective)

• **Students decide on their own what is relevant, useful and compatible with their curriculum (2-examples)**

<Internals\1st iterative transcriptions G1> - § 2 references coded [-.25% Coverage]

- الشفافيات عرض جهاز وهو اليوم خذيناها اللي الجهاز عن بالتفصيل صور جمعت شباب: مرزوق ط - - نوفمبر 04-1
- 1-:05, نوفمبر 1-:05, نوفمبر: IMG-20121110--WA0000.jpg (مرفق الملف) مرزوق ط - -
- M: guys, I collect images in details about the device that we talked about today .. which is Display device Transparencies .. [he connect the classroom topic to using App to complete it .. also send pictures of the device] .. [clearly using the App in his favor] ..
- الاضاءه تحكم ادوات
- 1-:0-0, نوفمبر 1-:0-0, نوفمبر: IMG-20121110--WA0003.jpg (مرفق الملف) مرزوق ط - -
- الثاني الوجه وهذا: مرزوق ط - - نوفمبر 1-:0-0
- ماتشوفون نفس للتهويه فتحات وفيه
- M.: 1-:0-0, نوفمبر 1-:0-0, نوفمبر: IMG-20121110--WA0004.jpg (مرفق الملف) مرزوق ط - -
- M.: 1-:0-0, نوفمبر 1-:0-0, نوفمبر: this is image of the device from back ..there is a place to keep the wire of the device save.... control of the focus of the image .. مرزوق ط - -
- بها ويوجد الجهاز سلك لحفظ مكان العرض شاشة علي الصورة وضع في للتحكم الإسقاط مجموعة حامل في للتحكم بكرة
- 1-:09, نوفمبر 1-:09, نوفمبر: IMG-20121110--WA0005.jpg (مرفق الملف) مرزوق ط - -

- M.: 1-:09, نوفمبر ط - - مرزوق ط - وهذا: مرزوق ط - على ويحتوي الداخل من الجهاز ياتشباب وهذا: مرزوق ط - .Concave mirror to reflect the light emitted from the lamp to the top ..Lens collage of light

..مروحة  
..أعلى الى اللبية من المنبعث الضوء لعكس مقعرة مرآة  
للضوء مجمعة عدسة

- M.: 1-:10, نوفمبر ط - - مرزوق ط - .. Also this is sketch about the device ...1-:10, نوفمبر ط - - مرزوق ط - (مرفق الملف) IMG-2012110--WA000-.jpg

يسوي وشنو بالجهاز شي كل علي تخطيط فيه رسمه هذي  
تفيدكم شاءالله وان

- 1-:4, نوفمبر ط - - welcome يحكيكم الله: قادر ط - -

- الشفافيات عن ومختصر بسيط موضوع هذا: مرزوق ط - - نوفمبر 1-:52

وتعرضها تسويها وشلون عرضها وطريقه انواعها شنو الشفافيات هذي العرض جهاز ماوريناكم عقب  
واجد كلام ومو المفيد خذيت  
يعجبكم شاءالله ان

- المحتوى حسب\* التعليمية الشفافيات أنواع: مرزوق ط - - نوفمبر 1-:52

: الى المحتوى أساس على التعليمية الشفافيات تصنيف يمكن

1 - مكتوبة شفافيات -

2 - مرسومة شفافيات -

3 - ومكتوبة مرسومة شفافيات -

- \* Types of educational transparencies by content: : المحتوى حسب\* التعليمية الشفافيات أنواع: مرزوق ط - - نوفمبر 1-:52

- As it can be classified on the basis of the shape and composition to:

- 1 - transparencies composed of a single layer.
- 2 - transparency is composed of a single layer, but covered.
- 3 - transparency is composed of more than one layer.

: الى والتركيب الشكل أساس على تصنيفها يمكن كما

1 - واحدة طبقة من مكونة شفافيات -

2 - مغطاة لكنها واحدة طبقة من مكونة شفافية -

3 - طبقة من أكثر من مكونة شفافية -

\* : الاستخدام طريقة حسب الشفافيات نواع ا

- 1.\* على ونوع\*\* A4\* ورق شكل على نوع نوعان وهي ( الشفافيات بأقلام تعرف لبادية مادة من مصنوع رأس ذات \*أقلام ) خاصة بأقلام عليها للكتابة شفافيات \*

. متصل بشكل وتعرض متصلة بكرة شكل

. الحراري الطبع آلات \*في تستخدم التي الحراري النسخ شفافيات \*\*\*\*2

- 3.\* الواحد اللون ذات والموضوعات \*القرآنية الآيات تصوير في \*يكثرة وتستخدم \*التصوير آلة في الورق مكان توضع حيث التصوير بالآلات خاصة شفافيات \*

متعددة ألوان فيها ليس التي أي \*الأخرى الحسائية والعمليات الضرب وجداول

: نوعان \*وهي الآلي بالحاسب خاصة شفافيات \*\*\*\*4

1.\*\*\*\*. الليزر للطابعات نوع

\*. Hp ال طابعات ماركاتها أشهر ومن Deskjet\*\*\* بد تعرف التي الأخرى الملونة للطابعات ونوع \*\*\*\*2

الياء الى الاف من الشفافيات عن شي كل وفي المصدر هذا: مرزوق ط - - نوفمبر 1-:53

- M.: 1-:54, نوفمبر ط - - <http://elmahmel.3oloum.org/t1144-topic> ... I hope the information I submit benefit you...

- S-: I myself benefited .. I did not attended .. I was tired .. [ clue, .. explaining things through the app wasn't bad idea in the end] ..

- ربي يسلمك

- 19:52, نوفمبر ط - - +9-5 9005 ---- thanks العافيه يعطيك

- 19:52, نوفمبر ط - - welcome يعافيك الله: مرزوق ط - -

- S2: 20:22, نوفمبر ط - - +9-5 9999 55-3 there is disadvantages nobody mention ذكرها محد بس بالجهاز عيب في

- 13:1, نوفمبر ط - - +9-5 50- ---- Join انضم

- S2: 20:22, نوفمبر ط - - +9-5 9999 ---- it can be damage easily وقت بأي للخراب قابل انه هو والي

- S4: 23:03, نوفمبر ط - - +9-5 551 42245: attach file about the educational transparencies (مرفق الملف) vcf.البغلي خالد

<Internals\1st iterative transcriptions G2> - § 1 reference coded [4.--% Coverage]

- نايم القروب :التعليم تكنولوجيا – 21 أكتوبر , 10:3-
- Me: the group is sleeping ..!!
- القروب تنشيط أسأله نبي :محمد بط - 21 أكتوبر ,
- M: we need questions to active the group [ this order .. what make me change the way of starting the conversation .. to encourage them I need to ask .. some refuse to lead always.. as teacher 3 claimed].
- عن تحدث .. الثاني الفصل في اننا بما يعني .. المنهج قراءة بعد تظهير والانشطة .. انشطة عن عبارة الاسئلة :التعليم تكنولوجيا - 21 أكتوبر , 10:45 مناقشتها تمت اللي المواضيع
- Me: questions is activities .. and activities show after reading the curriculum .. it mean discuss what we already talked about [in the class] ..
- 10:54, 21 أكتوبر -
- S1: ok

<Internals\1st iterative transcriptions G3> - § 9 references coded [13.3-% Coverage]

- S-: using technology benefit a lot.. especially students... Students who suffer from the slow absorption .. and its benefit us as a whole community not only as a students ... ..and if we look to current teaching method in the Arabic world .. I don't mean specific country ... Mostly .. they depend on the printed book and pen and paper ..... its quite possible that .. using communication technology and information's in the service of student .. and put the learning curriculum on the internet web ..
- Me: Dear student, how do you prefer the learning content .. printed/paper or electronic?
- S-: I prefer the learning content .. electronic .. because of the simplicity and easier than the printed/paper ..
- S5: electronic because it easy to browsing ..
- S-: I prefer the electronic because 1- easy to use .... 2- precision .. 3- speed ..
- S-: I agree with Nasser [s-] .. the electronic much better and the reason... .. Because it give the student excitement and is used by many means, such as voice, image and video ..... And makes students live in the school environment in funny and easy way ... and helps in the transmission of the information smoothly and in understandable way .. and without complexity .... the electronic, Keep pace with educational development .. and facilitates student .. and be easy and fun and enhances the spirit of the study and understanding of students .. and in the same time, save effort and tired for the student ..
- S4: I prefer it .. printed/paper where as the existence of guarantee for the content .. excluding the easy to browsing on the internet .. because the content as one said previously can be sometime manipulated .. make the learning process difficult ..
- S1: In the same path .. And away from the activity I see that the traditional way sometimes more positive, especially in material such as mathematics .. This subject needs to practice continually to resolve the issues .. It is difficult to explain by Projector way of solving the issue .. and the image become too far to the mind of the learner ..
- 20:42, 11 أكتوبر -
- S9: Doctor, I see the web is slightly complicated .. and I see WhatsApp is enough for communication and sharing .. this my view ..

<Internals\1st iterative transcriptions G4> - § - references coded [9.43% Coverage]

- Me: Dear student, How do you prefer the learning content ... paper or electronic? Realistically?
- G4:S2: Paper..

- Me: why?
- G4:S2: honestly, I cant study unless I graped pen and put lines under the important words .. write it in white paper to maintain/remember it in my brain [ Again focusing on remember the info instead of understand it!!!!]
- G4:S4: For me... if the information is specific for the learning curriculum .. there is no difference between the paper and the electronic .... while, if the information about something outside the learning curriculum .. I prefer to collect it by paper/book not electronic .. for two reasons:
 

E-books, especially if the format word, it's a too problem to be trusted in, because it is uploaded on the network without the author or publisher, so, there are a probability of misrepresentation ..

E-books, mostly converted from paper book, So explore it more .. Better to refer to the original, which is the paper..
- G4:S4: ...As one of scientist said, the is no good in learning go when electricity go..
- G4:S5: paper is easier in time of studying and maintain/remember ... and electronic in the time of explain became easier for student to understand the lesson...

#### 4. Playing new roles (39 examples):

##### 4.1 Supporting less knowledgeable students (37 examples):

<b>Playing new roles (39 examples)</b>
<p><b>Supporting less knowledgeable students (37 examples):</b></p> <p><a href="#">&lt;Internals\1st iterative transcriptions G1&gt; - § 35 references coded [22.--% Coverage]</a></p> <ul style="list-style-type: none"> <li>• M.: guys this a summary of what I found on the internet .. and the lecture today was about the technological means and communication .. First: the importance of technology in the learning process .. [copy &amp; paste .. not is his own words]..And this the source [he wasn't cheat, but it is not acceptable]</li> <li>• Marzouk: I wish that every lesson we take .. everyone bring information by himself and put it here.</li> <li>• - شباب الي عنده الموقع يرسله لو تكرمتمو :----- 00:1+9-5 9999 - أكتوبر 9 -</li> <li>• S2: Guys, could you send the website..</li> <li>• 00:19, أكتوبر 9 - ط مرزوق: مايجتاج</li> <li>• Marzouk: not needed</li> <li>• N. B.: [ here I want to show that they communicate about other issues related to the course.. and I will stop translate other unnecessary comments]..</li> <li>• - انا استأذنكم بنام :----- 00:21+9-5 9999 - أكتوبر 9 -</li> <li>• S2: excuse me, I want to sleep ... [it may be a sign that he is already in bed – look at the time &amp; his comment].</li> <li>• , أكتوبر 9 - تكنولوجيا التعليم: الموقع مهم للتعرف على الاهداف .. والانشطة المقررة .. والتفاعل .. وهو مهم جدا ويجب زيارته والتسجيل فيه</li> <li>• <a href="https://www.myhaikuclass.com/Intro/intro/cms_page/view">https://www.myhaikuclass.com/Intro/intro/cms_page/view</a></li> </ul>

- Me: Location is important to identify the targets .. And our planned activities .. And interact .. It is very important and must be visited and register in it.
- أكتوبر 9 - تكنولوجيا التعليم: وبعد التعرف على اهداف الفصل ... والنشاط التالي المطلوب .. تكون المشاركة عن طريقه .. او بالواتساب
- Me: After identifying the chapter targets... and the next activity required .. Participation will be through it .. or by the Apps .
- 1-0:- أكتوبر 9 - ط مرزوق: ماثي دكتور
- Marzouk: Ok, Doctor.
- 11:-1, أكتوبر 9 - تكنولوجيا التعليم: كيفية التسجيل فيه .. سهلة .. اذهب لهذا الموقع
- <https://www.myhaikuclass.com/Intro/intro/signup>
- Me: how to register is.. easy ..go to
- .. ثم ضع الرمز الموجود تحت العنوان  
Insert the code  
واتبع التعليمات  
Follow the instructions
- 19:-1, أكتوبر 9 - تكنولوجيا التعليم: ارجو من جميع الطلاب المشاركة الفاعلة ...بدأنا رصد الدرجات .. الحاضر يعلم الغائب
- I wish from everyone to effectively participate .. we start giving the grades .. tell the absence..
- الرمز هو-1YR4-3-، أكتوبر 9 - تكنولوجيا التعليم: 5
- The code is YR4-5
- discussion يعدين اختار connect-1:53, أكتوبر 9 - تكنولوجيا التعليم: اتبع خطوات التسجيل .. وبعدين.. روح
- Follow the register steps .. then.. go connect and choose discussion .. and share..
- 23:22, أكتوبر 9 – ط مرزوق: يا شباب كل ما اسجل يطلع جذي ليش؟!!
- Marzouk: guys, every time I attempt to register .. I faces a problem [ registration problem with the website haiku LMS]
- حتى أنا مايفتح عندي 23:3+9-5 551 42245-, أكتوبر 9 -
- S4: even me.. it did not open ..
- بعد انك استاذ بدر ---- 23:11+9-5 551 - أكتوبر 10 -
- S4: ask for my permeation..
- في اعتصام غدا من طلاب التربية الاساسيه
- S4: there will be a protest tomorrow in the Basic College.. [use it for spreading news]
- 11 أكتوبر 0:-1-<https://www.myhaikuclass.com/do/share/eclass/1330-22?k=a-df1da-ac5bba1-cbb4dc9fc-04-a0cbf---22a>
- I send the link to register at Haiku
- 09:-1, أكتوبر 11 - تكنولوجيا التعليم: ادخل الموقع وشوف شغال
- Try it now
- 09:-1, أكتوبر 11 - ط مرزوق: حتم استبعاد الوسائط<
- M. capture immediately a picture of what he see now on his mobile screen to me
- 09:-1, أكتوبر 11 - ط مرزوق: مو شغال جذي يطلع
- It is not working... it show like this
- 22:-1, أكتوبر 11 - تكنولوجيا التعليم: مرزوق جرب الحين

- Me: Try it now ...[I ask for new password from Haiku and send it to the students]
- 1-23, أكتوبر 11 - ط مرزوق: للحين استاذ بدر نفسه
- M.: It is still the same
- ايه نعمم ماتغير شيء استاذ: 42245-5 551 1+9-24, أكتوبر 11 -
- S4: Nothing change
- 1-24, أكتوبر 11 - تكنولوجيا التعليم: الموقع القديم .. جرب مرة ثانية
- [https://www.myhaikuclass.com/Intro/intro/cms\\_page/view](https://www.myhaikuclass.com/Intro/intro/cms_page/view)
- Me: try now again
- New code الرمز القديم هو-1YR4-25, أكتوبر 11 - تكنولوجيا التعليم: 5
- اوكيه: 42245-5 551 1+9-25, أكتوبر 11 -
- S4: Ok
- 1-25, أكتوبر 11 - ط مرزوق: هذا شغال خلتي اجرى اسجل واقولك
- M.: Let me try
- 1-25, أكتوبر 11 - ط مرزوق: شغال هذا
- M.: This is working
- 1-32, أكتوبر 11 - ط مرزوق: استاذ هذا 100%
- This is 100%
- سجلت فيه وكل شيء اوكي
- M.: I register and everything is OK
- بس انه كله انجليزي ومالقيت صفحاتنا اللي فيها الدروس والمناقشه بتعيبت فيه لين القاها واكلمك
- M.: But, it all English
- بس شغال وتمام ارسله للقرابات انا سجلت فيه ودخلت
- دكتور بدر انا ما افتح معاي: ---- 9999-5 1+9-32, أكتوبر 11 -
- S2: Teacher it didn't work with also
- 1-32, أكتوبر 11 - ط مرزوق: دش عالرابط الثاني
- M.: use this link (scaffold each other)
- [https://www.myhaikuclass.com/Intro/intro/cms\\_page/view](https://www.myhaikuclass.com/Intro/intro/cms_page/view), 33-1, أكتوبر 11 - ط مرزوق:
- 1-33, أكتوبر 11 - ط مرزوق: هذا
- S2: - 11 أكتوبر 35-1 S2+9-5 9999 ----: اليوزر نيم احط اسمي
- صحت-YR والباسورد احط-5
- Here I put my user name and password
- صح: ---- 9999-5 1+9-35, أكتوبر 11 -
- Is it accurate?
- S2: - 11 أكتوبر 35-1+9-5 9999 55-3: 5yr4-

- دكتور لو تكرمتم طلعتي جذي انا ماسجلت من قبل: +9-5 551 42245, أكتوبر 11 -
- S4: Doctor, kindly, this ho its look .. I did not register before [ he use the App to capture what he see & then send he send it to me – affordances of smartphone]..
- 1-35, أكتوبر 11 - ط مرزوق: لا اضغط علي اللي تحتها الكلمه وسجل لك اذا مو مسجل
- M.: no, press the one that below .. the word .. and register . Again they scaffold each other and alleviate my responsibilities.
- 1-35, أكتوبر 11 - ط مرزوق: دقيقه شباب اصولكم وادزلكم الخطوات بالصور
- M.: one minute guys, I will take a picture and send you the steps in photos [ collaborative work] .. he continue to send a media
- 1-41, أكتوبر 11 - ط مرزوق: استاذ بدر في شغله حاليا قدامي اتعلق بتكنولوجيا بوريكم صورها
- M.: there is something related to the technology I want to show it to you..
- 1-41, أكتوبر 11 – ط مرزوق: شباب حاليا انا بستاريكس بالافنيوز
- M: guys, now I am in the cafe in the mall [ any place]..
- وحاطين شغله فيها شغل بالتكنولوجيا وهي
- M: they put issue related to technology which is
- سياره سباق الصغيره .. تقعد فيها وقدامك جهاز وشاشات كانك تسوقها صح ومجانا تجربونها
- M: A small car, .. you set and in front of you screens and as you actually driving it .. its free to try it .
- المسموحه استاذ ما قدرت اسجل لاني بالمزرعه والتغطيه ضعيفه فيه: +9-5 551 42245, أكتوبر 11 -
- S4: excuse me, I could not registered because I am in the farm and the signal is weak.. [ use the App for justification]
- اسمحو لي عدم حضوري المحاضرتين الي طافوا لاسباب خاصه: -515 52-21:3+9-5, أكتوبر 11 -
- S-: allow me, I could not come to the last lectures because of private circumstances..
- , أكتوبر 11 - ط مرزوق: هلا بو مشعل مسموح
- M: welcome .. its ok [respond to his colleagues]
- و حليت اجيب لكم معلومه بسيطه عن دور المعلم في تكنولوجيا التعليم: -515 52-21:3+9-5, أكتوبر 11 -
- S-: I liked to bring simple information about the role of the teacher in the education technology
- -515 52-21:3+9-5 ----, أكتوبر 11 - which is the e-learning
- -515 52-21:3+9-5 ----: http://genie-inezgane.ibda3.org/t20-topic
- • حبيب يا بو محمد و يعطيك الف عافيه ع التواصل المستمر للقروب: -515 52-21:39+9-5, أكتوبر 11 -
- S-: thank you .... , for Continuous communication for the group [ thank one of his colleagues]
- 21:41, أكتوبر 11 - ط مرزوق: الله يعافيك
- M.: Welcome.
- S-: after providing a long article from the internet about the useful of technology to the special need .. [copy and paste] .. he summarize it ... to sum up, Technology helped the teacher to modify the behavior of students with special needs..
- الاستاذ يقول المصدر حط فيصل: مرزوق ط - 13 أكتوبر ,
- Marzouk: Faisal ... present the source as teacher said

- حاضرين --52 515 5-9+ - 13 أكتوبر، 15:5-
- S-: OK
- 15:5-، 13 أكتوبر، 52-9-5-+ : http://kenanaonline.com/users/elfaramawy/posts/153-31
- S-: This is the source
- Me: 1-:22، 13 أكتوبر، 22:1- : الثانية مرة جرب .. الموقع دخول ارجو :التعليم تكنولوجيا - 13 أكتوبر، 22:1-  
.....https://www.myhaikuclass.com/Intro/intro/signup
- GR4RF I am giving instructions on how to use haiku الرمز ادخل ثم
- 1-:22، 13 أكتوبر، 9-9-5-+ :؟؟ الرمز احط وين --9 91-9-5-+ :
- S3: Where to put the code
- 1-:23، 13 أكتوبر، 23:1- : الفارغ المربع :التعليم تكنولوجيا - 13 أكتوبر، 23:1-
- Me: In the empty space
- 1-:24، 13 أكتوبر، 9-9-5-+ : ؟ صاير صوب أي ؟ مربع أي --9 91-9-5-+ - 13 أكتوبر، 24:1-
- S3: where
- 1-:31، 13 أكتوبر، 31:1- : <الوسائط استبعاد تم>:مرزوق ط - 13 أكتوبر، 31:1-
- M.: scaffold others and send image to show his colleagues how to register
- 1-:32، 13 أكتوبر، 32:1- : نيكست عند بالصوره اللي بالمربع شباب :مرزوق ط - 13 أكتوبر، 32:1-
- M.: beside the word next [he give instruction]
- 1-:35، 13 أكتوبر، 9-9-5-+ : جذي لي طلع ما أنا --9 91-9-5-+ - 13 أكتوبر، 35:1-
- S3: I did not get the same page [like Marzouk]
- 1-:35، 13 أكتوبر، 35:1- : شباب توب بالاب جربوا :مرزوق ط - 13 أكتوبر، 35:1-
- M.: Guys try laptop [guide his colleagues]
- M.: هالنوع وخذيت I bring few issues about our topic, about charts المخططات عن كان ام درسنا عن شغلنا كم جيت:
- 1-:09، 13 أكتوبر، 09:1- : باستخدام البيانات تمثيل لإعادة تستخدم التي (البينانية الأشكال أو) البينانية الرسوم من نوع هي (Charts) المخططات :مرزوق ط - 13 أكتوبر، 09:1-  
والدوائر والخطوط الأعمدة مثل الرسوم
- He difine it
- المخططات؟ استخدام فائدة هي ما
- تعتبر ذلك غير .القرار لمتخذي خاصة أفضل بصورة البيانات هذه فهم على تساعد بصورة العددية البيانات وتلخيص وتنظيم بتجميع المخططات تقوم  
الإحصائي التحليل علم في المستخدمة الهامة الأدوات من المخططات
- Present advantages of charts
- المخططات؟ أنواع هي ما
- للمخططات الرئيسية الأنواع من
- Identify types of charts
- بيانات سلسلة من أكثر مع التعامل المخطط لهذا يمكن ولا الأخرى، المتغيرات مجموع إلى نسبة متغير لكل واحدة قيمة لعرض يستخدم :الدائري المخطط  
المخططات أنواع أبسط من يعتبر ولذلك واحدة
- 1-:09، 13 أكتوبر، 09:1- : ومثال عالصوره :مرزوق ط - 13 أكتوبر، 09:1-
- 1-:10، 13 أكتوبر، 10:1- : <الوسائط استبعاد تم>:مرزوق ط - 13 أكتوبر، 10:1-

- مع التعامل المخطط لهذا ويمكن عناصر، عدة بين للمقارنة متغير لكل قيمة من أكثر لعرض يستخدم: العمودي المخطط. 2: مرزوق ط - - 1 أكتوبر، 10:1 - البيانات من سلاسل عدة
  - <الوسائط استبعاد تم>: مرزوق ط - - 1 أكتوبر، 10:1 -
  - عدة مع التعامل المخطط لها ويمكن متساوية، زمنية فترات عند المتغيرات إتجاهات لعرض يستخدم: الخطي المخطط. 3: مرزوق ط - - 1 أكتوبر، 10:1 - : مثال. البيانات من سلاسل
  - <الوسائط استبعاد تم>: مرزوق ط - - 1 أكتوبر، 11:1 -
  - المصدر هذا: مرزوق ط - - 1 أكتوبر، 12:1 -
  - وشكلها وانواعها المخططات عن شي كل
  - <http://kuwait10.net/2010/0-/04/charts/>
  - منها 3. لكم وذكرت واجد انواع في: مرزوق ط - - 1 أكتوبر، 13:1 -
  - See the rest on the link above الباقي شوفوا
  - تكنولوجيا بمقدمه امس خذيتوا شنو شباب: مرزوق ط - 23 أكتوبر، 14:29 -
  - عند درسنا عمرك طال: 42245 551 9-5 + - 23 أكتوبر، 14:30 -
  - المعدلات وجداول اشكال: 42245 551 9-5 + - 23 أكتوبر، 14:30 -
  - هو جدول وابسط اسهل الدكتور شرح حسب ع واظن: 42245 551 9-5 + - 23 أكتوبر، 14:30 -
  - ولالا محاضره في وياجر: مرزوق ط - 23 أكتوبر، 14:30 -
  - التدرجي اسمه كان: 42245 551 9-5 + - 23 أكتوبر، 14:30 -
  - لا: 42245 551 9-5 + - 23 أكتوبر، 14:30 -
  - تمام: مرزوق ط - 23 أكتوبر، 14:30 -
  - جميعا طاعتكم الله وتقبل مبارك وعيدكم.... يوفقكم الله: مرزوق ط - 23 أكتوبر، 14:31 -
  - عمرك طال و عليك علينا: 42245 551 9-5 + - 23 أكتوبر، 14:33 -
  - وحاضرين خاص تعالي فات الي الدرس اشرحلك تبيني لو مرزوق: 42245 551 9-5 + - 23 أكتوبر، 14:33 -
  - وحلو خفيف الدرس جد وترا: 42245 551 9-5 + - 23 أكتوبر، 14:33 -
  - ...يايدر ماتقصر ويدزلكم..... عنه ابحت الحين بدخل: مرزوق ط - 23 أكتوبر، 14:34 -
  - ونعاون نعين ولو حياك: 42245 551 9-5 + - 23 أكتوبر، 14:34 -
  - عن بحتت شباب: مرزوق ط - 24 أكتوبر، 03:41 -
- المعدلات وجداول اشكال  
وقريتها هالاشكال وشفقت  
حاضر مو لاني لا او خذيتوها اللي هي مدري
- <الوسائط استبعاد تم>: مرزوق ط - 24 أكتوبر، 03:41 -
  - كاتروف؟ خريطه هذي: مرزوق ط - 24 أكتوبر، 03:41 -
  - نسبة Karnaugh map بالإنجليزية فايتش كارنو مخطط أو كارنوف مخطط أو كارنوف جدول أو كارنوف خريطة: مرزوق ط - 24 أكتوبر، 03:42 -  
Maurice Karnaugh كارنوف موريس الأمريكي الرياضيات عالم لواضحه
  - الشفافيات عرض جهاز وهو اليوم خذيناها اللي الجهاز عن بالتفصيل صور جمعت شباب: مرزوق ط - - 04:1 -
  - (مرفق الملف) IMG-2012110--WA0000.jpg: مرزوق ط - - 05:1 -
  - M: guys, I collect images in details about the device that we talked about today .. which is Display device Transparencies .. [he connect the classroom topic to using App to complete it .. also send pictures of the device] .. [clearly using the App in his favor] ..
  - الاضاهه تحكم ادوات(مرفق الملف) IMG-2012110--WA0003.jpg: مرزوق ط - - 05:1 -

- الثاني الوجه وهذا:مرزوق ط - - نوفمبر 1-:0

<Internals\1st iterative transcriptions G2> - § 5 references coded [2.--% Coverage]

- S3: 21:40, 11 أكتوبر +9-5 9--4 1400: عليكم السلام AISalam Alikum
- S3: ما حين انالي until now I didn't register to the LMS-Haiku
- 21:42, 11 أكتوبر +9-5 50--390: يقول دكتور Doctor say
- Abd: 21:42, 11 أكتوبر +9-5 50--390: سهل الموقع .. سبيل العمل اجلوا عموما لكن .. القادم للاسبوع فيه العمل اجلوا عموما لكن .. سبيل الموقع: forget the LMS now and focus more on the communicate with other about the topics we study
- Abd: 21:43, 11 أكتوبر +9-5 50--390: its delayed ...brother

<Internals\1st iterative transcriptions G3> - § 3 references coded [-.1-% Coverage]

- G3: S1: our discussion is about learning and technology? What is learning? Who's not busy think and write.... I think technology influence negatively on the learner if it not used in right way..
- Mo: I think and see that everything have advantages and disadvantages .. but when the learner get someone who guide him it will positive .. ....
- Mo: And currently, it imposed that most education integrate with it technology means.... it mean that the child at home have iPod, or plays station and something like these stuffs .. and when he go to school ..see the board and pen .. there is contradiction ..

## 5. Socialising 45 examples (off-task communication):

### 5.1 Guidance and support from the teacher (27 examples):

- <Internals\1st iterative transcriptions G1> - § - references coded [-.33% Coverage]
- فيه والتسجيل زيارته ويجب جدا مهم وهو .. والتفاعل .. المقررة والانشطة .. الاهداف على للتعرف مهم الموقع: التعليم تكنولوجيا - 9 أكتوبر ,
- Me: this is URL of the LMS-Haiku: [https://www.myhaikuclass.com/Intro/intro/cms\\_page/view](https://www.myhaikuclass.com/Intro/intro/cms_page/view)
- Me: the Website is important to identify the targets .. And our planned activities .. And interact .. It is very important and must be visited and register in it..
- بالواتساب او .. طريقه عن المشاركة تكون .. المطلوب التالي والنشاط ... الفصل اهداف على التعرف وبعد: التعليم تكنولوجيا - 9 أكتوبر ,
- Me: After identifying the chapter targets... and the next activity required .. Participation will be through it .. or by the Apps .
- 1-:0, 9 أكتوبر: دكتور ماشي:مرزوق ط -
- Marzouk: Ok, Doctor.
- 1-:11, 9 أكتوبر: الموقع لهذا اذهب.. سهلة .. فيه التسجيل كيفية: التعليم تكنولوجيا -
- <https://www.myhaikuclass.com/Intro/intro/signup>
- me: how to register is.. easy ..go to
- العنوان تحت الموجود الرمز ضع ثم ..
- Insert the code
- التعليمات واتبع
- Follow the instructions
- الغائب يعلم الحاضر .. الدرجات رصد بدأنا... الفاعلة المشاركة الطلاب جميع من ارجو: التعليم تكنولوجيا - 9 أكتوبر 1-:19,
- I wish from everyone to effectively participate .. we start giving the grades .. tell the absence..
- هو الرمز -5YR4: التعليم تكنولوجيا - 9 أكتوبر 1-:3,

- The code is YR4-5
- وشارك discussion اختار بعدين connect روح ..ويعدين .. التسجيل خطوات اتبع :التعليم تكنولوجيا - 9 أكتوبر, 1:53
- Follow the register steps .. then.. go connect and choose discussion .. and share..
- 23:22, 9 أكتوبر, ط - 9 أكتوبر, 23:22
- Marzouk: guys, every time I attempt to register .. I faces a problem [ registration problem with the website haiku LMS]
- 23:3- 9 أكتوبر, 23:3-
- S4: even me.. it did not open ..
- 23:11, 10 أكتوبر, 23:11
- S4: ask for my permeation..
- الاساسيه الترييه طلاب من غدا اعتصام في
- S4: there will be a protest tomorrow in the Basic College.. [use it for spreading news]
- 1:-0- 11 أكتوبر, 1:-0- :التعليم تكنولوجيا - 11 أكتوبر, <https://www.myhaikuclass.com/do/share/eclass/1330-22?k=a-df1da-ac5bba1-cbb4dc9fc-04-a0cbf---22a>
- I send the link to register at Haiku
- 1:-09, 11 أكتوبر, 1:-09 :شغال وشوف الموقع ادخل :التعليم تكنولوجيا - 11 أكتوبر, 1:-09
- Try it now
- 1:-09, 11 أكتوبر, 1:-09 :<الوسائط استبعاد تم> :مرزوق ط - 11 أكتوبر, 1:-09
- M. capture immediately a picture of what he see now on his mobile screen to me
- 1:-09, 11 أكتوبر, 1:-09 :يطلع جذي شغال مو :مرزوق ط - 11 أكتوبر, 1:-09
- It is not working... it show like this
- 1:-22, 11 أكتوبر, 1:-22 :الحين جرب مرزوق :التعليم تكنولوجيا - 11 أكتوبر, 1:-22
- Try it now ...[I ask for new password from Haiku and send it to the students]
- 1:-23, 11 أكتوبر, 1:-23 :نفسه بدر استاذ للحين :مرزوق ط - 11 أكتوبر, 1:-23
- It is still the same
- 1:-24, 11 أكتوبر, 1:-24
- Nothing change
- 1:-24, 11 أكتوبر, 1:-24 :ثانية مرة جرب .. القديم الموقع :التعليم تكنولوجيا - 11 أكتوبر, 1:-24
- [https://www.myhaikuclass.com/Intro/intro/cms\\_page/view](https://www.myhaikuclass.com/Intro/intro/cms_page/view)
- try now again
- 1:-25, 11 أكتوبر, 1:-25 :هو القديم الرمز -5YR4 :التعليم تكنولوجيا - 11 أكتوبر, 1:-25
- I sent a New code
- 1:-25, 11 أكتوبر, 1:-25
- S4: Ok
- 1:-25, 11 أكتوبر, 1:-25 :واقولك اسجل اجر ب خلني شغال هذا :مرزوق ط - 11 أكتوبر, 1:-25

- M.: Let me try
- هذا شغال:مرزوق ط - 11 أكتوبر, 25:1
- M.: This is working
- 100% هذا استاذ:مرزوق ط - 11 أكتوبر, 32:1
- M.: This is 100%
- اوكي شي وكل فيه سجلت
- M.: I register and everything is OK
- عناصر "مثل ... تناولها تم التي المواضيع عن زملائك مع المشاركة على ركز ... الحين الموقع انسى عزيزي يا :التعليم تكنولوجيا - 11 أكتوبر, 44:21  
والمتعلم للمعلم وأهميتها وأنواعها المطبوعات " وأيضا "التدريس"
- Me: instructions from me and asking questions related to the latest topic ..
- Your device need a program to play the movie I send it earlier
- Thanks Marzouk, keep being active and you will have A [ I am trying to encourage him and others]
- نايم القروب :التعليم تكنولوجيا - 21 أكتوبر, 3:10
- The group is sleeping
- 21 أكتوبر, 41:10 -
- Can we bring topics we didn't discuss in the lecture
- 21 أكتوبر, 41:10 -
- Meaning, can I talk about the educational replicas
- عن تحدث .. الثاني الفصل في اننا بما يعني .. المنهج قراءة بعد تظهر والانشطة .. أنشطة عن عبارة الاسئلة :التعليم تكنولوجيا - 21 أكتوبر, 4:10  
مناقشتها تمت التي المواضيع
- Me: Just discuss what we already came through in the lecture
- 21 أكتوبر, 0:11 -
- S2: Forgive us for carelessness
- 21 أكتوبر, 0:11 -
- S2: But, in the name of god we will do better in the next days
- 14:31 there is a lectur today .. please bring the course book  
التعليم تكنولوجيا - 5 نوفمبر, 31:14
- 12.11.12 if the exam don't suit you on Monday we can delay it.  
القادم الاثنين تأجله .. يناسبكم ما دام :التعليم تكنولوجيا - - 52:1
- بدر ا. مرزوق ط - - نوفمبر, 12:19 Bader
- when is the exam متى الاختبار
- Manday or tomorrow??؟؟ الاثنين او باجر
- Me: Monday :التعليم تكنولوجيا - - نوفمبر, 12:19
- In God well شاءالله ان :مرزوق ط - - نوفمبر, 13:19
- All the above about the exam time and buying the printed material

<Internals\1st iterative transcriptions G2> - § - references coded [1-.1-% Coverage]



- Me: where is the role of technology in education?
- Me: Dear student, how do you prefer the learning content .. printed/paper or electronic?
- العديلية جمعية بمكتبة المذكرة من نسخة موجود: التعليم تكنولوجيا - 10 أكتوبر
- There is copy of the printed materials in the library

<Internals\1st iterative transcriptions G4> - § - references coded [10.--% Coverage]

- Me G4 : Good look gyus, ..... Kindly, after reading topics related to education and technology .. the effective sharing ... in the next days..... Where is the role of technology in education?
- Me: good ,, thanks
- Me: thank you [following up and must encourage them always]
- G4: S5: 20:43, أكتوبر - - +9-5 999- --30: http://www.khayma.com/education-technology/TCHH1.htm
- [sent links through the App as a resource]
- 21:1-, أكتوبر - -
- S5: Each area or academic knowledge base system depends upon practice and application and concludes this theoretical knowledge consisting of concepts, principles and assumptions of research or practice, which provide us with information as a result of the passage of the individual experience.
- Me: frankly, .... , dangerous words ... can you explain it .. please ... [questioning him.. I doubt that this deep words come from his mouth!!!]
- 21:3-, أكتوبر - -
- S5: it mean Bla.. Bla .. Bla ....[ try to clarify, but, still not clear]
- Me: the first paragraph not clear ... but the second one I agree with you partly ... however, do you have experience with distance learning? Because a lot of studies indicated to the significant of blending the traditional learning with the electronic learning...
- Me: [Again] for your information, distance learning succeeded in many countries ..except the Arabic countries!! Why? Try to recognize?
- <Internals\1st iterative transcriptions G5> - § 1 reference coded [0.-0% Coverage]
- Reference 1 - 0.-0% Coverage
- 14:13, أكتوبر - 10 أكتوبر - - +9-5 ---1 4419: مصكره المكتبه Library close [Challenges of flexible time of library].

## 5.2 Report Challenges (9 examples)

<Internals\1st iterative transcriptions G1> - § 4 references coded [0.32% Coverage]

- S4: even me.. it did not open ..LMS-Haiku [Challenges to use LMS]
- M.: capture immediately a picture of what he see now on his mobile screen to me
- S3: It is not working... it show like this [Challenges to use LMS]
- M.: But, it all English [Challenges poor of English]

<Internals\1st iterative transcriptions G3> - § 4 references coded [2.11% Coverage]

- G3-S- 15:10, أكتوبر - 10 أكتوبر - - +9-5 ---1 4419: مصكره المكتبه Library close [Challenges of flexible time of library]

- 11 أكتوبر, 1:49 -
- Mo: Doctor is there any other activity [?] [Challenges of constant support needed]
- الثاني الفصل روح: التعليم تكنولوجيا - 11 أكتوبر, 19:1-
- Me: Go to the second chapter (always need support)
- 11 أكتوبر, 19:1-
- Mo: Thanks .. and we will do our best
- Me: Forget the Haiku for now and focus on WhatsApp [Challenges to use LMS]
- 11:03, نوفمبر -- +9-5 --22 -52-: مشكله منقيه او كي [Challenges to words errors]
- 11:03, نوفمبر -- +9-5 --22 -52-: مافيه قصدي
- <Internals\\1st iterative transcriptions G4> - § 1 reference coded [1.-5% Coverage]
- 21 أكتوبر, 1:-2-
- S-: my service is empty [Internt subscribtion finished].. and I was in the chalet this weekend and shared last time on Wednesday .. if the service is available I really shared [ the problem of missing the connection – financially]

### 5.3 Report Absence (4 examples)

<Internals\\1st iterative transcriptions G1> - § 4 references coded [0.-2% Coverage]

- S4: excuse me, I could not registered because I am in the farm and the signal is weak.. [ use the App for justification]
- S-: allow me, I could not come to the last lectures because of private circumstances..
- M: welcome .. its ok [respond to his colleagues]
- S-: 20:29, أكتوبر 22 - +9-5 9005 0--0: إني لم ألتحق اليوم و ماداومت اليوم I didn't attend today
- S-: مريض I am sick
- 20:4- أكتوبر, 22 - مرزوق ط - شر ماتشوف: مرزوق ط I hope you will be better
- 20:50, أكتوبر 22 - +9-5 9005 0--0: راسي يابعد مايجيك الشر thanks

### 5.4 Discussing irrelevant issues (5 examples)

<Internals\\1st iterative transcriptions G1> - § 2 references coded [0.-0% Coverage]

- S4: there will be a protest tomorrow in the Basic College.. [use it for spreading news]
- S4: I heard about cameras that used to monitors servants in the absence of parents
- S4: You can monitor the house through your mobile device or iPhone Galxi
- S-: Bader we need technology that related to education and thanks [he guide his peer]
- Sorry I just misunderstood

- [<Internals\1st iterative transcriptions G3> - § 3 references coded \[2.-5% Coverage\]](#)
- Me: Notice that there are other learning methods not necessarily related to technology.. who know it?
- S5: Receive direct hearing
- G3: S-: touchable screen from Disney company which can distinguish between users [using links]
- 10:45, 10 أكتوبر, +9-5 9000 3421: #تقنية# تكنولوجيا: شاشات لمس شركة من لمس شاشات: تقنيّة# تكنولوجيا: 14:3-،  
<http://t.co/FPGdG3rP> (عبر @techarabi)

## Appendix B-2

### Themes representing the pedagogical affordances of the smartphone app- WhatsApp for CL in 2<sup>nd</sup> iteration:

The screenshot shows the NVivo software interface with a list of nodes. The 'Nodes' pane on the left shows a tree structure of nodes. The main window displays a table of nodes with columns for Name, Sources, References, Created On, Created By, Modified On, and Modified By. The table is filtered to show 17 items.

Name	Sources	References	Created On	Created By	Modified On	Modified By
Quality of communication	8	183	12/20/2015 12:18 PM	B	1/4/2016 7:24 PM	B
Name						
Sharing information that stimulates & motivates peers	4	36	12/20/2015 12:19 PM	B	1/3/2016 6:10 PM	B
Bidirectionality	5	39	12/20/2015 12:19 PM	B	1/4/2016 5:21 PM	B
Relevance to the study topics	8	108	12/20/2015 12:18 PM	B	1/4/2016 5:31 PM	B
Control of communication	9	41	12/20/2015 12:20 PM	B	1/4/2016 7:25 PM	B
Name						
Expanded range of places and an expanded range of times, e.g.	6	15	12/20/2015 12:20 PM	B	1/4/2016 5:35 PM	B
Sharing freely at their convenience	7	26	12/20/2015 12:20 PM	B	1/4/2016 5:50 PM	B
Social construction of knowledge with new media	9	170	12/20/2015 12:21 PM	B	1/4/2016 7:25 PM	B
Name						
Bringing in new information from new resources, e.g. the Internet	6	27	12/20/2015 12:21 PM	B	1/4/2016 5:35 PM	B
Students decide on their own what is relevant, useful and comp	9	143	12/20/2015 12:21 PM	B	1/4/2016 5:47 PM	B
Playing new roles	8	43	12/20/2015 12:22 PM	B	1/4/2016 5:29 PM	B
Name						
Supporting less knowledgeable students	7	19	12/20/2015 12:22 PM	B	1/4/2016 5:37 PM	B
Socialising	9	193	12/20/2015 12:22 PM	B	1/4/2016 7:26 PM	B
Name						
Guidance and support from the teacher	9	97	12/20/2015 12:23 PM	B	1/4/2016 5:51 PM	B
Report challenges	7	44	12/20/2015 12:23 PM	B	1/3/2016 7:34 PM	B
Reporting absence	5	14	12/20/2015 12:24 PM	B	1/4/2016 5:22 PM	B
Discussing irrelevant issues	9	38	12/20/2015 12:25 PM	B	1/4/2016 5:51 PM	B

#### 1. Quality of communication (183 examples): 1.1 Relevance to the topics they study (108 examples)

- [Internals\G 1](#) - § 3- references coded [15.-0% Coverage]
- Reference 1 - 0.2-% Coverage
- *S2: and you have the scanner that the teacher told us about .. this is important but all misunderstand it ..*
- Reference 2 - 0.2-% Coverage
- *S4: the scanner is caters your need better than many things*
- *S4: but people looked to it as an old fashion*

- Reference 3 - 0.1-% Coverage
- S2: *because little who know how to use it .. so they misunderstand it ..*
- Reference 4 - 0.-3% Coverage
- 1:-25, نوفمبر 19 -
- S5: *laptop and ipad you take them with you to any place [portable] ...*
- S5: *but the laptop is better and more use than ipad .. because its does not [maybe he was wrong by using NOT] .. have word or excel .. issues that you need in education ..*
- S5: *I say .. laptop better than ipad by stages ...*
- Reference 5 - 0.5-% Coverage
- S2: *your words is correct*
- S2: *the computer is electronic tool used to process the entered data*
- S2: *storage units is a unit used to store amounts of data and programs permanently for a long time .. what do you think is it true or not?*
- Reference - - 0.09% Coverage
- S5: *there is a temporary storage units*
- Reference - - 0.0-% Coverage
- S1: *Nasser you mean RAM*
- Reference - - 0.19% Coverage
- S3: *your words are correct*
- S3: *and there are a stored units in large quantities*
- Reference 9 - 0.55% Coverage
- S2: *As we have said the computer and data storage functions as mentioned and this had to be the existence of a unit to measure the amount of data used for this unity of purpose*
- 1:-43, نوفمبر 19 -
- *[Discussion about one of the topics]*
- Reference 10 - 0.23% Coverage
- 1:-44, نوفمبر 19 -
- S5: *where is the rest of the guys .. why they don't share [blame or encourage?]*
- Reference 11 - 0.11% Coverage
- S2: *RAM .. when increased .. it be better ..*
- Reference 12 - 0.0-% Coverage
- S1: *they might be busy ..*
- Reference 13 - 0.23% Coverage
- S5: *I did not attend the lecture and sharing more than you ..hhhh [clue of the useful of the Apps]*
- Reference 14 - 0.1-% Coverage

- S2: *don't forget the bit that teacher told us about*
- S2: *Binary numbers*
- Reference 15 - 0.10% Coverage
- S1: *Nasser, we are with you hhhhhh [laugh]*
- Reference 1 - 0.22% Coverage
- S2: *every bit is a one of a binary number box which has only two possibilities either 0 or 1*
- Reference 1 - 0.02% Coverage
- S1: true
- Reference 1 - 0.09% Coverage
- S1: and it start from - and duplicate
- Reference 19 - 0.2-% Coverage
- S3: The characters are a group of binary numbers like this 010010 but the places of zeros and ones are changeable
- Reference 20 - 0.11% Coverage
- S1: each character in keyboard takes No. 0 or 1
- Reference 21 - 2.55% Coverage
  - الفارة و الكيبورد منها الادخال اجهزة شباب و :355- 9909 9-5+ - 19 نوفمبر, 49-:1
    - منطقته بالدوائر تاخذونها بعدين :5-255- 50-5+ - 19 نوفمبر, 49-:1
    - اكو شنو يقولنا منو بعد و :355- 9909 9-5+ - 19 نوفمبر, 49-:1
    - الكمبيوتر لغة تعتبر الثنائية الارقام بس :4-91- 5-9+ - 19 نوفمبر, 49-:1
      - ادخال جهاز الضوئي القلم في :355- 9909 9-5+ - 19 نوفمبر, 50-:1
        - العكشان لسائك صح :355- 9909 9-5+ - 19 نوفمبر, 50-:1
          - نعم :5-255- 50-5+ - 19 نوفمبر, 50-:1
          - بدلك صح :4-91- 5-9+ - 19 نوفمبر, 50-:1
        - الثنائية اللغة بالكمبيوتر وحدة لغة اهي :355- 9909 9-5+ - 19 نوفمبر, 50-:1
      - !!! للجهاز ويدخلها الاحرف يقرأ قلم عن عبارته : الضوئي القلم :99-34554 5-9+ - 19 نوفمبر, 51-:1
        - العشرية الارقام بعد جماعة يا :4-91- 5-9+ - 19 نوفمبر, 52-:1
        - للرسم استخدامه يمكن :5-255- 50-5+ - 19 نوفمبر, 52-:1
        - سعد لسائك صح للفنانين الرسم نعم :355- 9909 9-5+ - 19 نوفمبر, 52-:1
    - الكمبيوتر لغات من تعتبر الاسم من متأكد مو بس عشرية السادس اسمها اظن والارقام :4-91- 5-9+ - 19 نوفمبر, 53-:1
      - للاستفاده معلومه بس بالموضوع معانا مو ادري :4-91- 5-9+ - 19 نوفمبر, 53-:1
- Reference 22 - 0.2-% Coverage
- S5: *guys, this is the group question next topic (21/11) talk about the different displays and writing programs*
- Reference 23 - 0.12% Coverage
- S4: most important the writing which we need more
- Reference 24 - 0.12% Coverage
- S5: Powerpoint is a writing and display program

- Reference 25 - 0.25% Coverage
- S5: no, it difficult you write an essay in Powerpoint because Word give you more space and page to write
- Reference 2- - 0.22% Coverage
- S2: writing programs is better for teacher and learner because it [allow] design and layout
- Reference 2- - 0.1-% Coverage
- S5: true, but you can write a paragraph in every page [PowerPoint] and become
- Reference 2- - 0.03% Coverage
- S5: an essay
- Reference 29 - 0.2-% Coverage
- S2: *PowerPoint easier to navigate and browse...and we can add audio or video and movement for the words and letters*
- Reference 30 - 0.09% Coverage
- S2: PowerPoint is for display program
- Reference 31 - 0.39% Coverage
- S5: PowerPoint is one of the best programs in which it offer features that help the teacher to facilitate the explanation and clarification of the topic [she/he] teach
- Reference 32 - 0.5% Coverage
  - 20:49, 21 نوفمبر +9-5 554 34599: بوينت البور هو العرض برامج أصلن: الثانيه لما شريحه من الحركيه المؤثرات إمكانية وفيه صحيح
  - 20:50, 21 نوفمبر +9-5 554 34599: البور بوينت هو استخداما والاكثر المعروف بس ثانيه عروض برامج في لا 91-4 ---- +9-5 21 نوفمبر
  - 20:53, 21 نوفمبر +9-5 554 34599: كثيره مميزات فيه لأنه بوينت البور شيء أحسن صحيح أي
- Reference 33 - 1.--% Coverage
  - S2: *lets talk about the writing programs*
  - 20:54, 21 نوفمبر -
  - S5: *correct ..*
  - 20:54, 21 نوفمبر -
  - S2: *develop the capability of the teacher and student*
  - 20:55, 21 نوفمبر -
  - S5: *writing program like the display program ..are many , but word program is the only known .. and most uses*
  - 20:5-, 21 نوفمبر -
  - S2: *and also even the writing program increase confidence for the teacher and the student ..*
  - 20:5-, 21 نوفمبر -
  - S5: *true*
  - 20:59, 21 نوفمبر -
  - S2: *because in the writing programs they see .....*
  - 21:00, 21 نوفمبر -
  - 21:00, 21 نوفمبر -
  - S4: *without the Word ... I swear we will not buy the laptop .. because seriously it have things .. impossible to find it in mobile or ipad [disadvantages of mobile]*
  - 
  - Reference 34 - 1.2-% Coverage
  - 
  - S1: 21:59, 21 نوفمبر +9-5 50- 255-5 ميفر موفي *Movie maker*





*adjusts and coordinates the writing can easily improve your writing and make educated artist and creator even in the area of printing and speed*

- Reference 1 - 3.3-% Coverage
- S5: *Writing programs describe as tools for the development of the story and [...] also available to coordinate and organize writer notes or ideas into a single document... Software package that includes tips to guide the creation of interesting sites and figures to make the unique work of its kind*
- 1-:55, 2 ديسمبر, التعليم تكنولوجيا - كيف: التعاوني؟ التعلم الى يؤدي الذي الاجتماعي؟ التفاعل الذكي الهاتف يزيد كيف: التعاوني؟  
Me: How smartphone increase social interaction? In which it lead to collaborative learning?
- Reference 1 - 1.1-% Coverage
- S1: through the new technological programs .. and on development all technical exist inside it... and how the individual use this mobile .. for example, programs [apps] WhatsApp and Twitter .. its called the communication program between society people ..
- Reference 19 - 2.54% Coverage
- S2: smartphone increase .. the social interaction through engage and participate with interactive groups their goal and objective is collaborative learning .. the Collaborative Learning ... educate , and increase and evolve the learner knowledge .. Also lead to exchange knowledge between groups .. and knowing the differences .. and reach to classy and creditably learning ....
- Reference 20 - 1.59% Coverage
- S3: smartphone increased the development of social interactive through engage in group WhatsApp between people in which their goal is collaborative learning ... and learner know its development [??] .. also Twitter and other programs ..
- Reference 21 - 1.2-% Coverage
- S4: smartphone add more of communication methods ... you don't find it in non smartphone .. there is the social network. And there is messages service .. and there is camera and video ..
- Reference 22 - 2.--% Coverage
- S5: smartphone is what came up lately through the technology development ... in which contributed in many achievement in the project and topic of collaborative learning .. through put programs contribute participate number of individuals ... which many teachers in this era use it .. as it easy to communicate .. and how fast the information understood .. and this the technological learning which we learn by now ..
- Reference 23 - 1.4-% Coverage
- S-: increase it through collective participation .. and groups .. and evolved programs that it contained .. and help because all share .. near and far .. and exchange with each other info .. and this is what we do now..
- Reference 24 - 1.01% Coverage
- Me: Do you think that WhatsApp enhance the way you learn? If (no) ..Why .. or if (yes) how do you explain the low grades for you or your colleagues?
- Reference 25 - 1.-2% Coverage
- S-: yes, WhatsApp enhance the way of learning .. and the justification for low grades .. God know [he think] .. not study and no good remember/memorize .. and not counting on their self in WhatsApp sharing ... and thinking .. and gaining info from others and Google ..

- Reference 2 - - 3.-3% Coverage
- S1: Yes, WhatsApp enhance the way od learning .. but the reason of decrease the exams results is ..frankly, .. not caring and focusing .. and not check .. and there is some disadvantages for the WhatsApp : which is answering only the question .. and it wasn't participating for instance, by us without asked a question we share it .. and always be from time to another time the question asked .. now we trying as possible to redress all of this in the final exam ..[he don't prefer to been ask .. and prefer to ask and answer .. flow conversation] ..
- Reference 2 - - 3.22% Coverage
- S4: yes, WhatsApp increase .. the social interaction through engage and participate with interactive groups... their goal and objective is collaborative learning .. the Collaborative Learning ... educate , and increase and evolve the learner knowledge ..[I think h copy one of his colleagues words] ... for the decrease of exams level for students .. I think not concentrating in the lecture .. and cautious . and using some program that don't answer correctly to some questions ..
- <Internals\G3> - § - references coded [32.43% Coverage]
- Reference 1 - 15.49% Coverage
- S3: 19:51, 20 نوفمبر +9-5 50- --390: الكمبيوتر تعريف: The computer Definition? Computer is an electronic machine ... .. used to address input data of the device, ... .. by the CPU to obtain useful information, and this is done by programs be known for the computer.

بواسطة ذلك ويتم مفيدة، معلومات على للحصول المركزية المعالجة وحدة بواسطة .....للجهاز، المدخلة البيانات لمعالجة تستخدم..... إلكترونية آلة هو الكمبيوتر للكمبيوتر معروفة تكون برامج

عناصر عده من يتكون لعناصر بالنسبه

المعالجة وحدة

الذاكرة

الدائمه الذاكرة

ادخال اجهزة-٤

اخراج اجهزة-٥

وغيره

النويعم عادل عبدالله

- S1: 20:05, 20 نوفمبر +9-5 999- --30: الإدخال اجهزة : Input Devices

مفاتيح لوحة

الفارة

الاستخدام قليل وهوة الضوي القلم

التحكم عصا

اللمس شاشة

الضوي الماسح

- S3: 20:0- , 20 نوفمبر +9-5 50- --390: الكلامك على اضيف واود I would like to add upon your words

الميكروفون-١



- الكمبيوتر وعناصر اجزاء توضح صورته هذه
- S4: 3-30: They will fill in ssd be faster in August. Wade because he cut inside Bs Mavi move expenses
- S3: 23:49, November 20 - +9-5,50- -- 390: Thanked for your suggestion
- S5: 23:5-, November 20 - +9-5 ---2 2309: as the picture sings a thousand words

This photo showing parts and elements of computer

<http://i10.servimg.com/u/f110/13/50/-9/4-/comput10.jpg>

Reference 2 - 0.59% Coverage

- 20:15, نوفمبر 21 - 21 نوفمبر 2015: التعليم تكنولوجيا -

Reference 3 - -.51% Coverage

- S2: 23:03, نوفمبر 22 - +9-5 ---1 0234: البوربوينت هو ما
- البوربوينت هو ما: 0234-1-+9-5-22 نوفمبر 23:03 S2
- البوربوينت؟ فأنده ماهي: 0234-1-+9-5-22 نوفمبر 23:0- S2

للعروض يستخدم-1

العروض على مختلفة تأثيرات إدخال يمكن جميل بشكل يعرض-2

- نختاره تنسق حسب الفيديو والصور والاصوات النصوص عرض من يمكننا برنامج-3

- حزمة ضمن الموفرة البرامج أحد هو (Microsoft PowerPoint: بالإنجليزية) باوربوينت مايكروسوفت: 0234-1-+9-5-22 نوفمبر 23:09
- كتابات عليها افتراضية شرائح على تحتوي إلكترونية ملفات لإنتاج الأدوات من مجموعة البرنامج يوفر حيث التقديمية، للعروض مخصص وهو أوفيس كثير وهو (المجتمعين) الأشخاص من مجموعة حضور في (المقدم) شخص قبل من بحاسوب مرتبط (بروجيكتور) سينمائي عرض جهاز على تستخدم وصور اللوحات في أيضا متحركة،ويستخدم والغير المتحركة العروض في يستخدم. اللازمة المعدات بها تتوفر التي التعليمية والمراكز الشركات في الاستخدام ويمكن الروابط، أو المقاطع إدراج أيضا والثابتة،ويمكن المتحركة الصور إدراج أيضا الشرائح،ويمكن من نهائي لا عدد خلاله مكن ويمكن. المتتالية المتغيرة التشعبي الروابط استخدام أيضا خلاله من
- 15:25, نوفمبر 25 - +9-5 999- --30: يتوة الكثر الكلام لان شوي اختصر بس وافقك انا الرحمن عبد
- 15:2- نوفمبر 25 - +9-5 999- --30: المعلومة وتوصيل الشرح عمليه يسهل و موجود مانحتاجه وجميع للعرض سهل و الاستخدام سهل والبوربوينت: 30- --999-5-9-+ 25 نوفمبر 15:2-
- 0-:3- نوفمبر 2- - +9-5 9-32 3-30: استخدامه على امثله و (صور و رموز حروف ارقام) بيانات اندخل خلاله من نصوص معالج هو الورد برنامج: 30-32-9-5-+ -2- نوفمبر 0-:3-
- والبحوث التقارير هي

Reference 4 - 0.0-% Coverage

- البصري سعود

Reference 5 - 0.53% Coverage

- 15:30, نوفمبر 2- - 2 نوفمبر 15:30: والرسوم الصوت برامج عن تحدث (2-/11) التالي الموضوع: التعليم تكنولوجيا -
- I: 15:30, November 2- - Education Technology: Next topic (2-/11) talked about the sound programs and fees

Reference - - 1.0-% Coverage

- ...والخ والكراسات الالوان من بدلا ويستخدم الاستخدام وسهل ترسمة الذي على الكتابه عليه ويظيف: 30- --999-5-9-+ -2- نوفمبر 01:11,
- عيب هذا وعندي الايد نفس ناعم مو الماوس لآكن الكمبيوتر على ايعلمونك لمن تستخدم برنامج اول تقريبا و: 30-32-9-5-+ -2- نوفمبر 01:15,
- البرنامج

Reference - - 5.4-% Coverage

- S1: 01:1-، نوفمبر 2- - +9-5 999- --30: بهالراي وافقك كلامك صح
- S3: 01:19, نوفمبر 2- - +9-5 50- --390: وافقك
- S3: 01:19, نوفمبر 2- - +9-5 50- --390: خير يجزاك الله
- S5: 01:19, نوفمبر 2- - +9-5 ---1 0234: أدوات من واضح فيه شيء كل لأنه،فيه يرسم يبي إذا الابتدائي طالب على أسهل يكون الرسام وبرنامج
- 01:2-، نوفمبر 2- - +9-5 50- --390: ..... التكنولوجي بالتعلم ويقده. الماديه الناحيه من الطليه يقيد الصوت برنامج: 390-50-9-5-+ -2- نوفمبر 01:2-
- ..... التكنولوجي ويحب المتوسطه بالمرحله الذي الطالب يقيد يعلم والرسم
- S3: 01:2-، نوفمبر 2- - +9-5 50- --390: وشكرا
- S5: 10:49, نوفمبر 2- - +9-5 ---2 2309: برنامج، وسهولة بدائية واكثرهم الصوت برامج اشهر من





- I: talk about the mathematic schedules program and different video program ..
- S2: 20:19, نوفمبر 21 - +9-5 515 52--: مره كل في شي تكلف م و مريجه و الاستهدام سهل الجدوليه برامج
- S1: 20:51, نوفمبر 21 - +9-5 551 42245: . حسابية عمليات تتضمن التي الأعمال -1 " " الحسابية الجداول برنامج استخدام .
- S5: 21:31, نوفمبر 21 - +9-5 9995 ----: سهله بطريقه التعلم عملية تسهل الحسابيه الجداول برامج :-
- S5: 21:32, نوفمبر 21 - +9-5 9995 ----: والثانويه والمتوسطه الابتدائيه مراحل عن تختلف :-
- S3: 22:23, نوفمبر 21 - +9-5 9-11 213 :-: مخي داخل مو للحين بس الموضوع عن بحثت و قريب :-
- S4: 11:15, نوفمبر 22 - +9-5 ---- 2-13: عليكم السلام
- S4: 11:1:1, نوفمبر 22 - +9-5 ---- 2-13: لفيديو مقاطع انشاء او الافلام لانتاج استديو عن عباره هي ألفيديو منتجه برامج
- S4: 11:1:1, نوفمبر 22 - +9-5 ---- 2-13: .. واحد مقطع ب مقطع من اكثر ودمج الصور اضافه الفيديو منتجه برامج خلال من ويمكنك
- S4: 11:1:1, نوفمبر 22 - +9-5 ---- 2-13: .. الفيديو علي ملاحظات واضافه .. المؤثررات واضافات
- S4: 11:19, نوفمبر 22 - +9-5 ---- 2-13: للفيديو المنتجه البرامج بواسطه . دي .سي علي الفلم نسخ ويمكن
- S4: 11:20, نوفمبر 22 - +9-5 ---- 2-13: SONY شركه من .. واملتها
- Reference 5 - 0.-9% Coverage
- 15:2, نوفمبر 2 - 20:2, نوفمبر 2: المختلفة والكتابة العروض برامج عن تحدث (2-/11) التالي الموضوع القروب سؤال هذا شباب :التعليم تكنولوجيا -2
- I: talk about the show and writing programs ..
- Reference - - 1.24% Coverage
- S1: 12:54, نوفمبر 2 - 20:2, نوفمبر 2: 551 42245 +9-5: كتابه ، لون بأي الرموز إضافة من يمكنك. المختلفة والقوالب ، الرموز من كبيرة مجموعة على يحتوي
- S1: 12:54, نوفمبر 2 - 20:2, نوفمبر 2: 551 42245 +9-5: والمستندات والاكسل العروض برنامج على يحتوي فهو ، الأوفيس برامج من كاملة حزمة ... .المختلفة بالوانها المعادلات
- <Internals\G> - § 12 references coded [30.1-% Coverage]
- Reference 1 - 1.-3% Coverage
- 20:3, أكتوبر - -
- . للطالب العلمي ماده توجيه في المعلم يساعد الذي المرشد دور التكنولوجيا تلعب-1
- بيرامجه يرشدهم مساعد اليكتروني معلم أو كمرشد واتخاذ التعليم مجال في لاستخدامه الطلبة انظار محط يكون كالكبيوتر حديثه تعليمية وسيلة ان-2
- . المختلفه طائفه و المتنوعه
- S1: technology play the guidance role ..in which help the teacher to orient the scientific topic toward the student
- ...
- كثيره امور الطلبة ع يسهل الايباد ان بنظري انا: 20:3, أكتوبر - - 9944 1230 +9-5
- S1: in my view .. the ipad facilitate for the student many things ...
- Reference 2 - 0.-9% Coverage
- عناصر " مثل ... تناولها تم التي المواضيع عن زملائك مع المشاركة على ركز ... الحين الموقع انسى عزيزي يا :التعليم تكنولوجيا - 11 أكتوبر 21:44
- "والمتعلم للمعلم وأهميتها وأنواعها المطبوعات " وأيضا "التدريس
- Reference 3 - 2.--% Coverage
- S5: 01:0, أكتوبر 12 - 9-5 9-53 -4--: والمكتوبه اللفظيه المعلومات مع بالمقارنه و واضحه وتجعلها المعلومة تبسط وسيله هي المطبوعه المرئيات :-
- التعليم من المختلفه والمستويات المواد من لكثير مناسبه التكلفه رخيصة الاستعمال سهله وهي وابطس اوضح فيه

Visuals are printed and simplify the way the information and make it clear Compared with verbal and written information it clearer and simpler and is easy to use cheap cost suitable for many materials and different levels of education

- kinds
- 1-still images
- are photographic images reflect the reality of what we see, a holographic exposure of only two dimensions and can display more than stereo image to include all its aspects
- 2-fees
- is the total salary of the lines and the problem in a way to reflect what in the environment around us has three effects: -
- 1-conducive to learning

- 2-not conducive to learning is not hindered
- 3-hinder learning
- For species including fees
- 1-traditional fees
- A detailed embodiment of full and true for any item or anthropomorphic
- 2-diagrams
- simplified fee is used when time constraints
- 3-illustrations
- aims to show the links or relationships between concepts or things, certain R to display the action steps required to accomplish

انواعها

الثابتة الصور-1

نواحيه جميع لئنشمل صورته من باكثر المجسم عرض ويمكن فقط بعدين من المجسم تعرض وهي نراه ما حقيقة تعكس فوتغرافيه صور هي

الرسوم-2

-: اثار ثلاث لها البينه في حولنا ما تجسيد بطريقة ومشكله مرتبه الخطوط من مجموعه هي

التعلم على تساعد-1

تعيقه ولا التعلم على تساعد لا-2

التعلم تعيق-3

منها النواع وللرسوم

التقليديه الرسوم-1

مجسم او عنصر لأي وحقيقي كامل مفصل تجسيد

التخطيطيه الرسوم-2

الوقت ضيق عند تستخدم مبسطه رسوم هي

التوضيحيه الرسوم-3

انجاز المطلوب العمل خطوات لعرض ار معنيه امور او مفاهيم بين الارتباطات او العلاقات عرض الى تهدف

- Reference 4 - 1.-4% Coverage
- المقرر كتاب من ملخص :-4- 9-53 9-5 +9-5 - 12 أكتوبر, 01:09
- وضوح الدرس تزيد اللي الصور اهايا التعلم على تساعد اللي الصور: 1-321-1 554 9-5 +9-5 - 12 أكتوبر, 14:44
- فاهمين لانه يعني تفرق ما شغناها ما ولا شغناها اللي الصور اهايا تعيقه ولا التعلم على تساعد لا اللي الصور: 1-321-1 554 9-5 +9-5 - 12 أكتوبر, 14:44 المقصود شئو
- ورطه في وادخلك بالموضوع دخل مالها اللي الصور اهايا التعلم تعيق اللي الصور: 1-321-1 554 9-5 +9-5 - 12 أكتوبر, 14:44
- لتدقيق تحتاج لا سريعه خطط مثل الوقت لضيق الرياضه في غالبا تستخدم التخطيطيه الرسوم: 1-321-1 554 9-5 +9-5 - 12 أكتوبر, 14:4
- S5: 01:09, October 12 - +9-5 9-53 -4--: Summary of a book scheduled
- S2: 14:44, October 12 - 32 1-1 +9-5,554: Photos Elly conducive to learning Lahiya images Elly increase clarity lesson
- S2: 14:44, October 12 - 32 1-1 +9-5,554: Photos who are not conducive to learning not hindered Lahiya images Venaha who or what Venaha means to differentiate what he meant without understanding Henw
- S2: 14:44, October 12 - 32 1-1 +9-5,554: Photos who impede the learning Lahiya images who entered her money and grant you admittance to the subject in trouble

- S2: 14:4-, October 12 - 32 1-1 +9-5,554: diagrams are often used in the sport for lack of time, such as a quick plans do not need to audit
- Reference 5 - 5.45% Coverage

- S4: send a link ... 19:2-, 20 أكتوبر +9-5 999 --30: <http://ejabat.google.com/ejabat/b-thread?tid=1fc35c9f34d-40a9>

- 12:10: مافي ولا لسبوع هذا دوام في دكتور عليكم السلام: 09-00-94 --9-5 + 22 أكتوبر
- 15:0: دوام اليوم: التعليم تكنولوجيا - 22 أكتوبر
- 15:13: الاربعاء ويوم دكتور انزين: 09-00-94 --9-5 + 22 أكتوبر
- 20:30: والزقاير عندك بوكي محمودو: 1-321-1 554 9-5 + 22 أكتوبر
- 20:30: 😊: 1-321-1 554 9-5 + 22 أكتوبر
- 20:33: السموحة: 1-321-1 554 9-5 + 22 أكتوبر
- 20:33: بالغلط: 1-321-1 554 9-5 + 22 أكتوبر
- >الوسائط استبعاد تم<: 1-24: 25 أكتوبر 9944 1230 9-5 +
- 21:1: مبارك عيدكم و .. والفايزين العائدين من عسك و بخير وانتم عام كل: 25 أكتوبر 9944 1230 9-5 +
- \*\* عسك و: 25 أكتوبر 9944 1230 9-5 +
- 09:14: جميعا بخير وانتم عام وكل .. مبارك عيدكم: التعليم تكنولوجيا - 2 أكتوبر
- 10:0: سعيدة ايامك: 30-999 9-5 + 2 أكتوبر
- 10:21: وسلامه بصحه وانت سعيدة ايامك: 1-321-1 554 9-5 + 2 أكتوبر
- 12:30: سعيدة ايامك: 2299-9-5 + 2 أكتوبر
- 1-14: اجازة بكرة: التعليم تكنولوجيا - 30 أكتوبر
- 03:49: ماتقصر العاقبه يعطيك: 31 أكتوبر 9944 1230 9-5 +
- 14:32: العديلية مكتبة من المذكرة شراء او احضار وارجو .. دوام اليوم: التعليم تكنولوجيا - 5 نوفمبر
- 14:34: انشالله: 2299-9-5 + 5 نوفمبر
- 1-22: امتحان بكرة: التعليم تكنولوجيا - 5 نوفمبر
- الجاي سبوع قلت مو دكتور: 2299-9-5 + 5 نوفمبر
- 1-2: ؟ الحين ندرسله يمدينا ما: 2299-9-5 + 5 نوفمبر
- 1-51: 12.11.12 القادم الاثنين نأجله .. يناسبكم ما دام: التعليم تكنولوجيا - 5 نوفمبر
- 1-52: تقصر ما العاقبه يعطيك: 2299-9-5 + 5 نوفمبر
- 1-53: ماتقصر الله قواك: 30-999 9-5 + 5 نوفمبر

- Reference - - 0.9% Coverage

- 19:30, - -
- الاضاءه قوي مصباح-1.
- وعكسة المصباح من اليها القادم الضوء تجمع مباشرة المصباح خلف تقع مقعرة مرآة-2.
- الشفافة الشريحة على للضوء ومركزه للضوء مجموع عدسات-3.
- المصباح من المنبعثة الحرارة لشدة نظرا للتبريد مروحة-4 .

- Reference - - 0.43% Coverage

- S1: 19:30, - - نوفمبر +9-5 9944 1230: IMG-2012110--WA0000.jpg [مرفق الملف] used the App to offer a photo about a device ]

- Reference - - 3.5% Coverage

- S1: 19:55, نوفمبر +9-5 9944 1230: الغطاء 2-. للضوء ومركزة مجمعة عدسة وهي مخترعها إلى نسبة فريزل عدسة 1-: الأوسط الجزء 3-. الكتابة في تستخدم التي الشفافية لحمل المعد الشفاف الورق فوقه يمر والذي عليه المعدة الشفافيات لوضع الشفاف اللوح 3-. الكتاب في تستخدم التي الشفافية لحمل المعد مائل وضع على وهي العاكسة المرآة 2-. الصورة تكبير بمهمة تقوم التي التكتيف عدسة 1-: العلوي الجزء 3-. 19:5-: للجهاز الكهربائي التيار قوة على أولاً نتعرف أن يجب 1-: ( الأوفرهيد ) الرأسى العرض جهاز تشغيل طريقة. العرض شاشة على الصورة بعكس تقوم والتي تعمل الاجهزة بعض وهناك ، التلف من الجهاز سلامة الله بإذن نضمن وبهذا ( فولت 220 - فولت 110 ) يناسبه الذي بالتيار الجهاز بإيصال نقوم ثم ، يصبح وعندها ، بالإضاءة الخاص المفتاح على نضغط ثم بالمروحة الخاص المفتاح على بالضغظ نقوم 2-. عليها الداخلى التيار حسب نفسها وتكيف أوتوماتيكياً مستخدمين خاصة قاعدة بواسطة بالجهاز المتصل الشفاف الورق على بالكتابة ونقوم الجهاز يسار على نقف بالكتابة نبدأ عندما 3-. للاستعمال جاهز الجهاز . الجاهزة الشرائح عرض ويمكن ، اليسار أو اليمين إلى خاص محرك بواسطة الشفاف الورق سحب يمكن 4-. ( فلوماستر ) خاصة أقلاماً ذلك في

- Reference 9 - 5.15% Coverage

- S5: العاقبه يعطيك: 4--9-53 9-5 +
- S5: 19:1-, 9 نوفمبر +9-5 9-53 4--9-5 +

- S5: 03:42, 11 نوفمبر, +9-5 9-53 -4--: transparencies by content rating to
- • 1-written transparencies
- • 2-transparencies decree
- • 3-transparencies and written decree

مكتوبه شفافية-1

مرسومه شفافية-2

مرسومه و مكتوبه شفافية-3

- S5: 01:13, 1 نوفمبر, +9-5 9-53 -4--: The main parts of the slide projector
- • 1-tray slides
- • 2-zoom lens
- • 3-length adjustment tools
- • 4-buttons directing the course of slides
- • 5-button choice
- • --legged lifting

الشرائح صينية-1

تقريب عدسة-2

البؤري التعديل أدوات-3

الشرائح سير توجيه ازرار-4

الاختيار زر-5

الرفع ارجل-6

- S5: 01:2, 1 نوفمبر, +9-5 9-53 -4--: <الوسائط استبعاد تم>
- S5: 13:4, 1 نوفمبر, +9-5 9-53 -4--: Cons slide projector
- • 1-must be completely dark room - was cursing Vaudha room
- • 2-slides elevated production costs
- • 3-for there must be a display screen in the room
- • 4-place machine can not control the teacher of students
- • 5-must rearrange slides
- • --slide damage during the show

للغرفة فوضا بسبب وقد-تماماً مضلمه الغرفة تكون ان يجب-1

مرتفعه الشرائح انتاج تكاليف-2

الغرفة في عرض شائسه وجود من لابد-3

التلاميذ مراقبة من المعلم يمكن لا الجهاز مكان-4

الشرائح ترتيب اعاده يجب-5

العرض اثناء الشرائح تلف-6

- S-: 14:52, 19 نوفمبر, +9-5 --94 0-09: • Book projector display device:
- • is a device dedicated to display the images of dark devices via mirror reflex which is easy to use and result in many services, including enlarge



- Reference 2 - 4.-3% Coverage
- S2: 20:39, نوفمبر 20 - +9-5 ---1 4419: جميعا بالخير الله مساكم.
- S2: 20:39, نوفمبر 20 - +9-5 ---1 4419: دكتور ومتعدده كثيره الكمبيوتر عناصر
- S2: 20:40, نوفمبر 20 - +9-5 ---1 4419: والقدرة الحجم حيث من اخر الى جهاز من وتختلف
- S2: 20:41, نوفمبر 20 - +9-5 ---1 4419: كبيره وحملته قدرته الجهاز لان ومتعدده كثيره برامج عليها انزل ان تتحمل اجهزة في يعني \*
- كثيره برامج ماتتحمّل لانها لا اجهزة وفي
- S3: 14:3- نوفمبر 21 - +9-5 55- -4225: الادلخال اجهزه :
- G:- S2: Good evening all.... The computer elements are many and various Doctor...vary from one device to another in terms of size and ability... means that there are some devices that hold big storage capacity allow to download a lot of programs

الفاره 1

الضوئي القلم 2

التحكم عصا 3

الرسوم لوحه 4

اللمس شاشه 5

الضوئي الماسح -

الميكروفون -

الفديو كاميرا -

الرقميه الكاميرا 9

الموسيقيه الاله 10

- S3: 14:39, نوفمبر 21 - +9-5 55- -4225: هو الجديد والعنصر the new lements id the mouse

للفأرة بالنسبة صغيرا حجما يعطيها مما حجمها بصغر عنها تتميز لكن كالفأرة تعمل وهي : الدوارة الكرة

- Reference 3 - 0.49% Coverage
- 20:1- نوفمبر 21 - +9-5 55- -4225: المختلفة والكتابة العروض برامج عن تحدث (21/11) التالي الموضوع :التعليم تكنولوجيا - 21 نوفمبر 20:1-

- Reference 4 - 3.13% Coverage
- S3: 01:03, نوفمبر 2 - +9-5 55- -4225: العروض برامج (بوينت البور)

: مميزاته ومن التعليم وسائل من كاونسله حاليا يستخدم

الشرائح وحذف اضافته سهوله 1

بيانيه رسوم ك البيانات عرض امكانيه 2

الاقلام من ومقاطع صوتيه مؤثرات اضافته سهوله 3

اليا الشريحه انتقال توقيت امكانيه 4

ممتدده باشكال العرض شرائح تنسيق سهوله 5

- S3: Display programs (PowerPoint)
- Currently used as a means of education and its features:
- 1 easily add and delete slides
- 2 the ability to view the data as graphs
- 3 easily add sound effects and clips from films
- 4 possibility of transmission timing of slot automatically
- 5 easy viewing segments of coordination in various form
- 
- Reference 5 - 9.5-% Coverage

- 
- S2: 01:03, 2- نوفمبر 9-5 ---1 4419: الورد الكتابة برامج Writing Software Word
- • used mainly for texting, edit, and modify, to coordinate, to images and vaccinated and then print fees
- • It advantages
- • \* write texts in Arabic and English
- • \* preview your document before printing
- • \* insert images, forms an automatic, structural planning
- • \* Save the document as a Web page or save it again with the same name or the name of another save
- 

طباعتها وثم ورسوم بصور ،لتطعيمها لتنسيقها ، لتعديلها ،لتحريرها النصوص لكتابه رئيسه بصورة تستخدم

مميزاتها ومن

والانجليزيه العربيه باللغه النصوص كتابه\*

الطباعة قبل المستند معانيه\*

هيكلتي تخطيط ، تلقائيه ،اشكال الصور اندراج\*

اخر بسم حفظه او الاسم بنفس اخرى مره حفظه او ويب كصفحه المستند حفظ\*

- S2: 01:1-، 2- نوفمبر 9-5 ---1 4419: وكثيره اخرى مميزات ولها
- S2: 01:1-، 2- نوفمبر 9-5 ---1 4419: تلخيصها وهذي
- S:-: 01:25، 2- نوفمبر 9-5 555 52-05: الورد الكتابة برامج

والانجليزيه العربيه اللغه وجود و الوقت استغلال على تساعد

الاملايه الأخطاء تصحيح ومميزاتها

الانتهاء بعد المضمون طباعة أستطاعة و

- S2: Writing programs Word
- Used mainly for texting, to edit, to modify them, to coordinate, to images and vaccinated and then print fees
- It advantages:
- Write texts in Arabic and English
- Preview your document before printing
- The inclusion of images, forms an automatic, structural planning
- Save the document as a Web page or save it again with the same name or the name of another save
- S:-: Writing Software Word

Help to use the time and the presence of Arabic, English

The advantages spelling errors corrected

And is unable to print content after completion

S:-: 01:25، 2- نوفمبر 9-5 555 52-05: قبلي الي اخوي كلام نفس

S1: 01:4-، 2- نوفمبر 9-5 9-44 0250: This method is found since the beginning of the issuance of After-Effect cs4

• and can be written by any Arab words lines Arabia, which operates a copy of Photoshop or illustrator version for the Middle East

•: and then save the file to open it inside the After-Effect and modify the image as follows

• stands for Lear text Arab and go to Favorite Lear and choose Switch to Text is able to modify it

CS4 افكتس افتر اصدار بدايه منذ وجدت الطريقه وهذه

الايوسط بالشرق الخاصه النسخه الستريكتور او فوتوشوب نسخه على تشتغل التي العربيه بالخطوط عربيه كلمات اي كتابه يمكن وبها

كالاتي الصوره بتعديل وتقوم افكت الاقتر داخل بفتحه لتقوم الملف تحفظ وبعدها:

فيه تعدل ان تستطيع تكست الى تحويل امر ونختار لير قائمه الى وتذهب العربي التكتست لير على تقف





- البرنامج هذا ويمكن
- والمؤثرات الاصوات ممتدده طبقات دمج1
- الجذابه المؤثرات من عديده انواع اضافته 2
- المسجل الصوت بلقطات التحكم3
- S2: *Audio producer ... Works like a virtual recording studios and sound effects produced, the existing program itself... This software can ...1 merge multiple layers of sounds and effects, 2 Add many types of charismatic Effects and 3 shots recorded sound control*
- اهمها وهذا الصوت كثيره مزايا ولها: 4419 ---1 +9-5 - -2- نوفمبر 15:51, S2:
- أول من .. الصوتية الملفات لصناعة البرامج أقوى من يعتبر *Samplitude* برنامج : البرنامج عن نبذة: 4419 ---1 +9-5 - -2- نوفمبر 15:51, S2: كثير في به العمل يتم البرنامج هذا .. المجال هذا في المعروفة *MAGIX* شركة إصدارات إحدى البرنامج وهذا .. النور إلى يخرج حتى .. العمل في التفكير مشكلة لكن .. *ProTools* برنامج سوى برنامج أى ولايفاسه .. المجال هذا في المحترفة البرامج أكبر يضارع أنه ويكفي .. الصوتى الإنتاج أستوديوهات من مشروعات لحفظ كبيرة تخزينية مساحة مع معقول كمبيوتر جهاز إلا يحتاج فلا برنامجنا أما .. به خاص لهاردوير يحتاج أنه *ProTools*
- <Internals\G9> - § 1 reference coded [-.15% Coverage]
- Reference 1 - -.15% Coverage
- M.: 02:25, ديسمبر 4 ط - مرزوق :مرزوقكم اهداف بنكرلكم: I will mention the goals of distance education?!
- or
- Henw Usefulness of distance education?!
- 02:25, December 4 - i Marzouk: to contribute to raising the cultural, scientific and social level among members of the community.
- replenish the teaching staff and qualified instructors in some areas as members of the works on the erosion of potential weakness.
- work on providing a variety of educational and multiple sources, which helps to reduce individual differences between trainees and by supporting training institutions and media techniques and a variety of interactive education.
- M.: 02:2-, December 4 - i Marzouk: Guys ... these constraints Aachaabab distance education
- high cost.
- society look to this method of learning.
- Almtalm look to the career opportunities that can not be obtained through this learning.
- 02:2-, December 4 - i Marzouk: I expect these two questions 100%
- One test them
- because they are very important
- focused on them I do not understand the answer, and then type in your style

أو

؟! بعد عن التعليم فايده سنو

المجتمع أفراد لدى والاجتماعي والعلمي الثقافي المستوى رفع في الإسهام: مرزوق ط - 4 ديسمبر, 02:25

الإمكانيات ضعف تلاشي على يعمل كما المجالات بعض في المؤهلين المدربين و التدريس هيئة أعضاء في النقص سد

تعليم وتقنيات بوساطة التدريبية المؤسسات دعم خلال من وذلك المتدربين بين الفردية الفروق تقليل على يساعد مما ومتعددة متنوعة تعليمية مصادر توفير على العمل وتفاعلية متنوعة

بعد عن التعليم معوقات ياشباب وهذي :مرزوق ط - 4 ديسمبر , 02:2

العالية التكلفة

التعلم من الاسلوب هذا إلى المجتمع نظرة

التعلم هذا طريق عن عليها الحصول يمكن لا الوظيفة الفرص أن إلى المتعلم نظرة

100% هالسؤالين واتوقع :مرزوق ط - 4 ديسمبر , 02:2

بالاختبار فيهم واحد

جدا مهمين لانهم

بصيغتك واكتب الاجابه افهم ولا عليهم ركزوا

- S3: [his colleagues through the App told him what happened today in the class ..advantage]
- M.: 02:42, 5 ديسمبر , مرزوق ط - 5 ديسمبر , I will talk today about TV

حاضر ماكنت وانا خذيتوا انكم بما

سريع بشكل عنه قريت

بالاختبار ويجينا يفيدنا اللي المفيد وخذيت

هالكلام من تستيفدون واتمنى

- M.: 02:42, 5 ديسمبر , مرزوق ط - 5 ديسمبر , IMG-20121205-WA0000.jpg (مرفق الملف)
- M.: 02:43, 5 ديسمبر , مرزوق ط - 5 ديسمبر , 1959 سنه تلفاز اول هذا
- M.: 02:44, 5 ديسمبر , مرزوق ط - 5 ديسمبر , وسريع عام بشكل التلفاز اهميه
- M.: 02:45, 5 ديسمبر , مرزوق ط - 5 ديسمبر , وقت وتمضية التسلية هو للمشاهد بالنسبة للمرناة الأساسية الاستخدامات وإحدى للشعوب العام الرأي صناعة في دور وله الإعلام وسائل أهم من التلفاز السلطة رموز أوائل من أصبح حتى والقادة الحكومات لدى كبيرة أهمية له نرى لذا الأخبار أخر ومشاهدة المعلومات على الحصول إلى بالإضافة الفراغ التلفاز مقر على والاستيلاء
- M.: 02:45, 5 ديسمبر , مرزوق ط - 5 ديسمبر , العصور مر علي التلفاز تطوراته وهذي :مرزوق ط - 5 ديسمبر ,

ويكيبيديا من وخذيتها

## 1.2 Bidirectionally (39 examples):

- [<Internals\G 1> - § 1- references coded \[4.0-% Coverage\]](#)
- 
- Reference 1 - 0.1-% Coverage
- 
- S1: hello, this is the new group and new posts and the old end [finish]
- 
- Reference 2 - 0.55% Coverage
- 
- S1: guys, from now to the end of the course sharing is compulsory and if we did not share deduction grades [ethical issue, we don't have to deduct their degree] do not embarrass us in front of the teacher [encourage his colleagues]..
- 
- Reference 3 - 0.04% Coverage
- 
- S2: hopefully
- 
- Reference 4 - 0.30% Coverage
- 
- S1: when you want us to start in our new topic which is computer, we are talking about the input and output and storage devices
- 
- Reference 5 - 0.12% Coverage
- 
- S2: the computer is very important now and before
- 
- Reference - - 0.23% Coverage
- 
- S1: my brother Abdulaziz, the coputer now used ...
- S1: in the ministries and banks and every home ..
- 
- Reference - - 0.42% Coverage
- 
- S2: yes true, used currently, but there is improvement in technology, it mean what we are doing now .. and shared and speak by the mobile phone and it's a program in the mobile ..
- 
- Reference - - 0.21% Coverage
- 
- S1: we share by mobile which is minicomputer, but it is no substitute from the computer
- 
- Reference 9 - 0.23% Coverage
- 
- S2: before, all the work and everything by computer .. now it used diminish .. not like before
- 
- Reference 10 - 0.03% Coverage
- 
- S2: true
- 
- Reference 11 - 0.1-% Coverage
- 
- S1: now, I prefer the computer over the mobile in exploring the sites ..
- 
- Reference 12 - 0.11% Coverage
- 
- S2: true .. I am with you in this opinion ..
- 
- Reference 13 - 0.41% Coverage
- 
- S1: because of the large screen and easy of portable [ the advantages of the computer] ..
- S1: we wait the guys to share us their view .. they might busy by their lectures ..
- 
- Reference 14 - 0.33% Coverage
- 
- S2: true, I am not against you, I am with you, but its uses [computer] become less, now there are artrong subscriptions for quick navigation
-

- Reference 15 - 0.14% Coverage
  - 
  - S1: not the speed, but the mobile screen is small [barrier]
  - 
  - Reference 1 - 0.1-% Coverage
  - 
  - S2: true, you have the ipad, its caters your need better than the computer
  - 
  - Reference 1 - 0.42% Coverage
  - 
  - S1: your are correct , but also the computer is better in reading .. the ipad want you to go right and left [scroll the screen left and right] .. don't show it all [the content] ..
  - 
  - <Internals\G3> - § 2 references coded [3.1-% Coverage]
  - 
  - Reference 1 - 3.35% Coverage
  - 
  - S4: 01:0-، 2- نوفمبر، +9-5 9-32 3-30: بعض تختار تقدر و رش بل ترسم تقدر و الفرش انواع كل اب ترسم تقدر و بسيطه الرسوم برامج: 2- نوفمبر، +9-5 9-32 3-30: Fee simple paint programs and estimated in August all kinds of brushes and paint, but estimated spray and choose some of the estimated shelf shapes and color transparencies and all the tones found
- الريسام البرامج ومن (ms paint)
- S4: 01:0-، 2- نوفمبر، +9-5 9-32 3-30: \*الريسام Painter • Program...
  - S1: 01:11، 2- نوفمبر، +9-5 999- --30: ...والخ والكراسات الالوان من بدلا ويستخدم الاستخدام وسهل ترسمه الذي على الكتابه عليه ويظيف
  - S4: 01:15، 2- نوفمبر، +9-5 9-32 3-30: هذا وعندي الابد نفس ناعم مو الماوس لآكن الكمبيوتر على ايعلمونك لمن تستخدم برنامج اول تقريبا و: And almost the first program is used for those who teach you on the computer, but the mouse not soft like the hand and for me this disadvantage
  - 
  - Reference 2 - 0.3-% Coverage
  - 
  - S1: 01:1-، 2- نوفمبر، +9-5 999- --30: بهالراي اوافقك كلامك صح I agree with you
  - 
  - <Internals\G-> - § 4 references coded [14.1-% Coverage]
  - 
  - Reference 1 - 0.1-% Coverage
  - 
  - S5: - +9-5 9995 ----: عليكم السلام Alsalam Alaikum
  - 
  - Reference 2 - - .59% Coverage
  - 
  - S5: 1-:3-، 19 نوفمبر، +9-5 9995 ----: الكمبيوتر عناصر عن موضوعنا شباب
  - G-: S4: guys, our topic is about the computer components.. like storage, mouse and modem .. as you, it is like any device have a specific benefit ... computer known as a very fast machine that can't think and distinguish- and save data ... what do you think?
  - S5: 1-:40، 19 نوفمبر، +9-5 9995 ----: والمودم والماوس التخزين مثل
  - S5: 1-:40، 19 نوفمبر، +9-5 9995 ----: تعرفون ما مثل معينه فايده له جهاز، ككل
  - S5: 1-:4-، 19 نوفمبر، +9-5 9995 ----: البيانات ويحفظه. والتميز التفكير تستطيع لا جدا سريعة آلة انه على الكمبيوتر يعرف -
  - S5: 1-:4-، 19 نوفمبر، +9-5 9995 ----: من شيء، ككل علينا تسهل يعني نبيه، شيء بكل معلومات وتعطينا المتطوره التكنولوجيا من والكمبيوتر
  - S5: 1-:4-، 19 نوفمبر، +9-5 9995 ----: النت من معلومات وأخذ وبحوث طباعه
  - S5: 1-:4-، 19 نوفمبر، +9-5 9995 ----: ؟ شرايكم ولا
  - S4: 1-:49، 19 نوفمبر، +9-5 ---- 2-13: بالكلام اليك
  - S4: I agree with your words .. and storage can divided to two sections RAM & ROM ... modify [he modified his words] memory divided to two section
  - S4: 1-:50، 19 نوفمبر، +9-5 ---- 2-13: الرام : قسمين ينقسم والتخزين
  - S4: 1-:50، 19 نوفمبر، +9-5 ---- 2-13: الرام الثاني والقسم
  - S4: 1-:52، 19 نوفمبر، +9-5 ---- 2-13: تعديل
  - .. قسمان تنقسم الذكره
  - المؤقتة الذاكره-1
  - الدائمه الذاكره -2
  - S5: 1-:52، 19 نوفمبر، +9-5 9995 ----: ---- 2-13-: put your nickname [play new role]
  - S4: put your name ...nick name ..so we can know you
  - S5: 1-:52، 19 نوفمبر، +9-5 9995 ----: أكثر عليك نتعرف عشان
  - S4: 1-:52، 19 نوفمبر، +9-5 ---- 2-13: بالموقع؟ نيم اليك
  - S4: nick name in the website [LMS –Haiku]
  - S5: 1-:53، 19 نوفمبر، +9-5 9995 ----: اسمك حظ أهني قال الدكتور اعتقد 'لا

- 
- Reference 3 - 4.39% Coverage
- 
- 1:-53, 19 نوفمبر +9-5 9995 ----: الله سبحانه عندي طالع لأنه
- S4: no I do not think so .. because I can see in the name of Allah
- 
- S4: 1:-53, 19 نوفمبر +9-5 ---- 2-13: الحريجي مسامح عبدالعزيز معاكم
- S5: 1:-53, 19 نوفمبر +9-5 9995 ----: والله ونعم ،
- S4: 1:-54, 19 نوفمبر +9-5 ---- 2-13: .. زود ماعليك
- S4: 1:-54, 19 نوفمبر +9-5 ---- 2-13: . نكمل
- S5: 1:-54, 19 نوفمبر +9-5 9995 ----: الله سبحانه بدال اسمك حط
- S5: 1:-54, 19 نوفمبر +9-5 9995 ----: عليك بتعرف الدكتور عثمان
- S5: 1:-54, 19 نوفمبر +9-5 9995 ----: □
- S4: 1:-54, 19 نوفمبر +9-5 ---- 2-13: زمان من حاط
- S5: 1:-54, 19 نوفمبر +9-5 9995 ----: اسمك عندي مبين مؤو لأنه 'مدرّي'
- S4: 1:-55, 19 نوفمبر +9-5 ---- 2-13: !! واللحين
- S5: 1:-55, 19 نوفمبر +9-5 9995 ----: أخوي ، والله للحين
- S4: 1:-5-، 19 نوفمبر +9-5 ---- 2-13: .. اسمي : الحالة
- S5: 1:-5-، 19 نوفمبر +9-5 9995 ----: انشاءالله نكمل وبعدها المغرب بصلّي
- S4: 1:-5-، 19 نوفمبر +9-5 ---- 2-13: مقدما مقبولة
- 
- Reference 4 - 1.01% Coverage
- 
- S4: 1:-00, 19 نوفمبر +9-5 ---- 2-13: احجام والرام : 12- منها ، 25- ، 512
- S4: 1:-02, 19 نوفمبر +9-5 ---- 2-13: واكسبلورر الحمايه مثل . . الكمبيوتر صناعه منذ وجدت اللي البرامج هي الذاثمه والذاكره
- 
- <Internals\G-> - § - references coded [-.92% Coverage]
- 
- Reference 1 - 2.14% Coverage
- 
- 12 - +9-5 ---1 4419: اعيال **guys**
- 00:1-، 12 ديسمبر +9-5 --- 4419: الموقع ادش شلون **how to register**
- 00:1-، 12 ديسمبر +9-5 --- 4419: يارفاالله تكفون **please**
- S2: guys, how to register ...please
- 00:1-، 12 ديسمبر +9-5 ---- 5-: □ الحين بينكم اجيك لا تكفون تقول لا ايك
- S-: do not say please .. I am with you [support his colleague]
- 00:1-، 12 ديسمبر +9-5 --- 4419: هالموقع جنني ايك ههههه
- S2: hhhh [laughing] its drive me crazy this website [LMS-Haiku]
- 
- Reference 2 - 1.12% Coverage
- 
- 00:1-، 12 ديسمبر +9-5 ---- 5-: الرابط لك اذ الحين
- S-: I will send you now the link
- 00:1-، 12 ديسمبر +9-5 --- 4419: كفو
- S2: Thanks
- 00:1-، 12 ديسمبر +9-5 ---- 5-: <https://www.myhaikuclass.com/Intro/intro/signup>
- 
- Reference 3 - 0.2-% Coverage
- 
- 00:19, 12 ديسمبر +9-5 --- 4419: اسوي وش لادشيت طيب
- 
- Reference 4 - 2.3-% Coverage
- 
- 00:19, 12 ديسمبر +9-5 --- 4419: ههههه
- 00:19, 12 ديسمبر +9-5 --- 4419: هالموقع فيني هبل
- 01:19, 12 ديسمبر +9-5 ---- 5-: بالمربع السري الرقم دخل بعدين
- S-: then enter this password 5bm--
- 01:20, 12 ديسمبر +9-5 ---- 5-: 5bm--
- 01:30, 12 ديسمبر +9-5 --- 4419: ثامر هذا الرقم
- S2: This code5bm-- ... Thamer
- 01:30, 12 ديسمبر +9-5 ---- 5-: اي
- S-: yes
- 01:31, 12 ديسمبر +9-5 ---- 5-: التسجيل كمل وبعدين الرقم دخل
- 01:32, 12 ديسمبر +9-5 --- 4419: احوووول
- 
- Reference 5 - 0.--% Coverage
-



### 1.3 Sharing information that stimulates & motivates peers (36 examples)

- <Internals\G 1> - § 12 references coded [2.93% Coverage]
- 
- Reference 1 - 0.1-% Coverage
- 
- S1: hello, this is the new group and new posts and the old end [finish]
- 
- Reference 2 - 0.55% Coverage
- 
- S1: guys, from now to the end of the course sharing is compulsory and if we did not share deduction grades [ethical issue, we don't have to deduct their degree] do not embarrass us in front of the teacher [encourage his colleagues]..
- 
- Reference 3 - 0.04% Coverage
- 
- S2: hopefully
- 
- Reference 4 - 0.30% Coverage
- 
- S1: when you want us to start in our new topic which is computer, we are talking about the input and output and storage devices
- 
- Reference 5 - 0.12% Coverage
- 
- S2: the computer is very important now and before
- 
- Reference - - 0.23% Coverage
- 
- S1: my brother Abdulaziz, the coputer now used ...
- S1: in the ministries and banks and every home ..
- 
- Reference - - 0.42% Coverage
- 
- S2: yes true, used currently, but there is improvement in technology, it mean what we are doing now .. and shared and speak by the mobile phone and it's a program in the mobile ..
- 
- Reference - - 0.21% Coverage
- 
- S1: we share by mobile which is minicomputer, but it is no substitute from the computer
- 
- Reference 9 - 0.23% Coverage
- 
- S2: before, all the work and everything by computer .. now it used diminish .. not like before
- 
- Reference 10 - 0.03% Coverage
- 
- S2: true
- 
- Reference 11 - 0.1-% Coverage
- 
- S1: now, I prefer the computer over the mobile in exploring the sites ..
- 
- Reference 12 - 0.4-% Coverage
- 
- S4: [provide an image throu the App ..he study in the camp]
- .... Study in the camp .. its something unique guys .. you change the mood .. [in winter, must people have camps .. Kuwaiti traditions]
- 
- <Internals\G4> - § - references coded [12.9-% Coverage]
- 
- Reference 1 - 0.42% Coverage
- 
- Me: the discussion topic is " the advantages of using computer in education"
- 
- Reference 2 - 1.32% Coverage
-



- 19:02, 19 نوفمبر, 9-5 -515 52--: - الاخراج اجهزة من السماعات ان هي و
- 
- <Internals\G-> - § 14 references coded [-.20% Coverage]
- 
- Reference 1 - 0.-0% Coverage
- 
- S2: [start ask his colleagues .. this is wasn't expected and is good] .. what is the inhuman resource in your view...! To develop the education and facilitate it for students ..
- 
- Reference 2 - 2.45% Coverage
- 
- S4: like the existing technology now ....
- S4: .. and like the group .. which we are in now ..meaning .. not necessary ..the teacher exist in front of the student ..
- 20:51, أكتوبر, - -
- 
- الاجتماعي التواصل مواقع او الوتساب او بالالعاب ويشغل الحصة عن يتشغل قد الدراسيه بالحصة الايجاد استعمل فأذا الطالب اما
- G-: S5: ipad ..have advantages .. like.. it can .. for teacher ..prepare lessons through it .. and can connect it to the projector and display lessons and photos and videos .. in which it help to deliver the info ..this for teacher ..
- .. for student .. if he use the ipad in the class ...might be busy from the class [good note.. distraction] and play with games or WhatsApp ..or social communication sites ..
- 
- Reference 3 - 0.13% Coverage
- 
- S-: I agree with you in this thing ..
- 
- Reference 4 - 0.33% Coverage
- 
- S2: true .. but the ipad is special for the study curriculum ..not for social communication ..
- 
- Reference 5 - 0.--% Coverage
- 
- S1: I think ..it might ..not sure .. the ministry [education] can put a plan with the exist of electronic engineer .. to lock the device and they could not download games [he found a solution] ..
- 
- Reference - - 0.40% Coverage
- 
- S-: but there is a problem that I heard about ... that there are some teacher who don't know how to use technology ...
- 
- S1: they put in the start of every study year .. in ... training sessions for the teachers for two weeks ..
- S5: maybe .. and maybe they adopt it step-by-step ..
- 
- Reference 9 - 0.2-% Coverage
- 
- Me: this is what are afraid from when you graduated!! Relying and not evolve ..
- 
- Reference 10 - 0.43% Coverage
- 
- S2: Your words is correct Ali ... not in one day and night .. shock them .. that we canceled the books etc... and we use ipad ..
- 
- Reference 11 - 0.34% Coverage
- 
- S4: and it not necessary that we cancel the books .. in my view this is wrong .. but we use both ..
- 
- Reference 12 - 0.22% Coverage
- 
- S2: not evolving in what site!! And relying in what exactly!!
- 
- Reference 13 - 0.2-% Coverage
- 
- S-: I agree with you in this thing .... For me ..books ..better ..frankly ..
- 
- Reference 14 - 0.53% Coverage
- 
- S2: if the student still evolving himself by technology .. it mean that he is in the line of evolving and learning .. easy both together .. both of them ..



- Reference 3 - 0.-3% Coverage
- 
- 0:-4- - +9-
- S2: there are - type of computer tools ..
- 
- Reference 4 - 1.10% Coverage
- 
- 0:-54- - +9-5 9--4 1400: أجرك الله عظم
- 09:15: أجرك الله عظم --9 91-- +9-5 9--
- 
- <Internals\\G-> - § 1 reference coded [0.-0% Coverage]
- 
- Reference 1 - 0.-0% Coverage
- 
- S1: I think it help [technology].. for example .. I want to go to Starbux [café] to study !! I take all of my bag and go!! If the ipad .. let me like .. going out ..changing the mode .. and study one or two topics in the same time ..
- 
- <Internals\\G9> - § 2 references coded [5.14% Coverage]
- 
- Reference 1 - 3.-3% Coverage
- 
- 02:42, ديسمبر 5: مرزوق ط - التلفاز عن اليوم يتكلم شباب مرحبا
- حاضر ماكنت وانا خذيتوا انكم بما
- سريع بشكل عنه قريت
- بالاختبار ويجينا يفيدنا اللي المفيد وخذيت
- هالكلام من تستيفدون واتمنى
- (مرفق الملف) IMG-20121205-WA0000.jpg: مرزوق ط - 5 ديسمبر 02:42
- 1959 سنة تلفاز اول هذا: مرزوق ط - 5 ديسمبر 02:43
- وسريع عام بشكل التلفاز اهميه: مرزوق ط - 5 ديسمبر 02:44
- وقت وتمضية التسلية هو للمشاهد بالنسبة للمرناة الأساسية الاستخدامات وإحدى للشعوب العام الرأي صناعة في دور وله. الإعلام وسائل أهم من التلفاز السلطة رموز أوائل من أصبح حتى والقادة الحكومات لدى كبيرة أهمية له نرى لذا. الأخبار أخر ومشاهدة المعلومات على الحصول إلى بالإضافة الفراغ التلفاز مقرر على والاستيلاء
- العصور مر على التلفاز تطوراته وهذي: مرزوق ط - 5 ديسمبر 02:45
- ويكيبيديا من وخذيتها
- . المادية الإنجازات إمكان دون من ولكن الصور، نقل لمبدأ بيان : 1-4
- . الميكانيكي التلفزيون وأساس نيبكو قرص الصور، تحليل للخطوط جهاز اختراع براءة على نيبكو بول الألماني المخترع : 1--4
- 
- Reference 2 - 1.41% Coverage
- 
- 02:51, ديسمبر 5: التلفاز استخدام طبعاً: مرزوق ط - 5 ديسمبر
- نقطه كل المال بالتفصيل تشوفون المصدر واحطلكم فيها الاقلام رؤوس بنكر
- التلفاز استخدام
- الاطفال على وتأثيره التلفزيون
- والعنف التلفزيون
- العامة والصحة التلفزيون
- هالمعلومه منه اللي المصدر وهذا
- [http://ar.m.wikipedia.org/wiki/#section\\_1](http://ar.m.wikipedia.org/wiki/#section_1)
- عام بشكل هالكلام يفيدكم اتمنى: مرزوق ط - 5 ديسمبر 02:52

## 2.2 Sharing freely at their convenience (26 examples)

- <Internals\\G 1> - § - references coded [2.53% Coverage]
- 
- Reference 1 - 1.04% Coverage
- 
- S4: guys, I want to ask you about program



- <Internals\G-> - § 1 reference coded [2.-4% Coverage]
- 
- Reference 1 - 2.-4% Coverage
- 
- 21:3- 20 نوفمبر, +9-5 9995 ----: سؤال في اليربع
- 21:4- 20 نوفمبر, +9-5 9-11 213-: اثنين اهم : الكمبيوتر اخترع من اول
- كونراد الالمانى
- الكمبيوتر اخترع من اول ياباني انه ويقال الأمريكي اعتقد ----: 22:0- 20 نوفمبر, +9-5 9995
- لوووووول اخترع ----: 00:39- 21 نوفمبر, +9-5 9995
- □□ ----: 00:39- 21 نوفمبر, +9-5 9995
- 3قاعه المحاضره اليوم شباب 13:2- 21 نوفمبر, +9-5 ----
- 
- <Internals\G-> - § 5 references coded [-.5-% Coverage]
- 
- Reference 1 - 1.0-% Coverage
- 
- عدل! باجر من فضل! ماده عن مواضع نيلش حابين متى: 9-5 9944 1230+
- G-: S1: when you like us to start [discussion] topics! Its prefer from tomorrow?
- باجر من انشاله: --4- 9-5 9-53 +9-5 - - اكتوبر, 23:24
- G-: S2: Enshallah tomorrow
- يكتب عنده الي وقت كل: --30- 9-5 999- +9-5 - - اكتوبر, 23:24
- S4: who have time write
- 
- Reference 2 - 1.24% Coverage
- 
- S1: 23:25, اكتوبر - - +9-5 9944 1230: عدل وقت كل
- S1: 23:25, اكتوبر - - +9-5 9944 1230: سلطان النوم \*\*
- S4: 23:2- اكتوبر - - +9-5 999- --30-: والله عدل هههه
- S1: 23:2- اكتوبر - - +9-5 9944 1230: المجموعة أيقونة غير
- S-: 23:44, اكتوبر - - +9-5 --94 0-09: السرهيد حسن معاكم عليكم السلام
- S1: 23:4- اكتوبر - - +9-5 9944 1230: بوعلوه والنعم
- 
- Reference 3 - 1.02% Coverage
- 
- 09:03, اكتوبر - - اكتوبر, 09:03: ايام 3 منذ .. بفعالية شاركوا الاغلبية .. الخير صباح :التعليم تكنولوجيا - -
- I: good morning .. the majority participate effectively from 3 days [to encourage them]
- - - اكتوبر, 09:43
- S1: sorry its my fault .. [the leader might delay others]
- - - اكتوبر, 09:50
- القلاف محمد معاكم
- 
- Reference 4 - 1.-3% Coverage
- 
- I: 20:14, نوفمبر 21 :الرسوم الصوت برامج عن تحدث (21/11) التالي الموضوع :التعليم تكنولوجيا - 21 نوفمبر, 20:14
- S2: 1-:32, نوفمبر 23 :الرسوم برامج : bitmap , vector , quick draw
- S2: 1-:33, نوفمبر 23 :الاشكال الرسوم من المئات وتقدم التصليليه درجاتها بكل الطبيعيه الالوان تقدم البرامج هذه مزايا : 1-32-33, نوفمبر 23
- S2: 1-:35, نوفمبر 23 :الصوت برامج : sonicfire pro , audio editor pro , gold wave
- S2: 1-:3- نوفمبر 23 :الصوت نغمة او درجة او نوعية وتغيير والمؤثرات الأصوات من متعدد طبقات دمج البرامج هذه مزايا : 1-3-3, نوفمبر 23
- 
- Reference 5 - 2.39% Coverage
- 
- I: 15:30, نوفمبر 2- :المختلفة والكتابة العروض برامج عن تحدث (2-/11) :التعليم تكنولوجيا - 2 نوفمبر, 15:30
- S5: 02:33, نوفمبر 2- :عليها التعديل يمكنه ثمة ومن بيانات و النصوص ادخال للمستخدم يتيح برنامج هو وورد مايكروسوفت :--4- 9-5 9-53 +9-5 - - نوفمبر 2- نوفمبر, 02:33
- الامور من العديد و صور ادراج ويمكنه جدول البيانات وضع ويمكن الصفحه وتنسيق وتسيقها ومعالجتها
- S5: 02:34, نوفمبر 2- :طباعتها ويمكن حفظها بعد وقت اي في استدعاتها ويمكنه بالمعلومات الاحتفاض ويمكنه :--4- 9-5 9-53 +9-5 - - نوفمبر 2- نوفمبر, 02:34
- S-: 13:3- نوفمبر 2- :ادوات البرنامج يوفر التقديمية للعروض مخصص وهو اوفس برامج احد هو بوربويت مايكروسوفت 0-09: --94 0-09
- ويمكن الاشخاص من لمجموعه المقدم بحاسوب مرتبط يكون الذي البروجيكتر جهاز على عرضها يمكن والتي وصور ورسوم كتابات فيها شرائح لتصميم الشرائح من نهائي لا عدد وضع
- 
- <Internals\G-> - § 4 references coded [2.--% Coverage]
- 
- Reference 1 - 1.45% Coverage
- 
- I: I apologize for not precise question / Do you think the communication that happening between you and your colleagues through WhatsApp facilitate your learning? If the answer is (not) cite the reasons .. If the answer (yes) ..So how do we explain the low results of your tests and your colleagues?!!
- 
- Reference 2 - 0.5-% Coverage



التعلم هذا طريق عن عليها الحصول يمكن لا الوظيفة الفرص أن إلى المتعلم نظرة

- 100% هالسؤالين و توقع:مرزوق ط - 4 ديسمبر -02:2
- 
- بالاختبار فيهم واحد
- 
- جدا مهمين لانهم
- 
- بصيغتك واكتب الاجابه افهم ولا عليهم ركزوا
- S3: [his colleagues through the App told him what happened today in the class ..advantage]
- 
- References 4-5 - -9-% Coverage
- 
- للأهمية تبليغي ارجو ؟ سابقا المقرر هذا في وينجح الحظ يحالفه لم منكم من شباب يا :التعليم تكنولوجيا - 1-3-1
- :لأهمية بالدراسة المتعلقة الأسئلة من المزيد عن الاجابة وأرجو .. التجربة نجاح في معي ساهم من لكل شكرا :التعليم تكنولوجيا - 19 ديسمبر -13:4
- بالمشاركة؟ عادة الهاتف تستخدم متى -1 :مثلا
- خدمك؟ هل الذكي؟ الهاتف تجاه شعورك ماهو -2
- من المشاركة ارجو ..رجاء بالتفصيل تحدث .. افضل نصائح لك سيقدم كان هل بالواتساب؟ مشاركتك بتقييم معلمك عن بدلا زميلك قام لو رأيك هو ما -3
- جميعا لكم وشكرا .. الجميع
- الموقع في السابقة الاختبارات من نماذج يوجد :ملاحظة
- I: Guys who was not so lucky ... and succeed in this course before? I hope you engage for the importance ..
- I: Thanks to everyone who helped me in the success of the experiment .. I answer more questions related to the study of the importance of:
- For example: 1 - when to use the phone normally proceed?
- 2 - What do you feel about smartphone? did it serve you?
- 3 - What is your opinion if the colleague instead of teacher assessment review Balwatsab? Was he will provide you with the best advice .. Spoke in detail please .. I hope everyone participating .. Thank you all
- Note: There are examples of previous tests at the site.
- بالمشاركة؟ عادة الهاتف تستخدم متى -1 :مرزوق ط - 19 ديسمبر -14:21
- دائما النوم ووقت البر او الكوفي او الدوايه مثلا الفراغ بوقت
- 
- خدمك؟ هل الذكي؟ الهاتف تجاه شعورك ماهو -2
- الزملاء ومشاركات الهاتف من مراجعتي أكثر وكانت بالاختبارات خدمني نعم
- S1: What do you feel about smartphone? Did it serve you?
- Yes served me in tests ... and most of my review were from the phone and colleagues posts..
- افضل؟ نصائح لك سيقدم كان هل بالواتساب؟ مشاركتك بتقييم معلمك عن بدلا زميلك قام لو رأيك هو ما -3
- لا
- الطالب من اكثر يقيم المعلم لان
- بالتقييم ويلعب يوزع ممكن الطالب اما
- النصائح اما
- والكل زميله وتنفع تنفعه راح لانها الزميل يقدمها
- التقييم من اكثر فالنصائح
- I: What would you think if the colleague instead of teacher assess your sharing in WhatsApp? will he give you the best advice?
- M.: No ... Because the teacher assess better than student .... The student may... distributes and play evaluation [bias] .. The tips... Provide by a colleague ... because it will benefit him and benefit his colleague and All .. the advices more than assessment ...

### 3. Social construction of knowledge with new media (170 examples):

#### **Specific (16 examples) of what knowledge participants socially constructed:**

- G1:S5: Guys, this is the group question next topic (21/11) talk about the different displays and writing programs
- G1:S4: Most important the writing which we need more...
- G1:S5: PowerPoint is a writing and display program
- G1:S2: Writing programs is better for teacher and learner because it [allow] design and layout... like Word.
- G1:S5: True, but you can write a paragraph in every page [PowerPoint] and become essay
- G1:S2: PowerPoint easier to navigate and browse... and we can add audio or video and movement for the words and letters
- G1:S5: No, it difficult you write an essay in PowerPoint because Word give you more space and page to write
- G1:S1: Guys, the sound programs are programs for modify the sound and useful for mixing, cutting, adding effects and poetry
- G1:S3: I personally use it
- G1:S3: From which the reader can be amended and puts his voice echo and filter sound... and cut clips, for example, putting a second sound with the sound of his voice and combine them with some or section is read by one and read by the second section
- G1:S1: Yes
- G1:S1: Photoshop is the king
- G1:S3: Yes, Photoshop is the top, but painter [Microsoft] is expired.
- G1:S4: yes, how it benefit the education??!!
- G1:S4: Nothing... true...
- S1:S3: its useful for teaching children .. Putting images and change it .

#### 3.1 Bringing in new information from new resources, e.g. the Internet (27 examples)

- <Internals\G 1> - § 1 reference coded [0.4-% Coverage]
- 
- Reference 1 - 0.4-% Coverage
- 
- 1-:53, 19 نوفمبر +9-5 ---- 91-4: الكمبيوتر لغات من تعتبر الاسم من متأكد مو بس عشرية السادس اسمها اظن والارقام: 91-4 ---- +9-5 - 19 نوفمبر 1-:53, 19 نوفمبر +9-5 ---- 91-4: للاستفاده معلومة بس بالموضوع معنا مو ادري □
- 
- <Internals\G3> - § 3 references coded [3.5-% Coverage]
- 
- Reference 1 - 0.9-% Coverage
- 
- 23:5, 20 نوفمبر +9-5 ---2 2309: كلمه الف عن تغني الصورة ان بما
- 
- الكمبيوتر وعناصر اجزاء توضح صورته هذه
- 
- <http://i10.servimg.com/u/f10/13/50/-9/4-/comput10.jpg>
- 
- Reference 2 - 0.5-% Coverage
- 
- 10:49, 2 نوفمبر +9-5 ---2 2309: برنامج، وسهولة بدائية واكثرهم الصوت برامج اشهر من:
- (sound recorder)



- 21:35, 9 أكتوبر 2009 - 1230: [http://www.google.com.kw/url?sa=t&source=web&cd=3&ved=0CBQQFjAC&url=http%3A%2F%2Fs-s-sh.wikispaces.com%2Ffile%2Fview%2F%25D-%25A-%25D9%25-4%25D9%25--%25D-%25B3%25D-%25A-%25D9%25-4%2B%25D-%25A-%25D9%25-4%25D-%25AA%25D-%25B9%25D9%25-4%25D9%25-A%25D9%25-5%25D9%25-A%25D-%25A9.ppt&ei=espxUMuNCKer0AXBr4HoAQ&usq=AFQjCNGz23dBIT4izPvJq02KV5DhEp-ylw&sig2=B-rt\\_f1WHjBFWaW3QQawJg](http://www.google.com.kw/url?sa=t&source=web&cd=3&ved=0CBQQFjAC&url=http%3A%2F%2Fs-s-sh.wikispaces.com%2Ffile%2Fview%2F%25D-%25A-%25D9%25-4%25D9%25--%25D-%25B3%25D-%25A-%25D9%25-4%2B%25D-%25A-%25D9%25-4%25D-%25AA%25D-%25B9%25D9%25-4%25D9%25-A%25D9%25-5%25D9%25-A%25D-%25A9.ppt&ei=espxUMuNCKer0AXBr4HoAQ&usq=AFQjCNGz23dBIT4izPvJq02KV5DhEp-ylw&sig2=B-rt_f1WHjBFWaW3QQawJg)
- 21:35, 9 أكتوبر 2009 - 1230: حلو الرابط دشو
- 21:3, 9 أكتوبر 2009 - 1230: تعليميه وسائل
- 21:3, 9 أكتوبر 2009 - 1230: بييري البلاك ع يشتغل ماعتقد
- 22:09, 9 أكتوبر 2009 - 1230: <الوسائط استبعاد تم>
- 22:09, 9 أكتوبر 2009 - 1230: <الوسائط استبعاد تم>
- 01:3, 9 أكتوبر 2009 - 1230: YouTube - <على "2 الايبياد في التعليم" شاهد> [https://www.youtube.com/watch?v=kG-pApVMby0&feature=youtube\\_gdata\\_player](https://www.youtube.com/watch?v=kG-pApVMby0&feature=youtube_gdata_player)
- 01:4, 9 أكتوبر 2009 - 1230: YouTube - <على "الايبياد على المعلم جدول اعداد" شاهد> [https://www.youtube.com/watch?v=iWEa2YP-o-s&feature=youtube\\_gdata\\_player](https://www.youtube.com/watch?v=iWEa2YP-o-s&feature=youtube_gdata_player)
- 01:4, 9 أكتوبر 2009 - 1230: دراسي عام كل بداية قبل للمعلمين اسبوعين او اسبوع لمدة دورة تصير خلالها ومن بسيطه فكره هذي
- 12:1, 9 أكتوبر 2009 - 554 321-1: تقصر وما محمود العافيه يعطيك
- 1-:15, 9 أكتوبر 2009 - 1230: YouTube - <على "التعاوني التعلم في الرباعية المجموعات" شاهد> [https://www.youtube.com/watch?v=s5ODTyTxfY&feature=youtube\\_gdata\\_player](https://www.youtube.com/watch?v=s5ODTyTxfY&feature=youtube_gdata_player)
- 1-:23, 9 أكتوبر 2009 - 1230: YouTube - <على "التعليم في التكنولوجيا" شاهد> [https://www.youtube.com/watch?v=pNMEMz4Rn\\_w&feature=youtube\\_gdata\\_player](https://www.youtube.com/watch?v=pNMEMz4Rn_w&feature=youtube_gdata_player)
- 1-:25, 9 أكتوبر 2009 - 2299: التعليم في التكنولوجيا اثر
- 
- <http://yesterdayshadow-glo91ory.blogspot.co.uk/2011/05/blog-post.html?m=1>
- 1-:29, 9 أكتوبر 2009 - 1230: للتكنولوجيا يتوجه راح فالكل الدراره اساسيات من الانترنت اجهزه تحط لمن
- 1-:30, 9 أكتوبر 2009 - 2299: يطبقون الي وين بس
- 
- Reference 2 - 0.13% Coverage
- 
- S1: see " technology in education"
- 
- Reference 3 - 0.41% Coverage
- 
- <http://yesterdayshadow-glo91ory.blogspot.co.uk/2011/05/blog-post.html?m=1>
- s3: the impact of technology in education
- 
- Reference 4 - 0.5-% Coverage
- 
- 9 أكتوبر 2009 - 59-1
- <http://www.youtube.com/watch?v=HC--UF5PJS-&sns=em>
- S2: virtual school [another link for another topic from another student ..through the app]
- 
- Reference 5 - 5.45% Coverage
- 
- S4: send a link ... 19:2, 20 أكتوبر 2009 - 999- --30: <http://ejabat.google.com/ejabat/b-thread?tid=1fc35c9f34d-40a9>
- 
- 12:10, 22 أكتوبر 2009 - 94 0-09: مافي ولا لاسبوع هذا دوام في دكتور عليكم السلام ؟
- 15:0, 22 أكتوبر 2009 - 0: دوام اليوم: التعليم تكنولوجيا - 22 أكتوبر
- 15:13, 22 أكتوبر 2009 - 94 0-09: الاربعاء ويوم دكتور انزين
- 20:30, 22 أكتوبر 2009 - 554 321-1: والرفاير عندك بوكي محمود
- 20:30, 22 أكتوبر 2009 - 554 321-1: ☺
- 20:33, 22 أكتوبر 2009 - 554 321-1: السموحه
- 20:33, 22 أكتوبر 2009 - 554 321-1: بالغلط
- 1-:24, 25 أكتوبر 2009 - 944 1230: <الوسائط استبعاد تم>
- 21:1, 25 أكتوبر 2009 - 944 1230: مبارك عيدكم و .. والفايزين العايدين من عسك و بخير وانتم عام كل
- 21:1, 25 أكتوبر 2009 - 944 1230: \*\* عسك و
- 09:14, 2 أكتوبر 2009 - 2: جميعا بخير وانتم عام وكل .. مبارك عيدكم: التعليم تكنولوجيا - 2 أكتوبر
- 10:0, 2 أكتوبر 2009 - 999- --30: سعيدة ايامك
- 10:21, 2 أكتوبر 2009 - 554 321-1: وسلامه بصحه وانت سعيده ايامك
- 12:30, 2 أكتوبر 2009 - 2299: سعيدة ايامك
- 1-:14, 30 أكتوبر 2009 - 14: اجازة بكرة: التعليم تكنولوجيا - 30 أكتوبر
- 03:49, 31 أكتوبر 2009 - 944 1230: ماتقصر العافيه يعطيك
- 14:32, 5 نوفمبر 2009 - 14: تعديلية مكتبة من المذكرة شراء او احضار وارجو .. دوام اليوم: التعليم تكنولوجيا - 5 نوفمبر
- 14:34, 5 نوفمبر 2009 - 2299: أنشالله
- 1-:22, 2 نوفمبر 2009 - 22: امتحان بكرة: التعليم تكنولوجيا - 2 نوفمبر
- 1-:2, 2 نوفمبر 2009 - 2299: الجاي سبوع قلت مو دكتور
- 1-:2, 2 نوفمبر 2009 - 2299: ؟ الحين ندرسله يمدينا ما

- 12.11.12 القادم الاثنى نأجله .. بناسبكم ما دام :التعليم تكنولوجيا - - نوفمبر 51:-1
- تقصر ما العاقبه بعطيك :2299 ----+9-5 - - نوفمبر 52:-1
- ماتقصر الله قواك :30--9-5 999- - نوفمبر 53:-1
- 
- 
- <Internals\G9> - § 10 references coded [30.03% Coverage]
- 
- Reference 1 - 2.35% Coverage
- 
- الاوفيس برنامج عن شغله كم لکم جمعیت شباب :مرزوق ط - 22 نوفمبر 5:-1
- 
- الحسابيه للجدول هو اللي
- 
- الحين لكم بنزلها
- الاجهزه بجميع وموجود صورته هذي طبعاً البرنامج شكل مايعرف اللي :مرزوق ط - 22 نوفمبر 5:-1
- (مرفق الملف) IMG-20121122-WA0003.jpg :مرزوق ط - 22 نوفمبر 59:-1
- (مرفق الملف) IMG-20121122-WA0001.jpg :مرزوق ط - 22 نوفمبر 59:-1
- الداخلى من صورته وهذي :مرزوق ط - 22 نوفمبر 59:-1
- (مرفق الملف) IMG-20121122-WA0002.jpg :مرزوق ط - 22 نوفمبر 59:-1
- مسويه ومنو واصداره تطوره عن نبذه وهذي :مرزوق ط - 22 نوفمبر 00:-1
- (مرفق الملف) IMG-20121122-WA0004.jpg :مرزوق ط - 22 نوفمبر 01:-1
- 
- Reference 2 - 1.53% Coverage
- 
- للاوفيس تابع اخر لبرنامج صورته ايضاً وهذي :مرزوق ط - 22 نوفمبر 0:-1
- 
- كلها او تعرفه الناس معظم طبعاً ارد الورد ببرنامج وهو
- 
- الان حتى يستخدمه والكل مهم برنامج
- 
- للبرنامج خارجيه صورته وهذي
- (مرفق الملف) IMG-20121122-WA0005.jpg :مرزوق ط - 22 نوفمبر 0:-1
- الداخلى من البرنامج صورة وهذي :مرزوق ط - 22 نوفمبر 0:-1
- (مرفق الملف) IMG-20121122-WA0000.jpg :مرزوق ط - 22 نوفمبر 0:-1
- 
- Reference 3 - 5.--% Coverage
- 
- الفيديو برامج معظم اسماء وخذي :مرزوق ط - 23 نوفمبر 01:25
- 
- 
- 
- العامه التحرير برامج
- 
- Adobe Systems
- (ويندوز نظام) Adobe Premiere Elements
- (ماكينتوش نظام, ويندوز نظام) Adobe Premiere Pro
- ايل
- (ماكينتوش نظام) Final Cut Express
- (ماكينتوش نظام) Final Cut Pro
- (ماكينتوش نظام) iMovie
- (ويندوز نظام) ArcSoft ShowBiz
- (ايريكس نظام, ايريكس نظام) Autodesk Discreet Smoke and Discreet Fire
- Avid Technology
- (ويندوز نظام) Avid DS Nitris
- (ويندوز نظام) Avid Liquid
- (ماكينتوش نظام, ويندوز نظام) Avid Media Composer
- (ماكينتوش نظام, ويندوز نظام) Avid Symphony Nitris
- (ماكينتوش نظام, ويندوز نظام) Avid Xpress DV
- (ماكينتوش نظام, ويندوز نظام) Avid Xpress Pro
- (ويندوز نظام) CyberLink PowerDirector
- (ويندوز نظام) DeskShare Video Edit Magic
- Edius
- (ويندوز نظام) Leitch Velocity
- (محددة أجهزة على يُستخدم) Lightworks
- (ويندوز نظام) Magix Movie Edit Pro and Video Deluxe
- (MainActor only) لينكس نظام, ويندوز نظام) MainConcept EVE, MainVision, and MainActor
- (ماكينتوش نظام) Media 100
- (ويندوز نظام) Merging Technologies VCube

- muvee Technologies autoProducer -.0 (ويندوز نظام)
- NewTek Speededit (ويندوز نظام)
- Nero - Premium (ويندوز نظام)
- Pinnacle (ويندوز نظام)
- Pure Motion Editstudio
- Roxio VideoWave and MyDVD (ويندوز نظام)
- Serif MoviePlus (ويندوز نظام)
- Sony Vegas (ويندوز نظام)
- Tenomichi 3D Edit (ويندوز نظام)
- Ulead Systems MediaStudio Pro and VideoStudio (ويندوز نظام)
- AVIedit (ويندوز نظام)
- Windows Movie Maker (ويندوز نظام)
- 
- Reference 4 - 0.30% Coverage
- 
- 
- [http://ar.m.wikipedia.org/wiki/section\\_1#الفيديو\\_تحرير\\_برامج\\_أسماء\\_قائمة](http://ar.m.wikipedia.org/wiki/section_1#الفيديو_تحرير_برامج_أسماء_قائمة)
- 
- Reference 5 - 1.05% Coverage
- 
- 20:12: هالبرنامج شوفوا شباب :مرزوق ط - 25 نوفمبر
- 
- إفكتس أفتر
- 
- ويستخدمونه التلفزيونية والأعمال الخاصة المؤثرات الأفلام، الرقمي، الفيديو صناعة في البرنامج يستخدم أدوبي، شركة من متحركة رسومات برنامج وغيرها بالتلفاز للاعلانات
- 
- داخل من البرنامج وصوره صورته وهذي
- 
- Reference - - 0.1-% Coverage
- 
- 20:12: الداخلي من وهذي :مرزوق ط - 25 نوفمبر
- 
- Reference - - 12.-0% Coverage
- 
- 20:13: مرفق الملف) IMG-20121125-WA0000.jpg :مرزوق ط - 25 نوفمبر
- 20:14: الأفلام، الرقمي، الفيديو صناعة في البرنامج يستخدم أدوبي، شركة من متحركة رسومات برنامج هو إفكتس أفتر :مرزوق ط - 25 نوفمبر
- التلفزيونية والأعمال الخاصة المؤثرات
- : الانترنت على البرنامج موقع Adobe : المنتجة الشركة After Effects : البرنامج اسم Adobe شركة برامج أحد هو
- <http://www.adobe.com/products/aftereffects/>
- Motion Graphic & Compositing & Visual Effects : (البرنامج وظيفة أو عمل) البرنامج تصنيف
- motion graphic ؟ معنى ما
- والصور الرسوم تحريك بأختصار يعني
- 
- أو power point مثل برامج في هذه التحريك بعملية أقوم ان الممكن من اليسار أقصى إلى اليمين أقصى من يتحرك ان وتريد مربع ترسم مثلاً يعني
- Flash أو Image ready برنامج مع الملحق برنامج ؟ الفوتوشوب برنامج
- 
- ...ولكن ممكن : الجواب
- 
- عمله برنامج لكل
- 
- التقديمية للعروض ms Power Point
- 
- الانترنت لعالم Adobe Flash
- 
- أيضاً الانترنت لعالم Image Ready
- 
- التلفزيون لعالم After Effects
- 
- أعلاه المذكورة البرامج جميعه يفوق وممتاز الدقة عالي After Effects برنامج داخل فالتحريك لذلك إضافة
- 
- compositing ؟ معنى ما
- 
- بعضها عن مختلفة تكون قد الطبقات هذه ،(الفوتوشوب مثل تماماً) Layers الطبقات بتركيب تقوم أنت After Effects عالم ففي التركيب، بأختصار معناها
- ؟ هذا معنى ما البعض
- 
- مع سترفق وبالطبع والنصوص البعد الثلاثية والرسوم البعد الثنائية والرسوم والصور الفيديو مثل مختلفة مصادر من طبقات عدة تجمع أن تستطيع أنك معناه
- صوت طبقة (الأحيان أغلب في) هذا كل
-

- أختلافها على البرامج أنواع معظم مع يتعامل عملاق برنامج After Effects بأختصار
- 
- برامج مع ويتعامل، Adobe Premiere مثل الفيديو تحرير برامج مع ويتعامل، Adobe Photoshop مثل الصور تحرير برامج مع يتعامل فهو وغيره 3DSMAX مثل البعد ثلاثية الرسوم برامج مع ويتعامل، Adobe Flash و Adobe illustrator مثل البعد الثاني والرسم الفيكتور
- 
- المتحركة Text النصوص بأنشاء العالية إمكانياته إلى بالإضافة
- 
- Visual Effects ؟ معنى ما
- والخدع المؤثرات لأنشاء تستخدم تقنية خاصة تسمى VFX اختصاراً والتي Visual Effects البصرية المؤثرات :مرزوق ط - 25 نوفمبر 20:14،
- المؤثرات مجال في تساعدك التي والأوامر المؤثرات من العديد فيه After Effects وبرنامج المثال سبيل على إملاء أو الدخان أو النار كتوليد البصرية السينمائية والخدع البصرية
- 
- Effects : المؤثرات
- 
- Plugins اضافية مؤثرات هناك أن كما مؤثر الخمسين عددها يتجاوز والتي منها العديد على يتحتوي وهو البرنامج مع بكثرة تستخدم Effects المؤثرات البرنامج على تركيبها أو تنصيبها تستطيع ملحقة
- 
- 2D Or 3D : ثلاثي أم ثنائي بعد ذو كونه حيث من البرنامج تصنيف
- 
- برامج إلى ينتمي لا أنه كما والإضاءة كالكاميرات الثالث بالبعد خاصة أدوات به لأن 2D الثاني البعد إلى ينتمي لا After Effects برنامج فإن الحقيقة في ثلثاً بعداً ليس الحقيقة في لكنه الأبعاد ثلاثي تراه ما بأن يوهمك أنه Depth العمق أو Z الثالث البعد يمتلك لا لأنه 3D الثالث البعد
- 
- الاثنتين بين وسط أنه أي 2.5D انه على البرنامج يصنف ذلك أجل من
- 
- عمله طريقة حيث من البرنامج تصنيف :
- 
- برامج هناك لأن Photoshop برنامج في الطبقات كنظام تماماً Layer Based الطبقات نظام على معتمد كبرنامج عمله طريقة حيث من يصنف البرنامج وغيرهما 3DS MAX و 4D Cinema مثل الثالث البعد برامج كجميع Node Based العقد نظام تعتمد أخرى
- 
- الأخرى البرامج مع التكمال :
- 
- مثل الفيديو تحرير وبرنامج Illustrator مثل الثاني البعد وبرنامج Photoshop مثل الصور تحرير كبرامج البرامج من العديد مع ومتعامل متكامل البرنامج 3DS MAX و 4D Cinema مثل الثالث البعد وبرنامج Audition مثل الصوت وبرنامج Premiere
- 
- Reference - - 1.01% Coverage
- 
- وحمله يشوفه حاب للي وبالكمال المصدر وهذا :مرزوق ط - 2 نوفمبر 00:24،
- S1: Marzouk ... [who failed to success in this course twice as he said .. now are the most one who share and active!!!!?Why?] ..
- [http://ar.m.wikipedia.org/wiki/section\\_1#الفيديو\\_تحرير](http://ar.m.wikipedia.org/wiki/section_1#الفيديو_تحرير)
- 
- Reference 9 - 3.-3% Coverage
- 
- 02:42: التلفاز عن اليوم بتكلم شباب مرحبا :مرزوق ط - 5 ديسمبر
- حاضر ماكنت وانا خذيتوا انكم بما
- سريع بشكل عنه قريت
- بالاختبار ويجيبنا يفيدنا اللي المفيد وخذيت
- هالكلام من تستيفون واتمنى
- (مرفق الملف) IMG-20121205-WA0000.jpg :مرزوق ط - 5 ديسمبر 02:42،
- 1959 سنة تلفاز اول هذا :مرزوق ط - 5 ديسمبر 02:43،
- وسريع عام بشكل التلفاز اهميه :مرزوق ط - 5 ديسمبر 02:44،
- وقت وتمضية التسلية هو للمشاهد بالنسبة للمرناة الاساسية الاستخدامات وإحدى للشعوب العام الرأي صناعة في دور وله الإعلام وسائل أهم من التلفاز السلطة رموز أوائل من أصبح حتى والقادة الحكومات لدى كبيرة أهمية له نرى لذا. الأخبار أخر ومشاهدة المعلومات على الحصول إلى بالإضافة الفراغ التلفاز مقر على والاستيلاء
- العصور مر على التلفاز تطوراته وهذي :مرزوق ط - 5 ديسمبر 02:45،
- ويكيبيديا من وخذيتها
- المادية الإنجازات إمكان دون من ولكن الصور، نقل لمبدأ بيان : 4-1
- الميكانيكي التلفزيون وأساس نيبكو قرص الصور، تحليل للخطوط جهاز اختراع براءة على نيبكو بول الألماني المخترع : 4-1
- 
- Reference 10 - 1.40% Coverage
- 
- 02:51: التلفاز استخدام طبعاً :مرزوق ط - 5 ديسمبر
- نقطه كل الملل بالتفصيل تشوفون المصدر واحظلكم فيها الاقلام رؤوس بذكر
- التلفاز استخدام
- الاطفال على وتأثيره التلفزيون
- والعنف التلفزيون
- العامة والصحة التلفزيون
- هالمعلومه منه اللي المصدر وهذا
- [http://ar.m.wikipedia.org/wiki/section\\_1#التلفاز](http://ar.m.wikipedia.org/wiki/section_1#التلفاز)

- عام بشكل هالكلام يفيدكم اتمنى :مرزوق ط - 5 ديسمبر, 02:52

### 3.2 Students decide on their own what is relevant, useful and compatible with their curriculum (143 examples)

- <Internals\G 1> - § 30 references coded [24.31% Coverage]
- 
- Reference 1 - 0.31% Coverage
- 
- S3: its good .. the ipad .. truly caters your need better than the computer in some times .. but in other times you need computer ..
- 
- Reference 2 - 0.0-% Coverage
- 
- S2: your words is true
- 
- Reference 3 - 0.9-% Coverage
- 
- S5: laptop and ipad you take them with you to any place [portable] ...
- S5: but the laptop is better and more use than ipad .. because its does not [maybe he was wrong by using NOT] .. have word or excel .. issues that you need in education ..
- S5: I say .. laptop better than ipad by stages ...
- 
- Reference 4 - 0.5-% Coverage
- 
- S1: your words ..Nasser.. is correct ..
- ..... The uses of the laptop ..nice.. and its caters your need better than the everything ..
- I hope not all of our talk about computer .. lets start talk about input and output and storage devices
- 
- Reference 5 - 0.1-% Coverage
- 
- S3: yes, true
- S3: because not all people are cabable to use the computers
- 
- Reference - - 0.12% Coverage
- 
- Me: Talked about the sound and graphics programs.
- 
- Reference - - 3.4% Coverage
- 
- S1: 15:32, 2- نوفمبر +9-5 50- 255-5 برامج: الخير ياجماعه الصوت برامج: لها تاثيرات اضافاه الصوت المقطع التقطيع
- S3: 15:3, 2- نوفمبر +9-5 9909 -355: (gold wave) ويف قولد برنامج هذي البرامج احد من و عليه مشنتغل شخصيا انا
- S3: 15:3, 2- نوفمبر +9-5 9909 -355: الصوت يصفى و صدى يضع و صوته يعدل ان يمكن القارئ خلاله من
- S3: 15:39, 2- نوفمبر +9-5 9909 -355: احد مقطوع و يقره هو مقطوع او بعض مع يدمجهم و صوته مع ثاني صوت يركب مثلا مقاطع يقطع و يقره ثاني
- S3: 15:41, 2- نوفمبر +9-5 9909 -355: بعد فيه تدمج و فيديوات تقطع يمكن هذا الرسوم امن
- S3: 15:41, 2- نوفمبر +9-5 9909 -355: ثاني صوت فيديو على تركيب و الصوت تلغي او
- S1: 15:43, 2- نوفمبر +9-5 50- 255-5: مبتدا تعديا حق بس تنبيه الى بالعرض يودي لا و محدده خصائصه الرسام بس الرسام برنامج مثل الرسوم
- S4: 15:44, 2- نوفمبر +9-5 552 4-3--: محدوده مميزاته يعني الفوتوشوب نفس مو بس عليها ويكتب الصورة يقص هم الرسام لا
- S1: 15:45, 2- نوفمبر +9-5 50- 255-5: اى
- S3: 15:4, 2- نوفمبر +9-5 50- 255-5: الكنق الفوتوشوب
- S4: 15:4, 2- نوفمبر +9-5 552 4-3--: عليه راحت الرسام يعني بس التوب هو الفوتوشوب اى
- [after Talked about the sound and graphics programs .. like Photoshop .. one of them asked an important question]
- S4: 15:4, 2- نوفمبر +9-5 552 4-3--: ؟؟؟ بالتعليم يفيد بشنوو تراا اى هل بس
- S4: yes, how it benefit the education??!!
- 15:4, 2- نوفمبر +9-5 552 4-3--: صح شي ولا
- S4: Nothing ..true..
- S3: 15:4, 2- نوفمبر +9-5 9909 -355: الصغار تعليم حق يفيد
- S3: 15:4, 2- نوفمبر +9-5 9909 -355: تغييرها و صور وضع



- S1: Yes , ... basically, not education .. no, everything is education and information, [...] a specific video .. caters your need better than the computer and its big size ... this is fast and bring the far issues ..
- .... For example, we are learning by distance learning .. and we benefit from each other..this is something positive in some information .. 24 hours can be useful ..
- .. and as Nasser said, it is useful in a better, clearer, and faster way ..
- 
- Reference 1- - 1.01% Coverage
- 
- S3: your words are true, .. and its correct .. who said not all time you can grasp your mobile and connect to the internet .. or anything else ..
- .. as you have been said .. if you are set in dewanya ..not normal one [he mean official .. elder people attend it.. you have to be discreet ] .. or meetings ..
- .. but, its useful in significantly .. meaning .. the positives of benefit from the mobile are greater than its negatives .....
- 
- Reference 1- - 1.25% Coverage
- 
- S2: yes, Doctor, .. the mobile is significant .. to the degree that my little brother ..do not how to write or read .. bought a BlackBerry and now learning .. I swear to God...
- ... in sometimes, the mobile help to learn significantly .. For that, thanks to modern devices .. can gain info that help us more in research or studying and facilitate a question,, and in sometimes, the mobile might not accomplish the task .. or the wanted aim for learning because of lack of info ... we might find it in books ... and don't exist on the internet ...
- 
- Reference 19 - 0.5% Coverage
- 
- I: Dear student/ this question is related to my own research ... Do you think that you succeeded with me? And why do you think you did not succeeded before? Or what have been changed with you? .. I wish .. answer with details for what happened .. and is your performance evolved? .. and what drive you to success? Thanks ..
- 
- Reference 20 - 0.59% Coverage
- 
- S5: Yes, Doctor , I think that I succeeded .. and this the first time I take this course .. and my performance evolved than before .. and what drive me the easy and the clearance of the course .. and the enjoyable of learn it .. thank you Doctor ..
- 
- Reference 21 - 0.--% Coverage
- 
- S1: yes, Doctor, I think I am succeeded with you .. because you make the subject easy .. and the performance evolved through communication .. to stable the info in the mind .. What drive me for the success is that you make the subject easy .. and our communication .. and good luck.
- 
- Reference 22 - 0.9% Coverage
- 
- S4: yes, I did not succeeded before .. because the doctor himself was making the subject difficult ... he was asking a report after every last lecture .. meaning, he make it very hard for us .. but thanks to god .. with you .. Doctor .. I discovered that the subject is easy and all the methods of learning that you follow were easier ..
- 
- Reference 23 - 0.35% Coverage
- 
- S3: Yes, Doctor, I think that I succeeded with you because you simply make the scientific subject easy for us .... And give us grades .. thank you ..
- 
- Reference 24 - 0.4-% Coverage
- 
- S-: I think I succeeded .. and the reason is you make the subject easy .. and your good efforts .. and facilitate the exams .. and guys communication through WhatsApp .. this is all helped us ...
- 
- Reference 25 - 0.3% Coverage
- 
- S2: Me, Doctor .. did not get lucky and failed in the last course ..
- .. hopefully, I think that I succeeded with you .. and the reason .. make the subject easy .. and your great efforts with us .. and make the exams easy .. frankly, no one can deny that .. thanks ..
- 
- Reference 2- - 1.1-% Coverage
- 
- Me: thanks for whom involved with me for the success of this experimental .. and I hope .. answering more questions that related the study:
- For example: 1- when you use the smartphone normally for sharing?
- 2- what do you feel about the smartphone? Did it serve you?

- 3- what do you think if your colleagues assessed you ..instead of the teacher? will he present a better advices .. talk in details .. hope everyone share .. thank you all ..
- N.B.: copy of previous exam is available on the website ..
- 
- Reference 2- - 0.-4% Coverage
- 
- S5: I use the mobile in all times .. and share in free time ..
- .. yes, the smartphone helped me in many things.. for study and out side it ...
- .. something great that my colleagues assess me .. and Yes, I think that he will offer me an advice ... but not necessary all advices will be better than teacher advices ..
- 
- Reference 2- - 0.--% Coverage
- 
- S1: I use it during participation with guys .. to exchange conversation with them ..
- .. it serve if I want something ..
- ..my feeling about it during the free time [not understandable] ..
- .. I aspect .. he will advise me a string advice .. and the teacher is more better because he know the .. topic.. the discussion ..
- 14:51 - 19 ديسمبر ,
- العصر في مهمه وسيلة أصبح الهاتف :2ج
- 
- Reference 29 - 0.-4% Coverage
- 
- S2: A1: I use it always for participating ..
- A2: the mobile became important mean in the modern era and development and technology ...
- A3: maybe in sometimes provide advices .. but the thinking will be different .. because the teacher have expertise and make the topic easy .. and facilitate it .. this is my view
- 
- Reference 30 - 0.93% Coverage
- 
- S-: I use the mobile in the free time or before I sleep ..
- ..for me the mobile serve with many services .. like communication .. and contacting friends .. also the mobile became a basic thing in life ..
- .. my view about .. if one of my colleagues offer advice instead of the teacher .. the teacher have his own way to deliver the info in easy way .. while the friend the way will be different ..
- 
- <Internals\\G2> - § 1 reference coded [13.23% Coverage]
- 
- Reference 1 - 13.23% Coverage
- 
- 13:45, 19 ديسمبر :التعليم تكنولوجيا - شكرًا: للأهمية بالدراسة المتعلقة الأسئلة من المزيد عن الاجابة وأرجو .. التجربة نجاح في معي ساهم من لكل شكرًا: المشاركة؟ عادة الهاتف تستخدم مني - 1: مثلا
- خدمك؟ هل النكي؟ الهاتف تجاه شعورك ماهو - 2
- 3- المشاركة ارجو .. رجاء بالتفصيل تحدث .. افضل نصائح لك سيقدم كان هل بالواتساب؟ مشاركتك بتقييم معلمك عن بدلا زميلك قام لو رأيك هو ما - جميعا لكم وشكرا .. الجميع
- الموقع في السابقة الاختبارات من نماذج يوجد :ملاحظة
- [Me: asking the same questions about the smartphone .. translation is in G1]
- المشاركات؟ أين شباب يا :التعليم تكنولوجيا - 20 ديسمبر 1-:09
- I: guys, where is the participations?
- 20 ديسمبر 1-:10 -
- 20 ديسمبر 1-:10 -
- الموقع في السابقة الاختبارات من نسخ يوجد :التعليم تكنولوجيا - 20 ديسمبر 1-:11
- G2: S-: Rain Doctor and vacation .. hhhhhh [laughing] .. drive us to forget the participations.
- 20 ديسمبر 1-:13 -
- S1: I use the mobile in participation through asking question and in a free time ..
- 2- my feelings toward smartphone .. it's a peak of how easy to deliver the information ... and development .. and offer means of comfortable for the learner ..if he use accurately ..
- 3- I do not have a problem through my colleagues assess my work by WhatsApp .. and this is not a punishment but correction and increasing information's ..
- 20 ديسمبر 1-:22 -
- S2: I use mobile generally, in the time of sharing in my spare time .. because of my family responsibilities and commitments ... and how I feel about the smartphone .. it make me communicate with the outside world .. and made me as a small village .. any info I need .. available and easy ..
- ... and its ok that my colleagues assess my sharing in the WhatsApp ... exchanging views sometimes for my sake .. and I know from him my mistakes .. as he is my colleagues I might be more comfortable .. but my colleagues who I trust his assessment must have knowledge even if little .. of course .. sure that my colleagues who will assess me will give me advices ..
- 
- <Internals\\G3> - § 2- references coded [41.25% Coverage]

- 
- Reference 1 - 0.53% Coverage
- 
- والرسم الصوت برامج عن تحدث (2-/11) التالي الموضوع :التعليم تكنولوجيا - 2- نوفمبر, 15:30
- 
- Reference 2 - 2.09% Coverage
- 
- أدوات من واضح فيه شيء كل لأنه ،فيه يرسم بيبي إذا الابتدائي طالب على أسهل يكون الرسم وبرنامج: 0234-1 ---+9-5 - 2- نوفمبر, 01:19
- ..... التكنولوجيا بالتعلم ويفيده ،الماديه الناحيه من الطلبة يفيد الصوت برنامج: 390-- -+9-5 50- - 2- نوفمبر, 01:2-
- ..... التكنولوجيا ويحب المتوسطه بالمرحله الذي الطالب يفيد يعلم والرسم
- وشكرا :390-- -+9-5 50- - 2- نوفمبر, 01:2-
- 
- Reference 3 - 1.-5% Coverage
- 
- I: the group question/ how the smartphone help you to overcome the natural and environment obstacles .. and combining between the real and the assumption world to increase the learning achievement?
- .. on other words, do smartphone allow to discover the world in a way that wasn't possible before?
- 
- Reference 4 - 1.4-% Coverage
- 
- S2: Yes, smartphone can discover the world better than before, because it have internet/connection .. and if you want to know info about anything in the world in any place .. you can connect the internet with the smartphone and get what you want ..
- 
- Reference 5 - 0.93% Coverage
- 
- S3: mobile is sort of technology .. and with it we can know what going on around us... and can discover the world secrets .. meaning what going in the world ..
- 
- Reference - - 0.15% Coverage
- 
- S3: I agree with you ...
- 
- Reference - - 1.9-% Coverage
- 
- S4: our live became connected to the mobile and the internet ... you cant .. from the college and friends and family .. and if you want to search for something ....shops or anything specific .. in seconds .. you find it .. and guide you which street you go also ... and little by little mobile will take the computer and the laptop place ..
- 
- Reference - - 0.39% Coverage
- 
- S3: hhhhhh . it take the place of the computer and the laptop ..
- 
- Reference 9 - 0.-1% Coverage
- 
- S4: because there is a programs .. yet .. didn't work on mobile until now like PowerPoint and Excel ..
- 
- Reference 10 - 1.4-% Coverage
- 
- S1: I agree with you .. but still the computer is the best in some programs .. and the screen is bigger and easiest to read something or look to it ..
- .. and now, the mobile in hand for all .. and inside it programs that show you the whole world ..
- 
- Reference 11 - 0.3-% Coverage
- 
- S2: but there are devices better than the computer ... ipad ..
- 
- Reference 12 - 0.22% Coverage
- 
- S1: every one and his preference ..
- 
- Reference 13 - 0.19% Coverage
- 
- S2: correct, I agree with you
- 
- Reference 14 - 4.44% Coverage
-

- S5: for sure, ..smartphone contribute in overcoming the natural obstacles .. and I mean by natural –place- ..whereas the smartphone became more flexible and fluently from using other similar technological devices in work..
- .. The question that the smartphone allowed the discovery of world in which it was not possible previously... Is not correct according to my point of view ... because the mobile didn't offer something new from the previous devices .. except the issue of EASY TO CARRY, AND PORTABILITY AND FLUENTLY .. or all its operations can be done by previous devices ... moreover, in what came before it .. there are issues not in it ..
- ..on other words, the outcomes of the smartphone .. the same .. as the outcomes of other devices (computer) ..
- 
- Reference 15 - 0.2% Coverage
- 
- I: do you think that WhatsApp enhance the way you learn? If (no) Why.. if (yes) how do justify the low grades of you and your colleagues?
- 
- Reference 1 - 4.29% Coverage
- 
- S1: Yes, ..but most of the mistakes exist in the .. right or wrong .. and fill the space [the way of exam]
- 11 ديسمبر, 1-:45 -
- اهتمام في كان وما و تصحيح في كان ما دكتور ولاكن
- الياي اسبوع الا منه تسمع ما و كلمتين حط بس وياك انا الباجي دشو و كلمتين قال دش الكل بس لاكن احسن جان تصحيح و انتقاد فيها المشاركة لو يعني
- و ايصحح و يسال والي درجتين المشاركة تخلي ما من احسن تعب لانه يستاهلها الي الدرجه تعطيه و 10-1 من تقيم و درجه عليها مشاركة كل لو يعني
- كلمه جم كتب الي حال حاله مايصير يناقش
- عندي و نقاط حافظ انا لانه صفر فيه بيت المقالي امتحان اول العكس اقول انا الفراغ واملئ و غلد بالصح تكون الاخطاء ايقول الي اخوي كلام حق نسبه بل و
- المواضيع بكل يختبرك راح غلط و الصح اكيد ؟ مقالي 2 ولا غلط و صح سؤال 10 يعني شي بكل يختبرك و غلط الصح
- 
- Reference 1 - 0.1% Coverage
- 
- S4: Yes, ..but there were no correct and there wasn't interesting [meaning .. giving grades and appropriate interest from the teacher]
- 
- Reference 1 - 3.0% Coverage
- 
- 11 ديسمبر, 4-:1
- الموضوعي على تروح الدرجات اكثر الاختبارات اساس على: 1 0234 ---5-9 + 11 ديسمبر, 4-:1
- نعم: 390-- 50-5-9 + 12 ديسمبر, 43:12
- الاختبار درجت تدني الموضوعيه بالاساله الطليه اخواني اوافق الدرجات وتدني. الواتساب في عليه المطلوب ما يفهم المحاضره يحضر لم الذي الطالب لانه
- S2: yes, because we discuss what we taken in the lecture .. and check .. which remain in the brain ... based on the exams .. most of the grades gone on the objective [meaning ..lots of grads lost because of the exam way.. they don't prefer multiple choice ..]
- 
- Reference 19 - 1.32% Coverage
- 
- S3: yes, .. because student who didn't attend the lecture .. understand what is wanted from him in the WhatsApp .. and the low grades .. I agree with my colleagues .. in the objective question .. the exam grades decreased ..
- 
- Reference 20 - 0.--% Coverage
- 
- I: I apologies for the inaccurate question/ do you think the communication between you and your colleagues by WhatsApp facilitate your learning?
- 
- Reference 21 - 1.03% Coverage
- 
- S3: yes facilitate .. but I expect .. because not review the subject .. and before the exam (the exam night) .. and the objective questions have important role in low exam ..
- 
- Reference 22 - 3.05% Coverage
- 
- S4: no, .. the reason is for example, we take a device in the lecture .. and in WhatsApp talked about method of developing the device or using other devices ...
- .. and Doctor, you start to give us only a questions ... it wasn't various .. it was about one program .. and each group ..program .. each group reviewed 1 program from 5 or - program [its not enough for him .. by asking specific questions and not let them share as they like]
- ... about how easy the learning? Yes, easy ..but in a countable degree .. [limited] ..
- 
- Reference 23 - 0.23% Coverage
- 
- Me: Guys where is the participations?
-

- Reference 24 - 1.3-% Coverage
- 
- S2: 1- when I have a free time .. or in dewanya ..
- 2- yes, serve me in many things like .. if I lost a place ..or if I want to know particular info ..
- 3- Yes, he would offer me a better advices .. and would tell me my mistakes ..
- 
- Reference 25 - 5.5-% Coverage
- 
- S4: 1- At night .. when I get back to home ..
- 2- I cant without it because everything became in he internet ..
- 3- if my friend evaluate the participation ..there will be mistakes .. not like the Doctor .. and my friend as I evaluate him ..he will evaluate me [danger of bias .. same treatment] .. [he indicated that the Doctor/teacher will be more fair] .. and lastly the Doctor must assess ...
- In my opinion, every 5 at most in a group ... and the Doctor not exist in the group .. and the group discuss the question that given by the Doctor ... and they manage it .. meaning .. everyone write two sentence and it became a paragraph .. and they agree it will include a summary of the subject ... and the responsible of the group send it to Doctor with the names of whom shared ... and if there is someone did not share ..he tell the Doctor ..and in this way .. the Doctor can assess the group which is 5 .. and make sure that they understand the subject ...
- 
- Reference 2- - 1.-4% Coverage
- 
- S3: first: I use the mobile in any time ..
- Secondly: Yes, serve .. make us know whats going on in the worlds ..
- Thirdly: No, I don't prefer ... sometimes this colleagues don't have a strong experience as a specialist teacher .. and he doesn't assess you like the teacher ..
- 
- 
- <Internals\\G4> - § - references coded [1-.42% Coverage]
- 
- Reference 1 - 1.34% Coverage
- 
- Me: What is the benefit of smartphone to collect data and share / exchange with others to enrich and improve the learning process?
- ..... For example .. Phone's ability to collect different data and share them with others (as geographic GPS systems)
- 
- Reference 2 - 2.3-% Coverage
- 
- 1:-32, ديسمبر
- S4: the advantages of smartphone.. 1- Can monitor appointments and reminders, etc...
- 2- Through the program (WhatsApp) is formed group discussion and dribble to get to the educational goals (collaborative learning) ..
- 3- As well as the transfer and receive files using Internet technology for research and other work.
- .... As well as we can through a video telephony software to communicate with relatives and friends
- 
- Reference 3 - -.1% Coverage
- 
- S2: the advantages of the smartphone .. not limited .. and technology daily evolved .. and new product is produce ... and from its advantages .. from the current product .. Viber /free calls ..Tango / video calls .. WhatsApp for communication through the voice, and writing, and image messages
- 19:43, ديسمبر 3 -
- S1: smartphones .. saved for people many things that was difficult to accomplish before ... especially, in educational matters .. and what we do now through the WhatsApp program is collaborative work and learning in smooth and flexible .. and in anytime ... and not just a specific time ..
- 14:24, ديسمبر 4 -
- S5: Smartphone basically is a very unusual phone sends and receives calls and SMS but it contains many of the characteristics of personal devices PC .. ...
- .... He is able to connect to the Internet in various ways Edge, 3G, 4G and it it offers Internet services and e-mail and calls via the Internet, and these phones contain full keyboard may be included in the device's screen big or she physically present in the device buttons realand therefore most of these phones equipped with touch screen gives you greater control over all the properties of the device such as the iPhone and Aljlexa and iPad [ I think this copy & paste] ..
- 
- Reference 4 - 2.40% Coverage
- 
- S2: 11:02, ديسمبر 5 - +9-5 50- ---00: نسيت لكن هالمسوال عن اعتذر متى الاختبار باجماعة
- S2: 11:04, ديسمبر 5 - +9-5 50- ---00: الاثنين لا و اليوم
- S4: 11:14, ديسمبر 5 - +9-5 ---5 5123: اليوم

- S4: 11:14, 5 ديسمبر - +9-5 ---5 5123: اليوم
- S2: 11:14, 5 ديسمبر - +9-5 50- ---00: خير الله جزاك
- S2: 11:15, 5 ديسمبر - +9-5 50- ---00: للجميع التوفيق الله اسئل
- S4: 11:1- , 5 ديسمبر - +9-5 ---5 5123: الله شاء ان ويالك
- S5: 05:20, 5 ديسمبر - - +9-5 9000 3---: بالخير الله صباحكم
- 
- Reference 5 - 1.05% Coverage
- 
- I: Do you think that improves method of learning? If the answer is (not) cite the reasons .. If the answer (yes) ..So how do we explain the low results of your test and your colleagues?!!
- 
- Reference - - 0.95% Coverage
- 
- S4: yes, enhance / the exist of exchange between the students .. that work on Planting ideas in the mind of the student ... Therefore it does not allow the student to forget
- 
- Reference - - 0.5% Coverage
- 
- S2: Yes improves: and is considered by me personally ...(Strengthening) after the school day ... Address topics and discussion around and gain information...
- 
- Reference - - 1.3% Coverage
- 
- S5: In my personal opinion (yes) ...participation to WhatsApp ...Stimulate students to read and exchange of information between ... and develop the level of education both in modern devices or via the Internet ... and it consider a review of the lecture after what has been asked ... subjects required
- 
- <Internals\\G5> - § - references coded [24.52% Coverage]
- 
- Reference 1 - 0.95% Coverage
- 
- What is the impact of communication exchange on personal, social and cultural improving?
- 
- Reference 2 - -.51% Coverage
- 
- S3: [provide info .. might copy and paste] ..
- 1 - personal contact between people born within them need to communicate one way or another
- 2 - personal contact features that the information going in two directions and everyone benefits from parties
- 3 - strong reaction from one of the parties
- 4 - collective communication is the process of participation and integration of inadvertent between individuals and groups that do so organically linked to the social and political background.... And manner of their cultural ...!!!!
- 5 - culture is the development of body and mind under the influence of the social milieu and personal impact of culture on every one of them influential and influenced by the other
- 
- Reference 3 - 2.--% Coverage
- 
- Me: Education Technology: Do you think that WhatsApp .. improves the way you learned? If the answer is (not) cite the reasons .. If the answer (yes) .. So how do we explain the low results of your tests and your colleagues?
- I wish you share with your view ..
- 
- Reference 4 - 1.30% Coverage
- 
- I: where is the participations .. So far, 4 degrees deducted from each and every one of the group [unethical procedure]
- 
- Reference 5 - 2.13% Coverage
- 
- S3: No ... its better that discussion f2f ... but if it is by WhatsApp the discussion will be weak ... and the majority of the group will be busy .. and don't know about the discussion only after hours ...
- 
- Reference - - 5.23% Coverage
- 
- S1: I say YES .. and NO .. in the same time: [!!!]
- ... Yes , because communication between my colleagues .. give me the feeling that I am not a lone .. and give a helping hand .... And gaining new information's and opinions for the subject question ... and facilitate for me knowing some answers in which it quasi not available in the note ... from summarized answers ..

- .. and NO .. as my colleagues said .. the discussion is weak .. majority don't know about the discussion for many reasons ...
- 
- Reference - - 4.-4% Coverage
- 
- S1: I justify the reduce of the exam results for many reason ...
- Not study.
- Not knowing the value of question .. speak it in slang ... he saw the question easy when he study .. and neglect it .. and suddenly .. it came to him in the exam .. and he shocked ..
- Focusing on many questions .. and guessing that they will come .. and other questions come ..
- The difficulty of the exam .. and not knowing the important ones for some of us ..
- 
- <Internals\G-> - § 3 references coded [1.-4% Coverage]
- 
- Reference 1 - 9.40% Coverage
- 
- Me: how smartphone help in maintain the individual personality?
- يطلع ما انّ بحيث باسورد احط اقدر و .. بالتلفون صوري و مدوناتى و ملاحظاتي كل فيه أذن انى ممكن :-213 9-11 5-9 + - 2 ديسمبر 44:-1 غيرى احد عليه
- S3: I can store in it ..all of my notes and my dairies and my pictures ... and I can put a password where as no one see it except me..
- والاسماء .. الصوتية والمقاطع ..بي الخاصة الفيديو مقاطع حفظ .. كلامه على واضيف .يوسف بالكلام أيدك :-2-13 ---- 9-5 + - 2 ديسمبر 10:19 مخصص قفل اضافته .. والارقام
- S4: I support you Yusuf .. and I add to his words ... save my private video and voice .. and names and numbers .. add special lock ..
- انه كلامكم ع اضيف :-515 52-9-5 + - 2 ديسمبر 12:19
- اقل بشكل لكن الخصوصيه ع محافظ تكون بعد هم ضاع لو يعنى قفل فى :-515 52-9-5 + - 2 ديسمبر 13:19
- S2: I add to your words that ..[with App they ..continue each other work ... CL]..
- ..... there is a lock .. meaning ..if its lost ..also you can keep privacy ..but less ..
- خاصه واشياء معلومات من يخلصك شيء ،ككل وحفظ الفرد خصوصية ع يحافظ إلى أهو السري الرقم اعتقد :-9995 5-9 + - 2 ديسمبر 0:22 أخرى
- S5: I think that the secret number .. is the one that will keep the privacy of the individual and save everything, something belong to you from info .. and other things ...
- يوسف اخوي الراي اوافقك :-515 52-9-5 + - 2 ديسمبر 50:22
- S2: I agree with you ..
- للحافظات وتكون اكثر يحافظ وسري شخصي رمز لها ويكون كثيره شخصيه معلومات تخززين للهاتف يمكن 42245 551 5-9 + - 3 ديسمبر 53:00 شخصيه فديو مقاطع صور برامج يحفظ النكي الحارس ومنها ومتنوعه ذكيه برامج السريه
- S1: mobile .. can save a lot of personal informations .. and can be personal code and secret keep more .... And for the secret savers there are a smart and various programs [Apps] .. one of them are the smart guard ..save photo program ... personal video layer ..
- 
- Reference 2 - 5.-4% Coverage
- 
- (بنعم) الاجابة كانت اذا اما ..الاسباب فاذكر ( لا) الاجابة كانت اذا تعلمك؟ طريقة من يحسن الوااسباب أن تعتقد هل :التعليم تكنولوجيا - 11 ديسمبر 30:1- !اوزملانكم؟ اختباراتكم نتائج تندى نفس فكيف ..)
- برأيك المشاركة أرجو
- Me : Do you think the WhatsApp enhance you way of learning?
- حفظ ع يساعد وهذا متشابهه الاجوبه وتكون متكرره المعلومات فيه تكون لان التعلم ع يساعد الوااسباب اظن: 42245 551 5-9 + - 11 ديسمبر 39:1- اسرع وفيهمها المعلومات
- التعلم ع وقدرته واستيعابه الشخص حسب ع ف الاختبارات نتائج ناحيه ومن: 42245 551 5-9 + - 11 ديسمبر 40:1-
- I think WhatsApp help in learning ... because it have repeated info .. and the answers are similar .. and this help to retain the info and understand it quickly ...
- ... on the other hand, the exam results .. its depend on the individual .. and its assimilation ..and his capability to learn ..
- لآخر شخص من يختلف يعنى دور تلعب الطالب مزاجية و ..بالتعلم الشخص رغبة حسب على لا لا و يساعد :-213 9-11 5-9 + - 11 ديسمبر 43:1-
- S3: help or not .. is related to the desire of the individual to learn ... and student mode ..play important role .. meaning it vary from one to one ..
- 
- Reference 3 - 3.-0% Coverage
- 
- متبادله المعلومات تكون لان واوضح ادق التعلم يكون بالواتسبب الزملاء مع يتواصل تكون لما يادكتور اظن: 42245 551 5-9 + - 12 ديسمبر 3:14 ف الخبره اكتساب وعدم المعلومات قلّه عن ينتج وهذا بالواتسبب والتواصل للمعلومات مانتبه ناس فى للاتباه درجه واحد فلكل الاختبارات تندى ناحيه ومن منخفضه الاختبار درجه تكون بالآخر
- S1: I think Doctor .. where we communicate with colleagues by whatsapp .. learning be more accurate and clearer ..because the info will be exchangeable .. from other side,.. the low exam .. everyone have a degree of attention .. there is people don't notice the info and communication by WhatsApp .. and this produce ..of little info .. and not gaining experience ... and in the end the degree will be low ..
- 
- <Internals\G-> - § 3- references coded [2.-5-% Coverage]
-



- Reference 14 - 0.1-% Coverage
- 
- S5: maybe .. and maybe they adopt it step-by-step ..
- 
- Reference 15 - 0.43% Coverage
- 
- S2: Your words is correct Ali ... not in one day and night .. shock them .. that we canceled the books etc... and we use ipad ..
- 
- Reference 1- - 0.34% Coverage
- 
- S4: and it not necessary that we cancel the books .. in my view this is wrong .. but we use both ..
- 
- Reference 1- - 0.2-% Coverage
- 
- S-: I agree with you in this thing .... For me ..books ..better ..frankly ..
- 
- Reference 1- - 0.59% Coverage
- 
- S5: maybe .. it enter [ipad] .. in some big subjects ... in this way we let the student love the subjects .. and little by little we enter him to the rest of the subjects ..
- 
- Reference 19 - 1.01% Coverage
- 
- S2: the thick/big subjects like cemestry and physics and ... it suppose .. offer a full labs .. and let the students ..try like the foreign countries ..and in this way you make students like it ...
- 21:13, أكتوبر - - +9-5 554 321-1: احفظ وتقله يطالع بس مو بنفسه شي يسوي يجرب يحب الطالب لانه
- 
- Reference 20 - 0.4-% Coverage
- 
- S5: I expect that teachers go to the traditional and routine way .. because it easier .. and male and female teachers learn by this way ...
- 
- Reference 21 - 0.3-% Coverage
- 
- S2: give them a special session to learn .. and educate himself .. and educate the students with him ..
- 
- Reference 22 - 0.22% Coverage
- 
- S5: I am with you Mohamed .. and I see your words ..correct ..
- 
- Reference 23 - 0.22% Coverage
- 
- Me: is using technology guarantee the success of the learning?
- 
- Reference 24 - 0.20% Coverage
- 
- S5: No, not necessary .. if they use correctly ..it help
- 
- Reference 25 - 0.45% Coverage
- 
- S2: you don't guarantee .. but the better and easier for the student in our current time .. because of technology development ..
- 
- Reference 2- - 0.-0% Coverage
- 
- S1: I think it help [technology].. for example .. I want to go to Starbux [café] to study !! I take all of my bag and go!! If the ipad .. let me like .. going out ..changing the mode .. and study one or two topics in the same time ..
- 
- Reference 2- - 0.31% Coverage
- 
- S5: but if they want to use the technology without planning .. I expect .. it will fail ..
- 
- Reference 2- - 0.22% Coverage
- 
- S2: your words Ali .. correct .. we have to start step by step
- 
- Reference 29 - 0.0-% Coverage
-



- 1-:11, 20 ديسمبر -
- ثانياً شغلنا وايد و الخرايط و بالنت وبالبحت بالتواصل يخدمني وايد الهاتف انه اشوف
- تقييم قدره عنده تكون ما احياناً بس افضل استجابتي تكون راح انه اعتقد قيمتي زميلي لو
- S1: 1- I use the phone when I am free .. I exist in Dewanya or café or at home ..
- S1: 2- I see phone help me very much in communication and in searching the internet and maps ..and a lot of other things ..
- S1: 3- if my colleagues assess me ..i think my response will be better .. but sometimes he don't have the capability to assess ..
- 1-:30, 20 ديسمبر -
- اس بي الجي منها الاثنياء من بكثير ساعدني الذكي الهاتف
- 2. الكافيه والخيره المعرفه عنده كانت اذا ولكن زملائي احد قيمتي اذا جيد شي
- 3. S-: 1- I use the phone and share when I remembered ..
- S-: 2- smartphone help me a lot of things as GBS..
- S-: good thing if my colleagues assess me but if have enough knowledge and expertise ..
- 
- <Internals\\G-> - § - references coded [20.1-% Coverage]
- 
- Reference 1 - 3.91% Coverage
- 
- 1-:21, 2 ديسمبر -
- Me: What is the benefit of smartphone to collect data and share / exchange with others to enrich and improve the learning process?
- 1-:22, 2 ديسمبر -
- S1: Saving time and effort .. Easy to use .. Sophisticated and modern so that they can exchange information, in writing, and visual and audible
- 1-:42, 2 ديسمبر -
- S2: Smartphone shortened for us a lot of things ....The evidence at this I writing to you .. from a wedding ... It means a lot of things with our daily lives ..
- 1-:43, 2 ديسمبر -
- S2: And smartphone become something mandatory our daily lives
- 1-:44, 3 ديسمبر -
- S3: Easy on-line access anywhere to collect data without the need for a computer ..
- 
- Reference 2 - 5.9-% Coverage
- 
- 1-:30, 11 ديسمبر -
- هل: التعليم تكنولوجيا - 11 ديسمبر 30:1- بنعم) الاجابة كانت اذا اما ..الاسباب فاذا ( لا) الاجابة كانت اذا تعلمك؟ طريقة من بحسن الواسباب أن تعتقد هل: التعليم تكنولوجيا - 11 ديسمبر 30:1- (لا)!!وزملائكم؟ اختياراتكم نتائج تندي نفس فكيف ..) برأيك المشاركة أرجو
- Me: Do you think that WhatsApp improves method of learning? If the answer is (not) cite the reasons .. If the answer (yes) ..So how do we explain the low results of your tests and your colleagues?!!
- I hope you participate
- 1-:13, 11 ديسمبر -
- مراجعه للطالب يمكن لا ان والسبب
- اب الواتس طريق عن المعلومات
- واضحه بصوره الاجابات اكتمال لعدم وذلك
- S-: NO .. the reason is .. the student cant review the information through WhatsApp because lack of clear and complete answers
- 1-:19, 11 ديسمبر -
- المحادثه به ويصعب للمحادثه برنامج لانه به نتعلم ان لانستطيع ولكن مفيد اب الواتس ان لاشك مما للتعلم وليس والمحادثه لتواصل اب الواتس لان وذلك فكري تشتت تسبب قد الجماعيه المحادثه لان موضوع لاي الجماعيه
- S-: NO .. because the WhatsApp is for communication ..Not for learning ... without any doubt WhatsApp is useful ...but we cant learn by it because it is a program for conversation ... and difficult for collective conversation for any topic ... because the collective conversation may cause the dispersion of intellectual
- 
- Reference 3 - 0.5-% Coverage
- 
- 1-:21, 11 ديسمبر -
- S-: and the other reason ..it new idea for students .. and with time ..student may benefit more from it ... .. and the idea is good but I am against it ..
- 
- Reference 4 - 0.4-% Coverage
- 
- 19:3, 11 ديسمبر -
- S2: NO ..of course ... because WhatsApp .. some student ..difficult to use it as we saw in the lecture .. there are individuals who don't have WhatsApp
- 
- Reference 5 - 4.1-% Coverage
-

- Thanks to everyone who helped me in the success of the experiment .. I answer more questions related to the study of the importance of:
- For example: 1 - when to use the phone normally proceed?
- 2 - What do you feel about smartphone? Is it serve you?
- 3 - What is your opinion if the colleague instead of teacher assessment review WhatsApp? Was he will provide you with the best advice .. Spoke in detail please .. I hope everyone to participate .. Thank you all
- Note: There are examples of previous tests at the site.
- 1-:15, 20 ديسمبر -
- اليوميه اموري بكل يخدمني الهاتف نعم
- المعلم من افضل النصائح يقدم ان الطالب يستطيع لا
- المعلم من اكثر معلومات يملك لا لانه
- S4: I use the mobile when you ask .... Yes the mobile serve in my daily things ....
- ... student cant provide advices better than the teacher .... Because he don't have more info than the teacher ...
- 
- Reference - - 3.3-% Coverage
- 
- 22:2- 23 ديسمبر -
- .. كثيره باشياء خدمني ونعم .. والمشاركه الاستفسار ناحيه من الذاتي بالاكفاء بالهاتف شعوري / ٢ س ج
- نصائح لي وسيقدم اكثر معهم تستجيب يجعلك المعلم مع زميلي تقييم لان زميلي مع استجيب / ٣ س ج
- ... وشكرا يادكتور التأخير ع وسامحني □
- S-: 1- I use the mobile to communicate with my colleagues and the teacher ...When you ask us a questions ... and if I need to inquire ...
- 2- my feeling that the mobile ... self-sufficient in terms of inquiry and participation ..And yes served me in many things...
- 3- I respond with my colleague ... because the assessment of my colleague with the teacher .. make you respond to them more .. and he will give advices .. and sorry for late ...
- 
- Reference - - 1.09% Coverage
- 
- 20:20, 24 ديسمبر -
- وطاقه جهد ووفر كثيرا خدمني
- لا او منصف كان اذا حسب
- S5: I use it in free time ... serve me a lot .. and save time and energy ... depending if he fair or not [he is talking about his colleague assessment] ..
- 
- <Internals\\G9> - § 23 references coded [24.25% Coverage]
- 
- Reference 1 - 1.0-% Coverage
- 
- Me: How smartphone helps to overcome the natural and environmental difficulties .. The merger between the real and virtual world to increase academic achievement?
- ... In other words: Do smartphone allows the discovery of the world in away are not possible in the past ...
- 
- Reference 2 - 0.-5% Coverage
- 
- M.: Smartphone one of the finest and most important inventions is the network that connects the world together, it features it easy for us to communicate via the Internet voice and image
- 
- Reference 3 - 0.2-% Coverage
- 
- M.: simplified the ways to search.. through it .. we search and find
- 
- Reference 4 - 0.33% Coverage
- 
- M.: Many of us no longer holds as the laptop computer .. Our laptop is our phone
- 
- Reference 5 - 0.41% Coverage
- 
- M.: That you are looking for what you want ... Image or theme or idea ... The phone in your hands..
- 
- Reference - - 0.-3% Coverage
- 
- M.: But if you are looking for important news, political and economic, religious and social, all you need to know at your fingertips without the need to carry a computer ...The computer ...Between your hands
- 
- Reference - - 0.22% Coverage
- 
- M.: combined our past and our present and future ..

- 
- Reference - - 1.1-% Coverage
- 
- M.: Was one of the difficulties of communication between countries because of the cost of their physical and undeveloped ...
- ..... But now talked as you like ... and with whom you want to...
- ... smartphone, .. Allowed us to discover the world around us .. and interdependence with who we want ...
- 
- Reference 9 - 0.32% Coverage
- 
- S2: Salam alikum .. I support you in this view ..with all of what you said ..
- 
- Reference 10 - 1.0-% Coverage
- 
- M.: The world has become a single network ... .. And social networking such as Twitter and Instagram and other, .... extended friendships and increased the age and social relations have become a widespread and important in our daily lives ... i hope it benefit you ...
- 
- Reference 11 - 0.40% Coverage
- 
- S2: as .. we have image and voice like Tango and Viber ... and as you said Twitter and instagram ...
- 
- Reference 12 - 0.14% Coverage
- 
- M.: Yes, this is what I see now ..
- 
- Reference 13 - 0.22% Coverage
- 
- S2: The smartphone is one of the best inventions ..
- 
- Reference 14 - 0.19% Coverage
- 
- S2: Became better than computer .. In stages
- 
- Reference 15 - 0.1-% Coverage
- 
- S2: But we cannot do [much] without computer
- 
- Reference 1 - - 1.5% Coverage
- 
- G2: 20:54, 2 ديسمبر - +9-5 ---1 41-3: الترابط قلت ما مثل سهلنا الذكي والهاتف
- G2: 20:54, 2 ديسمبر - +9-5 ---1 41-3: والأصدقاء الأهل مع
- G2: 20:54, 2 ديسمبر - +9-5 ---1 41-3: كله بالعالم حتى
- G2: 20:5-, 2 ديسمبر - +9-5 ---1 41-3: بالهاتف أكثر تطور وفي ماله وكل
- G2: 20:5-, 2 ديسمبر - +9-5 ---1 41-3: سنو والحين سنو قبل
- G2: 20:5-, 2 ديسمبر - +9-5 ---1 41-3: بيري والبلاك والجالكسي الايفون طلع
- G2: 20:5-, 2 ديسمبر - +9-5 ---1 41-3: صناعته في ويتطورون ماله وكل
- 
- Reference 1 - - 0.4-% Coverage
- 
- S2: The smartphone easy for us ..Like what you said interdependence ... with friends and family.. even the whole world
- 
- Reference 1 - - 0.45% Coverage
- 
- S2: it always in develop ... before what and now what ... iphone and Galaxy and Blackberry arise ... and it keep grow
- 
- Reference 19 - 0.12% Coverage
- 
- M.: your words are correct ...
- 
- Reference 20 - 0.99% Coverage
- 
- S2: in mobile .. you don't need camera .. like Galaxy and iphone ...- Bixel .. and photo .. and there are programs to improve the image and modify it .. and clear it ... but what we will expect more of development .. and what coming will be better ...
- 
- Reference 21 - 0.51% Coverage

- 
- S3: I supported your words ... Phone of the best inventions .. But there are things harmful .. Significantly affects eyes ...
- 
- Reference 22 - 3.20% Coverage
- 
- Me: Do you think that WhatsApp improves method of learning? If the answer is (not) cite the reasons .. If the answer (yes) ..So how do we explain the low results of your tests and your colleagues?!!
- 1-:2- التعلّم طريقه من يحسن نعم:مرزوق ط - 11 ديسمبر،-
- وقت باي الخبرات وتبادل الاستفاده
- و
- الحضور دون والدرس المستفيد اخذ
- الزملاء بين والنقاشات الخبرات تبادل
- السريع والفهم الالكتروني التعلّم مستوى تحسين
- نظري وجهه هذي
- M.: Yes improves the way of learning
- Benefit and exchange of experiences at any time
- And
- Taking the beneficiary and the lesson without attendance
- Exchange of experiences and discussions between colleagues
- Improve the level of e-learning and rapid comprehension
- This my point of view...
- 20:09, 11 ديسمبر -
- S3: Dr. but there is one wrong with WhatsApp ... hurt the eye ..
- 
- Reference 23 - 9.19% Coverage
- 
- والمباشر السريع نقل في التعلّم يسهل اب الواتس عبر التواصل:مرزوق ط - 12 ديسمبر،-14:4
- M.: Communicate via WhatsApp .. facilitates learning in a direct and rapid transit
- طريقه من لاكثر يحتاج التعلّم:مرزوق ط - 12 ديسمبر،-14:4
- M.: Learning needs for more than one way ..
- 14:4- التكنولوجيا طرق احدي من اب الواتس اما ... العلميه للماده ومذاكرته ... الدراسي التلميذ لمستوى يرجع الاختبارات تندي:مرزوق ط - 12 ديسمبر،-14:4 الحديثه
- M>: Low test results refer back to the academic level of student... and his study to the scientific subject... where .. WhatsApp is one of the modern technology methods ...
- 14:4- ودقيق سريع بشكل والمعلومات الصور نقل بدورها علينا تسهل التي:مرزوق ط - 12 ديسمبر،-14:4
- M.: Which in turn ... facilitates .. move images and information quickly and accurately
- بالدرس والمناقشه والخبرات المعلومات وتبادل المشاركه بعدم اتوقع بعد والتندي:مرزوق ط - 12 ديسمبر،-14:49
- ضعيفه جدا اب بالواتس المشاركات
- M.: Also, .. The regression.. I expect.. because there is no sufficient participation... and exchange of information and experiences... and discussion in the lesson ..sharing in WhatsApp is very weak...
- اب الواتس علي المعارضين من كنت:مرزوق ط - 12 ديسمبر،-14:52
- اهميته عرفت بس
- خذوا شنو ويعرف ويجاوبونه مريض او بالبيت وهو خذيتوا شنو الزملاء وسال الدرس عن غياب الطالب اذا سويتها وهذي
- خبر عندهم ويكون مايحضرون عشان اب بالواتس الطلبة يبلغ ماحضر اعتذر اذا بعد والدكتور جربناها وهم
- M.: I was against WhatsApp ... but I knew his significant ... if student absence fro the lesson and ask his colleagues what did you take .. while he is in home or sick ..they answer him and he know what he missed ..and this is I what I do ...
- ..Also the Doctor .. if he excuse ..tell the students by WhatsApp ..for not attend .. and we also try it ....
- للأهميه تبليغي ارجو ؟ سابقا المقرر هذا في وينجح الحظ يحالفه لم منكم من شباب يا :التعلّم تكنولوجيا - 1-3-1
- للأهميه بالدراسة المتعلقة الأسئلة من المزيد عن الاجابه وأرجو .. التجربة نجاح في معي ساهم من لكل شكرا :التعلّم تكنولوجيا - 19 ديسمبر،-13:4
- بالمشاركه؟ عادة الهاتف تستخدم متى -1 مثلا
- خدمك؟ هل الذكي؟ الهاتف تجاه شعورك ماهو -2
- من المشاركه ارجو ..رجاء بالتفصيل تحدث .. افضل نصائح لك سيدتم كان هل بالواتساب؟ مشاركتك بتقييم معلمك عن بدلا زميلك قام لو رأيك هو ما -3
- جميعا لكم وشكرا .. الجميع
- الموقع في السابقه الاختبارات من نماذج يوجد:ملاحظة

4. Playing new roles (43 examples): These examples include supporting, guidance, giving instructions, helping peers... etc in the 2<sup>nd</sup> iteration.

#### 4.1 Supporting less knowledgeable students (19 examples):

- <Internals\G 1> - § 1- references coded [-.--% Coverage]
- 
- Reference 1 - 0.-3% Coverage
- 
- 1-:25, نوفمبر 19 -
- S5: laptop and ipad you take them with you to any place [portable] ...
- S5: but the laptop is better and more use than ipad .. because its does not [maybe he was wrong by using NOT] .. have word or excel .. issues that you need in education ..
- S5: I say .. laptop better than ipad by stages ...
- 
- Reference 2 - 0.5-% Coverage
- 
- S1: your words ..Nasser.. is correct ..
- ..... The uses of the laptop ..nice.. and its caters your need better than the everything ..
- I hope not all of our talk about computer .. lets start talk about input and output and storage devices
- 
- Reference 3 - 0.1-% Coverage
- 
- S3: yes, true
- S3: because not all people are cabable to use the computers
- 
- Reference 4 - 0.23% Coverage
- 
- 1-:44, نوفمبر 19 -
- S5: where is the rest of the guys .. why they don't share [blame or encourage]
- 
- Reference 5 - 0.0-% Coverage
- 
- S1: they might be busy ..
- 
- Reference - - 0.23% Coverage
- 
- S5: I did not attend the lecture and sharing more than you ..hhhh [clue of the useful of the Apps]
- 
- Reference - - 0.2-% Coverage
- 
- S5: guys, this is the group question next topic (21/11) talk about the different displays and writing programs
- 
- Reference - - 0.12% Coverage
- 
- S4: most important the writing which we need more
- 
- Reference 9 - 0.12% Coverage
- 
- S5: Powerpoint is a writing and display program
- 
- Reference 10 - 0.25% Coverage
- 
- S5: no, it difficult you write an essay in Powerpoint because Word give you more space and page to write
- 
- Reference 11 - 0.22% Coverage
- 
- S2: writing programs is better for teacher and learner because it [allow] design and layout
- 
- Reference 12 - 0.1-% Coverage
- 
- S5: true, but you can write a paragraph in every page [PowerPoint] and become
- 
- Reference 13 - 0.03% Coverage
- 
- S5: an essay
-

- Reference 14 - 0.2-% Coverage
- 
- S2: PowerPoint easier to navigate and browse...and we can add audio or video and movement for the words and letters
- 
- Reference 15 - 0.09% Coverage
- 
- S2: PowerPoint is for display program
- 
- Reference 1 - - 0.2-% Coverage
- 
- S5: writing program like the display program ..are many , but word program is the only known .. and most uses
- 
- Reference 1 - - 0.22% Coverage
- 
- S2: and also even the writing program increase confidence for the teacher and the student ..
- 
- Reference 1 - - 2.-3% Coverage
- 
- S2: 1-:3- - 2- نوفمبر +9-5 554 34599: الأول المركز نبي تكفو عن حيلكم شدو
- S3: 1-:3- - 2- نوفمبر +9-5 9909 -355: وينهم يشاركون خل شاركو ما ليلحين الي الشباب
- S3: 1-:3- - 2- نوفمبر +9-5 9909 -355: خاطر عن بس كلمتين لو
- S5: 1-:09 - 2- نوفمبر +9-5 ---- 91-4: عليكم السلام
- S5: 1-:09 - 2- نوفمبر +9-5 ---- 91-4: عليكم السلام
- S5: 1-:09 - 2- نوفمبر +9-5 ---- 91-4: هههههه تعلموني وما تشاركون خياته هذي شباب
- S5: 1-:09 - 2- نوفمبر +9-5 ---- 91-4: محاضرات خلصت توني
- S5: 1-:09 - 2- نوفمبر +9-5 ---- 91-4: ومفيده متعدده استخدامات ولها كثيره برامج
- S5: S5: 1-:10 - 2- نوفمبر +9-5 ---- 91-4: افلام او اغاني صنع في تساعدك
- S5: 1-:10 - 2- نوفمبر +9-5 ---- 91-4: تعليميه
- S5: 1-:10 - 2- نوفمبر +9-5 ---- 91-4: الصوت برامج هذي
- S5: 1-:11 - 2- نوفمبر +9-5 ---- 91-4: يعرفه والكل مثال اقوى الرسم برامج اما
- S5: 1-:11 - 2- نوفمبر +9-5 ---- 91-4: الرسام برنامج هو
- S5: 1-:12 - 2- نوفمبر +9-5 ---- 91-4: بسرعه ترسم انك في فوائد له
- S5: 1-:13 - 2- نوفمبر +9-5 ---- 91-4: احسن يرسمه شي يشرح بيبي الاستاذ اذا مفيد وانه وبدقه
- S5: 1-:14 - 2- نوفمبر +9-5 ---- 91-4: يستخدمه يقدر الكل والرسام
- S5: 13:45 - 2- نوفمبر +9-5 ---- 91-4: عليكم السلام
- 
- <Internals\G2> - § 2 references coded [0.-0% Coverage]
- 
- Reference 1 - 0.29% Coverage
- 
- S5: Guys, the lecture hall changed to 319
- 
- Reference 2 - 0.51% Coverage
- 
- S2: [used the App to remind his colleagues about the exam date and place]
- 
- <Internals\G3> - § 3 references coded [2.53% Coverage]
- 
- Reference 1 - 1.-2% Coverage
- 
- S5: 1-:53 - 19 نوفمبر +9-5 ---2 2309: للمجموعه نفسه يعرف واحد كل شباب
- 
- علي زكريا محمود : اخوكم
- 
- S1: 1-:2- - 19 نوفمبر +9-5 999 --30: المضاحكه محمد
- S2: 1-:33 - 19 نوفمبر +9-5 ---1 0234: الدوسري أحمد عبدالرحمن
- S3: 1-:39 - 19 نوفمبر +9-5 50 --390: النويجم عادل عبدالله
- S4: 1-:04 - 19 نوفمبر +9-5 9-32 3-30: البصري سعود
- 
- Reference 2 - 0.33% Coverage
- 
- S4: 15:0- - 21 نوفمبر +9-5 9-32 3-30: اليوم ٣١٩ قاعه شباب
- 
- Reference 3 - 0.3-% Coverage
- 
- 15:12 - 2- نوفمبر +9-5 ---1 0234: 319 قاعه ب اليوم ترأ شباب
-

- <Internals\G4> - § - references coded [-.2% Coverage]
- 
- Reference 1 - 0.34% Coverage
- 
- 19:0- الدكتور من النشاط بانتظار: 9-90- 9-5- + -19 نوفمبر
- 
- Reference 2 - 0.42% Coverage
- 
- 19:5- الدكتور مع ٦ المفروض المجموعة بإجماعه: 00--- 50- 9-5- + -19 نوفمبر
- 
- Reference 3 - 0.3% Coverage
- 
- G4: S1: Doctor , where is the discussion topic for the group? [he seems enthusiastic and want me to start to ask]
- 
- Reference 4 - 0.42% Coverage
- 
- Me: the discussion topic is " the advantages of using computer in education"
- 
- Reference 5 - 1.32% Coverage
- 
- G4: S2: the computer is more better than the traditional learning (paper + pen) with the computer we learn by images and writing and video and voice .. the ways of explaining are a lot .. everyone can have what he prefer from sound and image
- 
- Reference - - 2.29% Coverage
- 
- G4: S1: the advantages are many:
- -saving time and efforts for the teacher and learner ... and reduce the amount of efforts ...
- - shy students can start answer through the computer ... as they can correct their mistakes without being worry from the existence of other students ...
- - offer color, music, and image ..which make learning more fun and attractive ..
- -display the lesson .. instead of wasting time on writing ..
- 
- Reference - - 2.40% Coverage
- 
- S1: 1-:34, 20 ديسمبر - 9-90- 9-5- + -20 ديسمبر ؟ جم ساعه و الفايصل موعد متى
- S5: 1-:3- 20 ديسمبر - 9-9000 3--- 25 / 12 بتاريخ إنشائه الفايصل :-
- S5: 1-:3- 20 ديسمبر - 9-9000 3--- الثلاثاء يوم يصادف راح أسف :-
- S1: 1-:3- 20 ديسمبر - 9-90- 9-5- + -20 ديسمبر حجي مشكور
- S3: 1-:3- 20 ديسمبر - 9-4- 505 -9-4- الثلاثه يصادف لا :-
- S3: 1-:3- 20 ديسمبر - 9-4- 505 -9-4- ٢٠ تاريخ اليوم لأن :-
- S5: 1-:39, 20 ديسمبر - 9-9000 3--- يأخوي العفو :-
- 
- <Internals\G5> - § 3 references coded [10.49% Coverage]
- 
- Reference 1 - 2.9% Coverage
- 
- S1: first .. hi .. sorry for late ..to create group 5 because of the shortage of students number or enough for the group ... and because I gone through a relative death circumstances ... its God well [even within 2nd iterative ..some didn't participate]
- 
- Reference 2 - 5.0% Coverage
- 
- S1: the discussion topic for the group ... talked about the different show and writing programs .. as you like .. we will start...
- 0-:4- 2- نوفمبر - 9-5 9--4 1400 :- الكمبيوتر ادوات من انواع ثمانية هناك :-
- 0-:4- 2- نوفمبر - 9-5- + -
- S2: there are - type of computer tools ..
- 
- 1 (Word) الكتابة برامج -
- 2 (Access) البيانات قواعد برامج -
- 3 (Excel) الحسابية الجداول برامج -
- 4 (PowerPoint) العرض برامج -
- 5 (Illustrator) الرسوم برامج -
- - (Photoshop) الصورة منتجة برامج -
- - (premiere) الفيديو منتجة برامج -
- - (In Design) التصميم برامج -
-

- Reference 3 - 2.11% Coverage
- 
- S2: There are seven innings computer replaces the teacher: -
- 1 - private lessons
- 2 - exercises and practice
- 3 - Games faculty
- 4 - Simulation
- 5 - Physical
- - - Procedural
- - - to solve problems
- 
- <Internals\\G-> - § 4 references coded [4.--% Coverage]
- 
- Reference 1 - 0.-1% Coverage
- 
- 1:-09, 19 نوفمبر, +9-5 9944 1230: المشاركة لزيادة اقتراحات الدكتور قبل من تم:
- كالتالي:
- 1- مجموعه لكل معين موضوع اختيار-
- 2- للمشاركة معين عدد يكون-
- 3- اسبوع كل درجتين وخصم اجباريه مشاركة-
- 1:-09, 19 نوفمبر, +9-5 9944 1230: همتكم
- 
- Reference 2 - 0.90% Coverage
- 
- S1: [the leader of the group] .. by Doctor ..there are suggestions to increase the participation ..as follow:
- Choosing one topic for each group .
- Specific number for sharing .
- The participation is obliged .. your efforts [he encourage his group member] ..
- 
- Reference 3 - 2.3-% Coverage
- 
- 03:3-، 21 نوفمبر، +9-5 9-53 4--4: التعليم في الكمبيوتر استخدامات اهم:
- يلزمهم ما على الاطلاع الامر ولي و للطالب يمكن بحيث والاداره المدرسه اقسام تربط و بالانترنت موقع المدرسه تضع ١-
- بها الوسائل و الكتب من كبير كم وضع يمكن الاكترونيه المكتبه-٢
- والانترنت الحاسوب خلال من التعليم-٣
- التعليم عملية وتحسن التواصل تسهيل متقدمه للحاسوب ومختبرات فصول وضع-٤
- : الكمبيوتر فوائد عن منصورى علي اخي قاله لما اضافه: 09-0-94 --9-5 -- 21 نوفمبر، 14:04:
- يتعلمه ما واتقانه فهمه من يزيد مما الطالب جانب من والتعلم لتعليم مشوقه بينة يخلق: 1:
- دقيق و منظم بشكل المادة يعرض: 2:
- احد من مراقبه دون الكافيه الفرصه الطالب يعطي: 3:
- الراهنه التقليديه بالطرق مقارنة المختلفه المواقف في افضل بصورة التعلم اثر بقاء: 4:
- 
- Reference 4 - 0.-0% Coverage
- 
- اكثر معلومات الى وصولهم و المعاقين ع المذاكره تسهيل و : 05, 21 نوفمبر، +9-5 9944 1230:
- الجهد وتقليل الزمن اختصار-: 2299 ---- 9-5 + - 21 نوفمبر، 14:29:
- تعليميه اهداف لتحقيق مطوره تعليميه برامج تصميم-
- 
- <Internals\\G-> - § 1 reference coded [1.43% Coverage]
- 
- Reference 1 - 1.43% Coverage
- 
- - +9-5 ---- 5-: بالخير الله مساكم
- 1:-03, 2- نوفمبر، +9-5 ---- 5-: الربع من واحد هذا الرقم ضيف تهون ولا السر هيد طلال
- 
- ٦٥٥١٥٤٤٤
- 1:-03, 2- نوفمبر، +9-5 55- -4225: ابشر
- 1:-03, 2- نوفمبر، +9-5 ---- 5-: بالجنه تيشر:
- انضم 1:-0, 2- نوفمبر، +9-5 551 5444: التعليم تكنولوجيا -
- 
- <Internals\\G9> - § 5 references coded [39.20% Coverage]
- 
- Reference 1 - 1.-2% Coverage
- 
- 14:02, 22 نوفمبر، مرزوق ط - عليكم السلام:
- 
- الجديد القروب وهذا ياشباب الله حياكم

- 
- الجميع من والمشاركة
- المختلفة الفيديو وبرامج الحاسوبية الجداول برامج عن تحدث (21/11) التالي الموضوع: مرزوق ط - 22 نوفمبر, 14:02
- الأوفيس برنامج عن شغله كم لكم جمعت شباب: مرزوق ط - 22 نوفمبر, 1-:5-
- 
- الحسايبه للجداول هو اللي
- 
- 
- الحين لكم بنزلها
- وموجود صورته هذي طبعا البرنامج شكل مايعرف اللي: مرزوق ط - 22 نوفمبر, 1-:5-
- 
- Reference 2 - 11.--% Coverage
- 
- (مرفق الملف) IMG-20121122-WA0003.jpg: مرزوق ط - 22 نوفمبر, 1-:59
- (مرفق الملف) IMG-20121122-WA0001.jpg: مرزوق ط - 22 نوفمبر, 1-:59
- الداخل من صورته وهذي: مرزوق ط - 22 نوفمبر, 1-:59
- (مرفق الملف) IMG-20121122-WA0002.jpg: مرزوق ط - 22 نوفمبر, 1-:59
- مسويه ومنو واصداره تطوره عن نبذه وهذي: مرزوق ط - 22 نوفمبر, 1-:00
- (مرفق الملف) IMG-20121122-WA0004.jpg: مرزوق ط - 22 نوفمبر, 1-:01
- (Microsoft Office: بالإنجليزية) أوفيس مايكروسوفت: مرزوق ط - 22 نوفمبر, 1-:02
- 
- وبرنامج البيانات قواعد وبرنامج النصوص تحرير كبرنامج المكتبية البرامج من مجموعة تضم. للبرمجيات مايكروسوفت شركة إنتاج من مكتبة حزمة هي حتى الشركة برامج أهم من وهي 2010 أوفيس اخرها البرنامج من مطورة نسخ بإضافة الشركة تقوم. وغيرها المحاسبية القوائم وبرنامج التقديمية العروض الآن
- باختصار يعمل شنو: مرزوق ط - 22 نوفمبر, 1-:04
- 
- ومن عليها حسابية معادلات أضافة يمكن افتراضية أوراق عن عبارة انة حيث الحسايبه للعمليات مخصص وهو أوفس حزمة ضمن الموفرة البرامج أحد هو أو بها الاحتفاظ يمكن حيث ألكترونية البيانات لتخزين تستخدم ان يمكن الوقت نفس وفي ألي بشكل الحسايبه بالعمليات البرنامج يقوم حيث الأرقام أضافة ثم ورقية طلائح على طبعتها
- للاوفيس تابع اخر لبرنامج صورته وهذي: مرزوق ط - 22 نوفمبر, 1-:0-
- 
- كلها او تعرفه الناس معظم طبعا ارد الورد بدنامج وهو
- 
- الان حتى يستخدمه والكل مهم برنامج
- 
- للبرنامج خارجيه صورته وهذي
- (مرفق الملف) IMG-20121122-WA0005.jpg: مرزوق ط - 22 نوفمبر, 1-:0-
- الداخل من البرنامج صورة وهذي: مرزوق ط - 22 نوفمبر, 1-:0-
- (مرفق الملف) IMG-20121122-WA0000.jpg: مرزوق ط - 22 نوفمبر, 1-:0-
- ويكيبيديا برنامج من ماخذها طبعا البرنامج عن نبذه وهذي: مرزوق ط - 22 نوفمبر, 1-:09
- 
- منقولوله يعني
- 
- إدخال يتيح وبحيث الكلمات لمعالجة مخصص وهو أوفيس حزمة ضمن الموفرة البرامج أحد هو: (Microsoft Word: بالإنجليزية) وورد مايكروسوفت أو ورقية طلائح على طباعتها يمكن بحيث المستخدم حاجة حسب المطلوب بالشكل وإخراجها معالجتها ثم ومن افتراضية وثائق على إلكترونية بصيغة الكلمات م3-19 العام في منه إصدار أول كان. النصوص لمعالجة الأمريكية مايكروسوفت شركة أنتجت التي البرامج أهم من وهو الإللكترونية، صيغتها على إبقائها الهوائف معامل قبل من المرخصة Unix إصدارات أحد هو Xenix التشغيل لنظام مخصص البرنامج هذا وكان Multi-Tool Word مسمى تحت الشخصية للحواسيب الشهيرة الأخرى أنظمتها إصدار قبل مايكروسوفت شركة قبل من وتوجه تبعه كانت والذي AT&T
- بالفديو والتضبيب التحويل برامج عن نبذه لكم جبت شباب: مرزوق ط - 23 نوفمبر, 01:24
- الخ..... عليه اخر ومقطع صوت وتضيف لاجزاء المقطع وتقطع مقطع تضيف يعني
- الفيديو تحرير برامج
- أخرى مقاطع وحذف ببعض بعضها ودمج الفيديو مقاطع تعديل أي الحاسوب، أجهزة على الفيديو بتحرير تقوم برمجية تطبيقات هي الفيديو تحرير برامج
- ...معينة تأثيرات وإضافة
- (VCD) المضغوطة الأقراص مشغل كالجهاز معينة أجهزة على لتعرض أخرى أنواع إلى الفيديو من معينة أنواع تحويل على القدرة لديه البرامج هذه بعض
- ...الصوت تسجيل أو الإضافة أو الحذف خلال من وذلك الفيديو في الأصوات مع التعامل على القدرة لديها كما... (DVD) أو
- السينمائي للمونتاج ويستخدم عالية تحكم بقدره يمتاز احترافي وبعضها الهواة قبل من يستخدم بسيط البرامج هذه وبعض المونتاج ببرامج أيضا وتسمى والتلفزيوني.
- 
- Reference 3 - 24.09% Coverage
- 
- الفيديو برامج معظم اسماء وخذي: مرزوق ط - 23 نوفمبر, 01:25
- 
- 
- 
- العامة التحرير برامج
- 
- Adobe Systems
- Adobe Premiere Elements (ويندوز نظام)
- Adobe Premiere Pro (ماكينتوش نظام، ويندوز نظام)
- أبل

- Final Cut Express (ماكينتوش نظام)
- Final Cut Pro (ماكينتوش نظام)
- iMovie (ماكينتوش نظام)
- ArcSoft ShowBiz (ويندوز نظام)
- Autodesk Discreet Smoke and Discreet Fire (لينكس نظام, IRIX)
- Avid Technology
- Avid DS Nitris (ويندوز نظام)
- Avid Liquid (ويندوز نظام)
- Avid Media Composer (ماكينتوش نظام, ويندوز نظام)
- Avid Symphony Nitris (ماكينتوش نظام, ويندوز نظام)
- Avid Xpress DV (ماكينتوش نظام, ويندوز نظام)
- Avid Xpress Pro (ماكينتوش نظام, ويندوز نظام)
- CyberLink PowerDirector (ويندوز نظام)
- DeskShare Video Edit Magic (ويندوز نظام)
- Edius
- Leitch Velocity (ويندوز نظام)
- Lightworks (محددة أجهزة على يُستخدم)
- Magix Movie Edit Pro and Video Deluxe (ويندوز نظام)
- MainConcept EVE, MainVision, and MainActor (ويندوز نظام, لينكس نظام, ويندوز نظام (MainActor only))
- Media 100 (ماكينتوش نظام)
- Merging Technologies VCube (ويندوز نظام)
- muvee Technologies autoProducer -.0 (ويندوز نظام)
- NewTek Speededit (ويندوز نظام)
- Nero - Premium (ويندوز نظام)
- Pinnacle (ويندوز نظام)
- Pure Motion Editstudio
- Roxio VideoWave and MyDVD (ويندوز نظام)
- Serif MoviePlus (ويندوز نظام)
- Sony Vegas (ويندوز نظام)
- Tenomichi 3D Edit (ويندوز نظام)
- Ulead Systems MediaStudio Pro and VideoStudio (ويندوز نظام)
- AVIedit (ويندوز نظام)
- Windows Movie Maker (ويندوز نظام)
- وهذي: مرزوق ط - 23 نوفمبر, 01:2-
- أخرى أنواع إلى الفيديو وتحويل تشفير برامج
- 
- Apple Compressor (ماكينتوش نظام)
- AVS Video Converter (ويندوز نظام)
- Canopus ProCoder (ويندوز نظام)
- Compression Master
- Digital Media Converter (ويندوز نظام)
- Flash Video Converter Software
- GEAR Video
- Apple QuickTime Pro (ويندوز نظام, ماكينتوش نظام)
- Movavi Video Converter (ويندوز نظام)
- Roxio Easy Media Creator
- Sorenson Squeeze
- Total Movie Converter (ويندوز نظام)
- Video Enhancer (ويندوز نظام)
- Kulabyte Professional (ويندوز نظام)
- Video Converter Max (ويندوز نظام)
- المصدر: مرزوق ط - 23 نوفمبر, 01:2-
- 
- 
- [http://ar.m.wikipedia.org/wiki/section\\_1#الفديو\\_تحرير\\_برامج\\_أسماء\\_قائمة](http://ar.m.wikipedia.org/wiki/section_1#الفديو_تحرير_برامج_أسماء_قائمة)
- هالبرنامج شوفوا شباب: مرزوق ط - 25 نوفمبر, 20:12
- 
- إفتكس أفتر
- 
- ويستخدمونه التلفزيونية والأعمال الخاصة المؤثرات الأفلام، الرقمي، الفيديو صناعة في البرنامج يستخدم أدوبي، شركة من متحركة رسومات برنامج وغيرها بالتلفاز للاعلانات
- 
- داخل من البرنامج وصوره صورته وهذي
- M.: 20:12, 25 نوفمبر: مرزوق ط -
- M.: 20:13, 25 نوفمبر: مرزوق ط - IMG-20121125-WA0001.jpg (مرفق الملف)
- M.: 20:13, 25 نوفمبر: مرزوق ط - IMG-20121125-WA0000.jpg (مرفق الملف)
- M.: 20:14, 25 نوفمبر: مرزوق ط - إفتكس أفتر هو برنامج يستخدم أدوبي، شركة من متحركة رسومات برنامج والتلفازية والأعمال الخاصة المؤثرات

- : الانترنت على البرنامج موقع Adobe : المنتجة الشركة After Effects : البرنامج اسم Adobe شركة برامج أحد هو <http://www.adobe.com/products/aftereffects/>
- (البرنامج وظيفة أو عمل) البرنامج تصنيف Motion Graphic & Compositing & Visual Effects
- motion graphic ؟ معنى ما
- والصور الرسوم تحريك بأختصار يعني
- 
- أو power point مثل برامج في هذه التحريك بعملية أقوم ان الممكن من أليس اليسار أقصى إلى اليمين أقصى من يتحرك ان وتريده مربع ترسم مثلاً يعني Flash ؟ الفوتوشوب برنامج مع الملحق Image ready برنامج أو Flash
- 

...ولكن ممكن : الجواب

•

عمله برنامج لكل

التقديمية للعروض ms Power Point

الانترنت لعالم Adobe Flash

أيضاً الانترنت لعالم Image Ready

التلفزيون لعالم After Effects

أعلاه المذكورة البرامج جميع ويفوق ويمتاز الدقة عالي After Effects برنامج داخل فالتحريك لذلك إضافة

؟ compositing معنى ما

بعضها عن مختلفة تكون قد الطبقات هذه ،(الفوتوشوب مثل تماماً) Layers الطبقات بتركيب تقوم أنت After Effects عالم ففي التركيب، بأختصار معناها ؟ هذا معنى ما البعض

هذا كل مع سترفق وبالطبع والنصوص البعد الثلاثية والرسوم البعد الثنائية والرسوم والصور الفيديو مثل مختلفة مصادر من طبقات عدة تجمع أن تستطيع أنك معناه صوت طبقة (الأحيان أغلب في)

أختلافها على البرامج أنواع معظم مع يتعامل عملاق برنامج After Effects بأختصار

الفكتور برامج مع ويتعامل ،Adobe Premiere مثل الفيديو تحرير برامج مع ويتعامل ،Adobe Photoshop مثل الصور تحرير برامج مع يتعامل فهو وغيره 3DSMAX مثل البعد ثلاثية الرسوم برامج مع ويتعامل ،Adobe Flash و Adobe illustrator مثل البعد الثنائي والرسم

المتحركة Text النصوص بإنشاء العالية إمكانياته إلى بالإضافة

؟ Visual Effects معنى ما

والخدع المؤثرات لإنشاء تستخدم تقنيات هي VFX اختصاراً تسمى والتي Visual Effects البصرية المؤثرات: مرزوق ط - 25 نوفمبر, 20:14  
البصرية المؤثرات مجال في تساعدك التي والأمور المؤثرات من العديد فيه After Effects وبرنامج المثال سبيل على إملاء أو الدخان أو النار كتوليد البصرية  
السينمائية والخدع

Effects : المؤثرات

ملحقة Plugins اضافية مؤثرات هناك أن كما مؤثر الخمسين عددها يتجاوز والتي منها العديد على يتحتوي وهو البرنامج مع بكثرة تستخدم Effects المؤثرات  
البرنامج على تركيبها أو تصويبها تستطيع

2D Or 3D ثلاثي أم ثنائي بعد ذو كونه حيث من البرنامج تصنيف

البعد برامج إلى ينتمي لا أنه كما والإضاءة كالكاميرات الثالث بالبعد خاصة أدوات به لأن 2D الثاني البعد إلى ينتمي لا After Effects برنامج فإن الحقيقة في  
ثالثاً بعداً ليس الحقيقة في لكنه الأبعاد ثلاثي تراه ما بأن يوهمك أنه Depth العمق أو Z الثالث البعد يمتلك لا لأنه 3D الثالث

الاثنين بين وسط أنه أي 2.5D انه على البرنامج يصنف ذلك أجل من

عمله طريقة حيث من البرنامج تصنيف :

أخرى برامج هناك لأن Photoshop برنامج في الطبقات كنظام تماماً Layer Based الطبقات نظام على معتمد كبرنامج عمله طريقة حيث من يصنف البرنامج  
وغيرهما 3DS MAX و 4D Cinema مثل 3D الثالث البعد برامج كجميع Node Based العقد نظام تعتمد

الأخرى البرامج مع التكامل :

مثل الفيديو تحرير وبرنامج Illustrator مثل الثاني البعد وبرنامج Photoshop مثل الصور تحرير كبرامج البرامج من العديد مع ومتعامل متكامل البرنامج  
3DS MAX و 4D Cinema مثل الثالث البعد وبرنامج Audition مثل الصوت وبرنامج Premiere

- الرابط وهذا: مرزوق ط - 25 نوفمبر, 20:15
- إفكتس\_أقتر\_أدوبي http://ar.m.wikipedia.org/wiki/أدوبي
- وحمله يشوفه حاب للي وبالكامل المصدر وهذا: مرزوق ط - 2 نوفمبر, 00:24
- M.: [M. who failed to success in this course twice as he said .. now are the most one who share and active!!!!?Why?] ..
- http://ar.m.wikipedia.org/wiki/#section\_1\_الفيديو\_تحرير
- 
- Reference 4 - 1.3-% Coverage
- 
- M.: I apologize for my absence today
- If only guys give us what you study today?! And what happened?!
- السادس الفصل اخذ اليوم: 3993- 501-5 19
- : من يتكون والذي: 3993- 501-5 9+ - 3- 1-: S3

بعد عن التعليم

بعد عن التعليم وخصائص

المتعلم و

والمعلم

والمناهج

- Reference 5 - 0.4-% Coverage
- 
- M.: 1-:40, 3 ديسمبر, مرزوق ط - 3 ديسمبر
- 
- واشوفها هالمواضيع عن بكتب وبليل
- العفور: 3993-5 501 +9- - 3 ديسمبر, 1-:40
- 

## 5. Socialising – [off-task communication] (193 examples):

### 5.1 Guidance and support from the teacher (97 examples):

- <Internals\\G 1> - § 41 references coded [23.53% Coverage]
- 
- Reference 1 - 0.33% Coverage
- 
- I: how we benefit from the computer in education? The group activity [this is an example of the modified way to sharing .. 2nd iterative]
- 
- Reference 2 - 0.1-% Coverage
- 
- S1: throughout the PowerPoint .. doing layers and preparing topics by word
- 
- Reference 3 - 0.5-% Coverage
- 
- S5: word and excel .. all in computer .. help on learning
- .. and also in searching from the internet .. and drawing and displaying photos ... as my colleagues said .. PowerPoint is very useful in learning . and also in mathematic operation ..
- 
- Reference 4 - 0.24% Coverage
- 
- S1: your words is true .. we can connect with the projector .. and display better than one teaching ..
- 
- Reference 5 - 0.-4% Coverage
- 
- S4: don't forget also .. we can use the computer in teaching the students about the computer ... and this is the most thing .. must firstly know the computer and its parts .. hardware and software .. as our last lecture .. ... because it difficult that you enter to the student and they don't acknowledge the device ..
- 
- Reference - - 0.34% Coverage
- 
- S3: alleviate the weight upon the students instead of book .. speed search .. solve the tasks on the internet .. communicate with the teacher ..
- 
- Reference - - 0.1-% Coverage
- 
- S2: learning from the email in computer .. and by the display layers..
- 
- Reference - - 0.25% Coverage
- 
- S5: Doctor what is the group question [this the new way of conducting the Apps .. I ask and they answer]
- 
- Reference 9 - 0.12% Coverage
- 
- I: Talked about the sound and graphics programs.
-



- 01:3-، 10 ديسمبر، +9-5 552 4-3--: وين الدرجة عارف ماتي □ بس تبطل خلاص لا
- 01:42، 10 ديسمبر، +9-5 552 4-3--: IMG-20121210-WA0000.jpg (مرفق الملف)
- 01:42، 10 ديسمبر، +9-5 552 4-3--: % ١٤ مشاركه □
- 03:1-، 10 ديسمبر، +9-5 9999 55-3: لا ولا باجر دوام في بالربع
- 03:42، 10 ديسمبر، +9-5 50- 255-5: ماكو لا
- 
- Reference 21 - 0.44% Coverage
- 
- I: do you think that the WhatsApp enhance the way you learn? If (No) ..Why. or (Yes) .. how can you explain the decrease of your grades and your colleagues? I wish you share your view ..
- 
- Reference 22 - 0.1-% Coverage
- 
- S-: Yes, enhance the way you learn ,,but you must understand what you read ..
- 
- Reference 23 - 0.55% Coverage
- 
- S-: yes, it enhance my learning way/ .. about the test grades ..its depend on studying .. and checking the book and lessons .. WhatsApp is learning enhancement .. meaning, helper ... NOT replacement for the book and learning curriculum ....
- 
- Reference 24 - 0.-0% Coverage
- 
- S2: yes, growing the way I learn .. for the test .. I benefit from the WhatsApp questions ..and he rest from the book .. because the WhatsApp is kind of lessons and questions in the end of lecture .. and check the lesson ,, So, the WhatsApp is kind of refreshing memory, and don't replace the book ..
- 
- Reference 25 - 0.2-% Coverage
- 
- S-: I swear to God, I didn't open the book .. I was following with the group and obtained good grade .. [advantage]
- 
- Reference 2- - 0.-9% Coverage
- 
- S4: Yes, improve, .. for me ,, before the exam I saw the weekly questions and check it .. and solve it, .. the low degree is another subject .. it depend on the nature of the students himself .. if not acceptance the idea of the WhatsApp ..he will not give and show what he have to sharing ..
- 
- Reference 2- - 1.20% Coverage
- 
- S5: yes, Doctor, .. the WhatsApp is more better .. and enhance the teaching way because it is faster and précis .. for the grades, from one side, .. guys may not study it .. or may hesitated in the exam .. or fear .. or may have a circumstance ..
- .. for me, I had 3 exam in the same day .. and the other exams were thick from the info side and remembering/retaining .. and this is what affect my grades in the second exam ..
- .. thank you Doctor , Excellent question .. and hope the final will be light on us.
- 
- Reference 2- - 0.03% Coverage
- 
- S-: hoping ..
- 
- Reference 29 - 0.51% Coverage
- 
- S-: Of course, enhance .. for me ... following the topics was medium .. and to be honest, I didn't open the book .... Instead of that, get knowing the good guys ..... I see that the WhatsApp is 10 from 10 ... and nice idea ..
- 
- Reference 30 - 0.5-% Coverage
- 
- S3: Yes, enhance the way of learning.. because in sometimes we are busy .. or other exams .. and don't know from where to where the lesson questions .. through the WhatsApp we ask some questions not understanding ..or not know a solution ...
- 
- Reference 31 - 1.01% Coverage
- 
- S1: yes, enhance your level .. because the way of communication sometimes if you transfer it in your way .. you will not forget it in exams and you will remember it .. for example, sometimes we speak locally [through the App] .... during the exam .. we know what is this .. interpretive it for the exam ..
- ... the reason of low grades .. the way of the exam (objective) [he mean .. right and wrong ..and multiple questions.. and so on]..





- 
- Reference 12 - 0.-1% Coverage
- 
- قاعة بنفس....بدر الفليح/عندالدكتور..التعليم تكنولوجيا في مقدمه ..لمادة..النهائي امتحان...عصرا 3 الساعة غدا
- 
- Reference 13 - 1.2-% Coverage
- 
- ...للجميع التوفيق الله واسأل...
- بنفس 3 الساعة .. الثلاثاء بكرة النهائي الاختبار ..(بالواتساب الثانية المشاركات) الفانيل بعد تنزل الدرجات كل :التعليم تكنولوجيا - 24 ديسمبر, 20:12: القاعة
- 
- <Internals\G3> - § - references coded [13.15% Coverage]
- 
- Reference 1 - 0.-3% Coverage
- 
- جديدة؟ عناصر وجود عن تعلم وهل المختلفة؟ الكمبيوتر عناصر هي ما " للمجموعة النقاش موضوع :التعليم تكنولوجيا - 20 نوفمبر, 20:2:
- 
- Reference 2 - 0.59% Coverage
- 
- المختلفة والكتابة العروض برامج عن تحدث (21/11) التالي الموضوع :التعليم تكنولوجيا - 21 نوفمبر, 20:15:
- 
- Reference 3 - 2.01% Coverage
- 
- والرسوم الصوت برامج عن تحدث (2-/11) التالي الموضوع :التعليم تكنولوجيا - 2 نوفمبر, 15:30:
- الاشكال بعض تختار تقدر و رش بل ترسم تقدر و الفرش انواع كل اب ترسم تقدر و بسيطة الرسوم برامج :30-3 9-5 + - 2 نوفمبر, 01:0: موجوده الالوان درجات وكل الالوان الشفافيت و الجاهزه
- 
- (ms paint) الريماس البرامج ومن
- paint.net وفي
- Corel painter
- Artrage
- 
- Reference 4 - 1.-5% Coverage
- 
- I: the group question/ how the smartphone help you to overcome the natural and environment obstacles .. and combining between the real and the assumption world to increase the learning achievement?
- .. on other words, do smartphone allow to discover the world in a way that wasn't possible before?
- 
- Reference 5 - 3.-2% Coverage
- 
- لم ومن ... نتيجته يعرف حتى الخاص على يرسلني فقط .. الان حتى يسجل لم لمن بالموقع للتسجيل داعي لا :التعليم تكنولوجيا - 12 ديسمبر, 14:20: الساعة 25/12 يوم الاختبار اعيدله عشان معاه يحضره .. عنر ولديه الثاني الاختبار يحضر
- يسهل الواتساب خلال من زملائك وبين بينك يحصل اللي التواصل أن تعتقد هل /السابق السؤال دقة لعدم اعتذر :التعليم تكنولوجيا - 12 ديسمبر, 14:24: !!وزملائكم؟ اختبار انكم نتائج تندي نفس فكيف ..( بنعم) الاجابة كانت اذا اما ..الاسباب فانذكر ( لا) الاجابة كانت اذا تعلمك؟ عليك
- بربك المشاركة أرجو
- Me: I apologies for the inaccurate question/ do you think the communication between you and your colleagues by WhatsApp facilitate your learning?
- 
- Reference - - 4.24% Coverage
- 
- للأهمية تبليغي ارجو ؟ سابقا المقرر هذا في وينجح الحظ يحالفه لم منكم من شباب يا :التعليم تكنولوجيا - 1-3: ديسمبر, 13:45:
- للأهمية بالدراسة المتعلقة الأسئلة من المزيد عن الاجابة وأرجو .. التجربة نجاح في معي ساهم من لكل شكرا :التعليم تكنولوجيا - 19 ديسمبر, 13:45:
- بالمشاركة؟ عادة الهاتف تستخدم متي -1: مثلا
- خدمك؟ هل الذكي؟ الهاتف تجاه شعورك ماهو -2:
- من المشاركة ارجو ..رجاء بالتفصيل تحدث .. افضل نصائح لك سيدقم كان هل بالواتساب؟ مشاركتك بتقييم معلمك عن بدلا زميلك قام لو رأيك هو ما -3:
- جميعا لكم وشكرا .. الجميع
- الموقع في السابقة الاختبارات من نماذج يوجد :ملاحظة
- I: [number of questions that been repeated .. look to G1]
- المشاركات؟ أين شباب يا :التعليم تكنولوجيا - 20 ديسمبر, 1-0:
- Me: Guys where is the participations?
- 
- <Internals\G4> - § - references coded [9.99% Coverage]
- 
- Reference 1 - 0.--% Coverage
- 
- الاثني اليوم محاضرة عن اعتذر .. سلامتكم على حرصا :التعليم تكنولوجيا - 2 نوفمبر, 14:09:
- والعافية الصحة يعطيك والله ماتقصر 5 123 ---5 9-5 + - 2 نوفمبر, 14:10:
- 
- Reference 2 - 1.49% Coverage

- 
- 14:2- 2- نوفمبر 2015-5 3455: يادكتور مشكور
- المختلفة والكتابة العروض برامج عن تحديث (2-11) التالي الموضوع القروب سؤال هذا شباب: التعليم تكنولوجيا - 2- نوفمبر 2015-2-
- Me: guys, this the group question (2-11) talked about the different show and writing programs ..
- 
- Reference 3 - 1.3-% Coverage
- 
- I: What is the benefit of smartphone to collect data and share / exchange with others to enrich and improve the learning process?
- ..... For example .. Phone's ability to collect different data and share them with others (as geographic GPS systems)
- 
- Reference 4 - 1.05% Coverage
- 
- I: Do you think that improves method of learning? If the answer is (not) cite the reasons .. If the answer (yes) ..So how do we explain the low results of your test and your colleagues?!!
- 
- Reference 5 - 0.9-% Coverage
- 
- I: Where participation .. So far, 4 degrees deducted from each and every one of the group..[unethical process]. and [after modified the question .. the answer remain the same]
- 
- Reference - - 1.-2-% Coverage
- 
- 14:2- 13 ديسمبر 2015-5 90-9-90: صحيه لظروف الماضيين اليومين في المشاركة عدم عن اعترض
- 15:5- 13 ديسمبر 2015-5 505-9-4-9-4: بالمشاركة تأخيري عن اعترض
- 15:59- 13 ديسمبر 2015-5 505-9-4-9-4: نعم :- يوفّر الواتساب .. نعم :- المادة دراسة عند المتعلم
- 
- Reference - - 1.0-% Coverage
- 
- 1-:3- 1- ديسمبر 2015-3- للأهمية تبليغي ارجو ؟ سابقا المقرر هذا في وينجح الحظ بحالفه لم منكم من شباب يا: التعليم تكنولوجيا - 1- ديسمبر 2015-3-
- الموقع في السابقة الاختبارات من نسخ يوجد: التعليم تكنولوجيا - 20 ديسمبر 2015-11-
- 
- Reference - - 1.4-% Coverage
- 
- بنفس 3 الساعة .. الثلاثاء بكرة النهائي الاختبار ..(بالواتساب الثانية المشاركات) الفاينل بعد تنزل الدرجات كل: التعليم تكنولوجيا - 24 ديسمبر 2015-13- القاعة
- 14:00- 309+ 30- قاعة في النهائي الاختبار: التعليم تكنولوجيا - 25 ديسمبر 2015-00-
- 14:22- 25 ديسمبر 2015-5 505-9-4-9-4: اوك :-
- 
- <Internals\G5> - § 2 references coded [-.-0% Coverage]
- 
- Reference 1 - 1.0-% Coverage
- 
- 15:59- 25 ديسمبر 2015-5- الخاص على يرسلني .. درجته شاف وما .. فقط بالموقع مسجل مو اللي: التعليم تكنولوجيا - - 25 ديسمبر 2015-59-
- 
- Reference 2 - 5.53% Coverage
- 
- I: Thanks to everyone who helped me in the success of the experiment .. I answer more questions related to the study of the importance of:
- For example: 1 - when to use the phone normally proceed?
- 2 - What do you feel about smartphone? Is it serve you?
- 3 - What is your opinion if the colleague instead of teacher assessment review WhatsApp? Was he will provide you with the best advice .. Spoke in detail please .. I hope everyone participating .. Thank you all
- Note: There are examples of previous tests at the site.
- 
- <Internals\G-> - § 4 references coded [2.44% Coverage]
- 
- Reference 1 - 0.35% Coverage
- 
- Me: the discussion topic "the advantages of computer in education"
- 
- Reference 2 - 0.41% Coverage
- 
- I: talk about the mathematic schedules program and different video program ..
- 
- Reference 3 - 0.52% Coverage
-

- الخاص على يرأسني .. درجته شاف وما .. فقط بالموقع مسجل مو اللي :التعليم تكنولوجيا - - ديسمبر 15:59
- 
- Reference 4 - 1.15% Coverage
- 
- لم ومن ... نتيجته يعرف حتى الخاص على يرأسني فقط .. الان حتى يسجل لم لمن بالموقع للتسجيل داعي لا :التعليم تكنولوجيا - 12 ديسمبر 14:20
- الساعة 25/12 يوم الاختبار اعيدله عشان معاه يحضره .. عنر ولديه الثاني الاختبار يحضر
- 
- <Internals\G-> - § 15 references coded [12.5-% Coverage]
- 
- Reference 1 - 0.-9% Coverage
- 
- ... فعالة مشاركات أرى لا لكن جيدة جهود .. الوافية الردود اين :التعليم تكنولوجيا - - أكتوبر 20:42
- لما تحليل لا يوجد لماذا :التعليم تكنولوجيا - - أكتوبر 20:43
- نكتب؟؟ او .. نقرأ
- Me; where is the good responses [encourage them]
- 
- Reference 2 - 0.44% Coverage
- 
- I: the experiences show that ..after graduation .. most of the teacher go to routine .. especially in our Arabic societies ..
- 
- Reference 3 - 0.13% Coverage
- 
- S1: Doctor .. because no one hear ..
- 
- Reference 4 - 0.22% Coverage
- 
- I: and this is what have to be cautious about .. and avoid ..
- 
- Reference 5 - 1.9-% Coverage
- 
- فيه والتسجيل زيارته ويجب جدا مهم وهو .. والتفاعل .. المقررة والانشطة .. الاهداف على للتعرف مهم الموقع :التعليم تكنولوجيا - 9 أكتوبر 1-:13
- [https://www.myhaikuclass.com/Intro/intro/cms\\_page/view](https://www.myhaikuclass.com/Intro/intro/cms_page/view)
- الموقع لهذا اذهب.. سهلة .. فيه التسجيل كيفية :التعليم تكنولوجيا - 9 أكتوبر 1-:15
- <https://www.myhaikuclass.com/Intro/intro/signup>
- العنوان تحت الموجود الرمز ضع ثم ..
- التعليمات واتبع
- الغائب يعلم الحاضر .. الدرجات رصد بدأنا... الفاعلة المشاركة الطلاب جميع من ارجو :التعليم تكنولوجيا - 9 أكتوبر 1-:20
- - 9 أكتوبر 1-:33
- الموقع ادخل :التعليم تكنولوجيا - 9 أكتوبر 1-:34
- 
- Reference - - 0.--% Coverage
- 
- وشارك discussion اختار بعدين connect روح ..وبعدين .. التسجيل خطوات اتبع :التعليم تكنولوجيا - 9 أكتوبر 1-:53
- التعديلية جمعية بمكتبة المذكرة من نسخة موجود :التعليم تكنولوجيا - 10 أكتوبر 14:39
- 
- Reference - - 1.2-% Coverage
- 
- امتحان بكرة :التعليم تكنولوجيا - - نوفمبر 1-:22
- الجاي سبوع قلت مو دكتور : 2299 --- +9-5 - - نوفمبر 1-:2
- ؟ الحين ندرسله يمدينا ما : 2299 --- +9-5 - - نوفمبر 1-:2
- 12.11.12 القادم الاثنين نأجله .. يناسبكم ما دام :التعليم تكنولوجيا - - نوفمبر 1-:51
- تقصر ما العاقبه يعطيك : 2299 --- +9-5 - - نوفمبر 1-:52
- ماتقصر الله قواك :30- --- +9-5 999 - - نوفمبر 1-:53
- 
- Reference - - 1.-3% Coverage
- 
- نايم القروب :التعليم تكنولوجيا - 21 أكتوبر 10:3-
- Me: this group is sleeping ..
- - 21 أكتوبر 10:39
- S1: I have exam ..[they are busy and always need encouragement]
- عن تحدث .. الثاني الفصل في اننا بما يعني .. المنهج قراءة بعد تظهر والانشطة .. انشطة عن عبارة الاسئلة :التعليم تكنولوجيا - 21 أكتوبر 10:4-
- مناقشتها تمت اللي المواضيع
- I: questions are activities .. and activities show after reading the curriculum .. it mean as we are in the second chapter .. talk about the topics that we discussed ..
- 
- Reference 9 - 1.10% Coverage
-

- للاسف مينة مجموعة: التعليم تكنولوجيا - - نوفمبر 19:1-
- I: dead group ..unfortunately ..
- - - نوفمبر 19:30,
- الاضياء قوي مصباح-1
- وعكسة المصباح من اليها القادم الضوء تجمع مباشرة المصباح خلف تقع مقعرة مرآة-2
- الشفافة الشريحة على للضوء ومركزه للضوء مجمعو عدسات-3
- المصباح من المنبعتة الحرارة لشدة نظرا للتبريد مروحة-4
- 
- Reference 10 - 0.43% Coverage
- 
- S1: 19:30, نوفمبر +9-5 9944 1230: IMG-2012110--WA0000.jpg (مرفق الملف)[used the App to offer a photo about a device ]
- 
- Reference 11 - 0.--% Coverage
- 
- I: No need for registration to the site for those who not registered so far ..Just send me a private [WhatsApp] ..To know the result ...And who did not attend the second test and he has an excuse ..he must bring it with him to re-test on 25/12 at 2pm ..
- 
- Reference 12 - 0.21% Coverage
- 
- S:- It mean I bring my excuse in the same day or before it?
- 
- Reference 13 - 0.0-% Coverage
- 
- I: in the same time.
- 
- Reference 14 - 1.92% Coverage
- 
- للأهمية تبليغي ارجو ؟ سابقا المقرر هذا في وينجح الحظ يحالفه لم منكم من شباب يا: التعليم تكنولوجيا - - 1 ديسمبر 1-:3-
- للأهمية بالدراسة المتعلقة الأسئلة من المزيد عن الاجابة وأرجو .. التجربة نجاح في معي ساهم من لكل شكرا :التعليم تكنولوجيا - 19 ديسمبر 13:4-
- بالمشاركة؟ عادة الهاتف تستخدم متى 1- مثلا
- خدمك؟ هل النكي؟ الهاتف تجاه شعورك ماهو 2-
- من المشاركة ارجو ..رجاء بالتفصيل تحدث .. افضل نصائح لك سيقدم كان هل بالواتساب؟ مشاركتك بتقييم معلمك عن بدلا زميلك قام لو رأيك هو ما 3-
- جميعا لكم وشكرا .. الجميع
- الموقع في السابقة الاختبارات من نماذج يوجد:ملاحظة
- 
- Reference 15 - 0.--% Coverage
- 
- بنفس 3 الساعة .. الثلاثاء بكرة النهائي الاختبار ..(بالواتساب الثانية المشاركات) الفايصل بعد تنزل الدرجات كل: التعليم تكنولوجيا - 24 ديسمبر 20:13-
- الفاعة
- 14:01+ 309 قاعة في النهائي الاختبار: التعليم تكنولوجيا - 25 ديسمبر
- 
- <Internals\G-> - § 4 references coded [5.2-% Coverage]
- 
- Reference 1 - 0.49% Coverage
- 
- المختلفة والكتابة العروض برامج عن تحدث (21/11) التالي الموضوع: التعليم تكنولوجيا - 21 نوفمبر 20:1-
- 
- Reference 2 - 1.--% Coverage
- 
- Me: No need for registration to the site for those who did not register so far ..Only write to me privately to know the result ...and who did not attend the second test and has an excuse bring it with him to re-test him on 25/12 at 2pm ... [this procedure to overcome the problem of the difficulty to register .. it consumed a lot of time] ..
- 
- Reference 3 - 0.59% Coverage
- 
- Me: Hey guys .. who from you wasn't lucky ... and succeed in this course before? I hope you let me know for importance .....
- 
- Reference 4 - 2.52% Coverage
- 
- I: Thanks to everyone who helped me in the success of the experiment .. I answer more questions related to the study of the importance of:
- For example: 1 - when to use the phone normally proceed?
- 2 - What do you feel about smartphone? Is it serve you?
- 3 - What is your opinion if the colleague instead of teacher assessment review WhatsApp? Was he will provide you with the best advice .. Spoke in detail please .. I hope everyone to participate .. Thank you all
- Note: There are examples of previous tests at the site.



- 
- Reference 5 - 0.25% Coverage
- 
- S1: Al-Qazwini [calling his colleagues by his family name].. can you tell me how many time you broke it ..
- 
- Reference - - 0.09% Coverage
- 
- S3: and do not copy things on flash ..
- 
- Reference - - 0.1-% Coverage
- 
- S3: you words are true, CD for doing a research .. not for car .. hhh.
- 
- Reference - - 0.14% Coverage
- 
- S1: it mean that you can say this is its disadvantages ..
- 
- Reference 9 - 0.3-% Coverage
- 
- S3: we did not disagree .. research or other .. ipad is not useful for such things ..
- S3: sorry guys .. I am drivig and I couldn't read all the above ..
- 
- Reference 10 - 0.31% Coverage
- 
- S3: its good .. the ipad .. truly caters your need better than the computer in some times .. but in other times you need computer ..
- 
- Reference 11 - 0.0-% Coverage
- 
- S2: your words is true
- 
- Reference 12 - 0.03% Coverage
- 
- S1: true
- 
- Reference 13 - 0.2-% Coverage
- 
- S2: and you have the scanner that the teacher told us about .. this is important but all misunderstand it ..
- 
- Reference 14 - 0.2-% Coverage
- 
- S4: the scanner is caters your need better than many things
- S4: but people looked to it as an old fashion
- 
- Reference 15 - 0.1-% Coverage
- 
- S2: because little who know how to use it .. so they misunderstand it ..
- 
- Reference 1- - 0.-9% Coverage
- 
- S5: laptop and ipad you take them with you to any place [portable] ...
- S5: but the laptop is better and more use than ipad .. because its does not [maybe he was wrong by using NOT] .. have word or excel .. issues that you need in education ..
- S5: I say .. laptop better than ipad by stages ...
- 
- Reference 1- - 0.1-% Coverage
- 
- S3: yes, true
- S3: because not all people are cabable to use the computers
- 
- Reference 1- - 0.0-% Coverage
- 
- S2: your words is correct
- 
- Reference 19 - 1.0-% Coverage
- 
- 15:10, 2- نوفمبر -
- S1: guys , class 319 [I changed the class .. because not all the classes equipped with technology.. this one of the barriers]

- 15:54, 2- نوفمبر -
- S2: Doctor [taking to me as a teacher], this is Abdulaziz and Yousef .. we want to go to funeral to console one of our friends
- 1-:3- 2- نوفمبر -
- S-: Doctor, my line [mobile Internet subscribtion] expired [financial challenge] and I have just return it back [he pay for internet service]
- 
- <Internals\G2> - § 1 reference coded [0.29% Coverage]
- 
- Reference 1 - 0.29% Coverage
- 
- S5: Guys, the lecture hall changed to 319
- 
- <Internals\G3> - § - references coded [4.9-% Coverage]
- 
- Reference 1 - 0.55% Coverage
- 
- 15:25, 25 نوفمبر +9-5 999 --30- يتوة الكثر الكلام لان شوي اختصر بس وافقك انا الرحمن عبد:
- 
- Reference 2 - 0.-9% Coverage
- 
- S1: Abdu, I agree with you .. but sum up a little ,,because the extensive words .. deceive [clue about barrier of phone.. not good for extensive words]
- 
- Reference 3 - 0.-1% Coverage
- 
- S4: because there is a programs .. yet .. didn't work on mobile until now like PowerPoint and Excel ..
- 
- Reference 4 - 1.4-% Coverage
- 
- S1: I agree with you .. but still the computer is the best in some programs .. and the screen is bigger and easiest to read something or look to it ..
- .. and now, the mobile in hand for all .. and inside it programs that show you the whole world ..
- 
- Reference 5 - 0.-2% Coverage
- 
- Me: do you think that WhatsApp enhance the way you learn? If (no) Why.. if (yes) how do justify the low grades of you and your colleagues?
- 
- Reference - - 0.-4% Coverage
- 
- S1: Yes, ..but most of the mistakes exist in the .. right or wrong .. and fill the space [the way of exam]
- 
- <Internals\G4> - § 1 reference coded [4.15% Coverage]
- 
- Reference 1 - 4.15% Coverage
- 
- S5: 05:21, 9 ديسمبر +9-5 9000 3--- راضيه ومو ( باسورد ماي فورقيت ) وطقيت الباسورد ناسي الموقع مع مشكله عندي امر عليك ما دكتور ---3 9000 5-9 + ديسيمبر 21, 15:54
- خير الله جزاك الواتساب طريق عن درجاتي اعرف مجال في إذا الصفحة معاي تنبطل
- بالموقع درجاتي اچوف شلون عارف مؤ بعد انا دكتور اي :-4-9-5 505 +9-5 ديسيمبر 09:23, S3:
- S2: 12:5-!!! غلط مسجل كنت بعد و بالمحاضره سجلت قبل و التسجيل فاهم مو غلط وللاسف 3 سجلت انا: ---00-5 50- +9-5 ديسيمبر -12:5, S2:
- S2: 13:00, الموقع صفحة داخل اما الرابط و التسجيل بطريقة مساعدتكم اتمنى وفيه يدخل الكل الموقع اما مني الغلط: ---00-5 50- +9-5 ديسيمبر 13:00, اتصرف اعرف
- الخاص على يرسلني .. درجته شاف وما .. فقط بالموقع مسجل مو اللي: التعليم تكنولوجيا - - ديسيمبر -15:5, I:
- S2: 21:52, عليكم سلام: ---00-5 50- +9-5 9 - ديسيمبر 21:52, S2:
- المتأخر بالوقت برسالة واعتذر
- الافاده اتمنى و يادكتور مسجلت انا
- 
- <Internals\G-> - § 2 references coded [1.13% Coverage]
- 
- Reference 1 - 0.31% Coverage
- 
- 15:2- غادر --52-515 5-9 +: التعليم تكنولوجيا - 2- نوفمبر 15:2,
- 
- Reference 2 - 0.-1% Coverage
- 
- S1: 12:54, طافيه الخدمه كانت الاطاله ع اسف: 551 42245 5-9 + - 2- نوفمبر 12:54, S1:
- S1: sorry .. for extended .. the service was shut down ..[disadvantage of mobile ] ..
-

- <Internals\G-> - § 13 references coded [-.9% Coverage]
- 
- Reference 1 - 0.25% Coverage
- 
- S3: the majority ..iphone ..and blackberry .. little who have ipad ..
- 
- Reference 2 - 1.--% Coverage
- 
- 20:51, - أكتوبر, -
- 
- الاجتماعي التواصل مواقع او الوتساب او بالالعاب ويشغل الحصة عن يتشغل قد الدراسيه بالحصة الاياد استعمل فإذا الطالب اما
- G-: S5: ipad ..have advantages .. like.. it can .. for teacher ..prepare lessons through it .. and can connect it to the projector and display lessons and photos and videos .. in which it help to deliver the info ..this for teacher ..
- .. for student .. if he use the ipad in the class ...might be busy from the class [good note.. distraction] and play with games or WhatsApp ..or social communication sites ..
- 
- Reference 3 - 0.13% Coverage
- 
- S-: I agree with you in this thing ..
- 
- Reference 4 - 0.33% Coverage
- 
- S2: true .. but the ipad is special for the study curriculum ..not for social communication ..
- 
- Reference 5 - 0.--% Coverage
- 
- S1: I think ..it might ..not sure .. the ministry [education] can put a plan with the exist of electronic engineer .. to lock the device and they could not download games [he found a solution] ..
- 
- Reference - - 0.40% Coverage
- 
- S-: but there is a problem that I heard about ... that there are some teacher who don't know how to use technology ...
- 
- Reference - - 0.3-% Coverage
- 
- S1: they put in the start of every study year .. in ... training sessions for the teachers for two weeks ..
- 
- Reference - - 0.1-% Coverage
- 
- S5: maybe .. and maybe they adopt it step-by-step ..
- 
- Reference 9 - 0.4-% Coverage
- 
- S5: I expect that teachers go to the traditional and routine way .. because it easier .. and male and female teachers learn by this way ...
- 
- Reference 10 - 0.3-% Coverage
- 
- S2: give them a special session to learn .. and educate himself .. and educate the students with him ..
- 
- Reference 11 - 0.22% Coverage
- 
- S5: I am with you Mohamed .. and I see your words ..correct ..
- 
- Reference 12 - 2.19% Coverage
- 
- 21:35, - أكتوبر, - +9-5 9944 1230:  
[http://www.google.com.kw/url?sa=t&source=web&cd=3&ved=0CBQQFjAC&url=http%3A%2F%2Fs-sh.wikispaces.com%2Ffile%2Fview%2F%25D-%25A-%25D9%25-4%25D9%25--%25D-%25B3%25D-%25A-%25D-%25A-%25D9%25-4%2B%25D-%25A-%25D9%25-4%25D-%25AA%25D-%25B9%25D9%25-4%25D9%25-A%25D9%25-5%25D9%25-A%25D-%25A9.ppt&ei=espxUMuNCKer0AXBr4HoAQ&usq=AFQjCNGz23dBIT4izPvJq02KV5DhEp-ylw&sig2=B-rt\\_f1WHjBFWaW3QQawJg](http://www.google.com.kw/url?sa=t&source=web&cd=3&ved=0CBQQFjAC&url=http%3A%2F%2Fs-sh.wikispaces.com%2Ffile%2Fview%2F%25D-%25A-%25D9%25-4%25D9%25--%25D-%25B3%25D-%25A-%25D-%25A-%25D9%25-4%2B%25D-%25A-%25D9%25-4%25D-%25AA%25D-%25B9%25D9%25-4%25D9%25-A%25D9%25-5%25D9%25-A%25D-%25A9.ppt&ei=espxUMuNCKer0AXBr4HoAQ&usq=AFQjCNGz23dBIT4izPvJq02KV5DhEp-ylw&sig2=B-rt_f1WHjBFWaW3QQawJg)
- 21:35, - أكتوبر, - +9-5 9944 1230: حلو الرابط دشو
- 21:3- أكتوبر, - +9-5 9944 1230: تعليميه وسائل
- S1: 21:3- أكتوبر, - +9-5 9944 1230: بيرى اليبلاك ع يشتغل ماعتقد
- S1: 22:09, - أكتوبر, - +9-5 9944 1230: <الوسائط استيعاد تم>
-

- Reference 13 - 1.23% Coverage
- 
- S1: 1:-29, أكتوبر -- +9-5 9944 1230: للنتكنولوجيا يتوجه راح فالكل الدراسات أساسيات من الإلكترونيه الاجهزه تحط لمن
- S3: 1:-30, أكتوبر -- +9-5 ---- 2299: يطبقون الي وين بس
- S1: 1:-31, أكتوبر -- +9-5 9944 1230: للشي يتخططون فراح مطالبه و تصويت في يكون ولمن .. الافضل ايهو الموضوع
- S1: 1:-32, أكتوبر -- +9-5 9944 1230: يخططون\*\*
- S3: 1:-33, أكتوبر -- +9-5 ---- 2299: عدل
- 
- <Internals\\G-> - § 2 references coded [3.-9% Coverage]
- 
- Reference 1 - 2.55% Coverage
- 
- S:- +9-5 555 52-05: بالموقع يسجل يعرف منو جممأعه يا
- S:- 1:-05, ديسمبر +9-5 555 52-05: ويسجلني آجر فيني بكسب □
- S:- 1:-1, ديسمبر +9-5 -555 51--: يعرفه منو الجديد الكود رقم لبي
- S:- 1:-19, ديسمبر +9-5 -555 51--: ابي\*
- I: 22:55, ديسمبر 5BM--: التعليم تكنولوجيا - 5
- S4: 23:41, ديسمبر +9-5 ---- 5: الاختبار جم من دكتور
- S4: 23:41, ديسمبر +9-5 ---- 5: ؟
- S2: 00:30, ديسمبر +9-5 ---1 4419: اعيال
- S2: 00:30, ديسمبر +9-5 ---1 4419: ماترد عليك ادق ثامر
- S2: 00:30, ديسمبر +9-5 ---1 4419: بلموقع اسجل شلون اعيال
- S2: hhh .. the website drive me crazy ... last night I a couldn't sleep because of it .. [indication that ..sometime we complicate the student life !!!]
- 00:1- , ديسمبر 12 -
- S4: Now , I will send you the link [clue of CL]
- 00:1- , ديسمبر 12 -
- S2: thanks ...

### 5.3 Report Absence (14 examples)

- <Internals\\G 1> - § - references coded [1.5-% Coverage]
- 
- Reference 1 - 0.21% Coverage
- 
- Me: for your safety .. I apologies on this Monday lecture ..
- 12:1- , نوفمبر 2 -
- 
- Reference 2 - 0.5-% Coverage
- 
- 13:45, نوفمبر 2- +9-5 ---- 91-4: خاصة لظروف اليوم محاضره عن اعتذر بدر دكتور
- 13:4- , نوفمبر 2- +9-5 50- 255-5: اليوم الدكتور معتذر
- 13:4- , نوفمبر 2- +9-5 ---- 91-4: معتذر قال متى ؟
- 13:4- , نوفمبر 2- +9-5 50- 255-5: تقول انت
- 
- Reference 3 - 0.32% Coverage
- 
- 13:4- , نوفمبر 2- -
- S5: I apologies on the lecture ..
- 13:49, نوفمبر 2- : محاضرة اليوم :التعليم تكنولوجيا -
- Me: today there is a lecture
- 
- Reference 4 - 0.30% Coverage
- 
- S2: Doctor [taking to me as a teacher], this is Abdulaziz and Yousef .. we want to go to funeral to console one of our friends
- 
- Reference 5 - 0.13% Coverage
- 
- S:- sorry for not sharing .. I was in the dentist ..
- 
- Reference - - 0.05% Coverage
- 
- S5: may God help you
-

- <Internals\\G4> - § 2 references coded [1.4-% Coverage]
- 
- Reference 1 - 1.12% Coverage
- 
- خير الله وجزاكم صحيحه لظروف المشاركة عدم عن اعذر
- \* صحيحه لظروف الماضيين اليومين في المشاركة عدم عن اعذر: 9-90- 9-90- +9-5 - 13 ديسمبر, 14:2-
- بالمشاركة تأخيري عن اعذر: -4-9- 505 -9-5 +9-5 - 13 ديسمبر, 15:5-
- 
- Reference 2 - 0.34% Coverage
- 
- 10:39, 14 ديسمبر, 9-5 50- ---00: بلإجابته التأخير عن اعذر
- 
- <Internals\\G5> - § 2 references coded [5.1-% Coverage]
- 
- Reference 1 - 2.-9% Coverage
- 
- S1: first .. hi .. sorry for late ..to create group 5 because of the shortage of students number or enough for the group ... and because I gone through a relative death circumstances ... its God well [even within 2nd iterative ..some didn't participate]
- 
- Reference 2 - 2.4-% Coverage
- 
- - الزحمة سبت من اشوي اتاخر راح دكتور اعذرني: 1400 9--4 +9-5
- 15:1- مرفق الملف) IMG-2012112--WA0003.jpg 1400: 9--4 +9-5 9- - 2- نوفمبر,
- S2: Sorry Doctor I will arrive late because the traffic [He send a picture of street traffic]
- 
- <Internals\\G-> - § 3 references coded [0.--% Coverage]
- 
- Reference 1 - 0.29% Coverage
- 
- 09:3- ضروري الاربعاء نشوفكم .. اجازة الاثنتين اليوم: التعليم تكنولوجيا - 15 أكتوبر,
- 
- Reference 2 - 0.24% Coverage
- 
- S2: I apologies for not attending tomorrow .. I am traveling for Hajj
- 
- Reference 3 - 0.35% Coverage
- 
- S5: and if you let me know about the discussion topic ..EnshAllah I will participate by WhatsApp ..
- 
- <Internals\\G9> - § 1 reference coded [0.-3% Coverage]
- 
- Reference 1 - 0.-3% Coverage
- 
- 1-:51 اليوم غيابي عن اعذر:مرزوق ط - 3 ديسمبر,
- ؟! صار وشنو؟! اليوم خذيتوا شنو تعطونا ياشباب وباليه
- M.: I apologize for my absence today
- If only guys give us what you study today?! And what happened?!

#### 5.4 Discussing irrelevant issues (38 examples)

- <Internals\\G 1> - § - references coded [1.--% Coverage]
- 
- Reference 1 - 2.21% Coverage
- 
- S2: Whallah [swear to God] easy things but all from computer, if you know how to use it ..everything will be easy for you ..





- S4: 0:-2- 24 ديسمبر, +9-5 552 4-3-: الح :-3-3 20121224-WA0001.jpg (مرفق الملف)
- S4: 0:-2- 24 ديسمبر, +9-5 552 4-3-: !! باجر ٢٥ بس الاثنين اليوم :-3-3 20121224-WA0000.jpg (مرفق الملف)
- S2: 0:-29, 24 ديسمبر, +9-5 554 34599: IMG-20121224-WA0001.jpg (مرفق الملف)
- S2: 0:-29, 24 ديسمبر, +9-5 554 34599: IMG-20121224-WA0000.jpg (مرفق الملف)
- S4: 0:-30, 24 ديسمبر, +9-5 552 4-3-: مطبوعي غلط يمكن ٢٤ واليوم ٢٥ الاثنين مكتوب بالموقع هني :-3-3 20121224-WA0000.jpg (مرفق الملف)
- S2: 0:-31, 24 ديسمبر, +9-5 554 34599: مطبوعي غلط يمكن عادي
- I: 19:24, 24 ديسمبر, +9-5 554 34599: بنفس 3 الساعة .. الثلاثاء بكرة النهائي الاختبار .. (بالواتساب الثانية المشاركات) الفايصل بعد تنزل الدرجات كل: التعليم تكنولوجيا - 24 ديسمبر, 19:24: القاعة
- S-: 19:2- 24 ديسمبر, +9-5 9005 0--0: علينا يسهل الله انشائه
- S5: 20:12, 24 ديسمبر, +9-5 91-4-: 91-4-: صح معنا الفصول كل الامتحان شباب
- S-: 20:24, 24 ديسمبر, +9-5 9005 53--53: السادس على ركزوا يقول الدكتور بس اي
- S5: 20:25, 24 ديسمبر, +9-5 91-4-: اوكي
- S3: 20:25, 24 ديسمبر, +9-5 9909 355-355: شباب موفقين
- I: 13:59, 25 ديسمبر, +9-5 309 309+30: قاعة في النهائي الاختبار: التعليم تكنولوجيا - 25 ديسمبر, 13:59
- [the end of the semester .. discussion about the final and some topics]
- 
- <Internals\\G2> - § 2 references coded [1.-9% Coverage]
- Reference 1 - 0.34% Coverage
- المجموعة أيقونة غير: محمد ط - 25 نوفمبر, 15:15
- Reference 2 - 1.35% Coverage
- 20:33, 23 ديسمبر -
- أنت بل :
- حاجته لتعطيه له الله سخرك محتاج يُعطي مُحتاج
- الله عند حاجتك وانت ♥
- المفقود [ الله ] من وتطلب عينك ترفع أن قبل
- □ الموجود على { الله } وأشكر عينك أنزل
- <Internals\\G3> - § - references coded [4.40% Coverage]
- Reference 1 - 0.-4% Coverage
- 
- 20:1- 20 نوفمبر, +9-5 9-32 3-30: اجهزه و اماكن بواید موجود الكمبيوتر
- السياره ١
- البنك جهاز ٢
- التلفون ٣
- نت كي تدفع لمن ٤
- 
- Reference 2 - 0.40% Coverage
- 
- 20:29, 20 نوفمبر, +9-5 9-32 3-30: بالموضوع علاقة ذات بامور تكلم: التعليم تكنولوجيا - 20 نوفمبر, 20:29
- 
- Reference 3 - 1.49% Coverage
- 
- 15:0- 21 نوفمبر, +9-5 9-32 3-30: اليوم ٣١٩ قاعة شباب
- 20:15, 21 نوفمبر, +9-5 9-32 3-30: المختلفة والكتابة العروض برامج عن تحدث (21/11) التالي الموضوع: التعليم تكنولوجيا - 21 نوفمبر, 20:15
- 20:1- 21 نوفمبر, +9-5 9-32 3-30: ؟ ٣ بس ليش وايد مشارك وانا ٣ المشاركه درجاتي موقع بل دكتور - 21 نوفمبر, 20:1
- 
- Reference 4 - 0.--% Coverage
- 
- 15:2- 25 نوفمبر, +9-5 999 30--30: المعلومة وتوصيل الشرح عمليه يسهل و موجود مانحتاجه وجميع للعرض سهل و الاستخدام سهل والبوربونت: 30--30 - 25 نوفمبر, 15:2
- 
- Reference 5 - 0.-5% Coverage
- 
- 01:11, 2- نوفمبر, +9-5 999 30--30: ...والخ والكراسات الالوان من بدلا ويستخدم الاستخدام وسهل ترسمه الذي على الكتابه عليه ويظيف: 30--30 - 2- نوفمبر, 01:11
- 
- Reference - - 0.25% Coverage
- 
- S3: be ready to the date 21/Dec/2012 ..
- 
- <Internals\\G4> - § - references coded [10.95% Coverage]
- 
- Reference 1 - 2.40% Coverage
- 
- S2: 11:02, 5 ديسمبر, +9-5 50- 00--00: guys, when the exam... I forget
- S2: 11:04, 5 ديسمبر, +9-5 50- 00--00: Monday or today??
- S4: 11:14, 5 ديسمبر, +9-5 5123 5--5: Today اليوم
- S4: 11:14, 5 ديسمبر, +9-5 5123 5--5: اليوم
- S2: 11:14, 5 ديسمبر, +9-5 50- 00--00: thanks خير الله جزاك
- S2: 11:15, 5 ديسمبر, +9-5 50- 00--00: للجميع التوفيق الله اسئل

- S4: 11:1- - 5 ديسمبر +9-5 ---5 5123: good luc for all
- S5: 05:20, ديسمبر +9-5 9000 3---: goom morning بالخير الله صباحكم
- 
- Reference 2 - 1.3-% Coverage
- 
- S-: 13:44, ديسمبر +9-5 ---5 3455: محاضره؟ في اليوم يهنكم لا الله شباب عليكم السلام
- S3: 13:4- , ديسمبر +9-5 505 -9-4-: الاربعه كان يوم اخر بس خلصنا لا
- S-: 13:49, ديسمبر +9-5 ---5 3455: شكرا اوكي
- S3: 13:49, ديسمبر +9-5 505 -9-4-: ولو العفو
- 
- Reference 3 - 0.39% Coverage
- 
- 1-:29, ديسمبر +9-5 505 -9-4-: بالواتساب مشاركته يوم اخر متا دكتور
- 
- Reference 4 - 1.02% Coverage
- 
- S2: 22:12, ديسمبر +9-5 50- ---00: الله حياكم الغروانيه افراح صالة في ١٢/١٦ الموافق الاحد يوم وذلك احي زفاف لحفل بدعوتكم اتشرف
- S2: 22:12, ديسمبر +9-5 50- ---00: البيغلي خالد : اخوكم
- 
- Reference 5 - 1.0-% Coverage
- 
- I: 1-:3- , ديسمبر +9-5 50- ---00: للأهمية تبليغي ارجو ؟ سابقا المقرر هذا في وينجح الحظ يحالفه لم منكم من شباب يا :التعليم تكنولوجيا - 1-:3- , ديسمبر +9-5 50- ---00: للموقع في السابقيه الاختبارات من نسخ يوجد :التعليم تكنولوجيا - 20 ديسمبر +9-5 50- ---00: I: 1-:11,
- 
- Reference - - 4-1% Coverage
- S1: 1-:34, ديسمبر +9-5 -90- 9-90: ؟ جم ساعه و الفانيل موعد متى
- S5: 1-:3- , ديسمبر +9-5 9000 3---: العصر 3 ساعه الأربعاء يوم يصادف راح 12 / 25 بتاريخ إنشائه الفانيل
- S5: 1-:3- , ديسمبر +9-5 9000 3---: الثلاثاء يوم يصادف راح أسف
- S1: 1-:3- , ديسمبر +9-5 -90- 9-90: حجي مشكور
- S3: 1-:3- , ديسمبر +9-5 505 -9-4-: الثلاثاء يصادف لا
- S3: 1-:3- , ديسمبر +9-5 505 -9-4-: ٢٠ تاريخ اليوم لان
- S5: 1-:39, ديسمبر +9-5 9000 3---: يأخوي العفو
- S5: 14:12, ديسمبر +9-5 9000 3---: السابقيه الاختبارات من نسخه تنزل أمر عليك ما دكتور
- I: 15:30, ديسمبر +9-5 9000 3---: بالموقع موجوده :التعليم تكنولوجيا - 22 ديسمبر +9-5 9000 3---: ؟ امر ماعليكم شباب جم الساعه الاختبار باجر : 14:25, ديسمبر +9-5 -90- 9-90
- S1: 14:25, ديسمبر +9-5 9000 3---: ٣ الساعه
- S2: 14:25, ديسمبر +9-5 50- ---00:
- S1: 14:2- , ديسمبر +9-5 -90- 9-90: حجي الله قواك
- S2: 15:03, ديسمبر +9-5 50- ---00: القاعه بنفس يفويك الله
- 15:04, ديسمبر +9-5 50- ---00: شاء الله ان
- 
- <Internals\G5> - § 3 references coded [-.3% Coverage]
- 
- Reference 1 - 2-9% Coverage
- 
- S1: first .. hi .. sorry for late ..to create group 5 because of the shortage of students number or enough for the group ... and because I gone through a relative death circumstances ... its God well [even within 2nd iterative ..some didn't participate]
- 
- Reference 2 - 1.10% Coverage
- 
- 0-:54, نوفمبر +9-5 9--4 1400: أجرك الله عظم
- 09:15, نوفمبر +9-5 9--9 91--: أجرك الله عظم
- 
- Reference 3 - 3.04% Coverage
- 
- 21:23, ديسمبر +9-5 -995 935-: ...الثاني للفصل المواد للتسجيل الكليات لطلبة المواعيد نزول يتم سوف/ المسلم محمد وحصري خاص
- --1-2013 تاريخ ألى 2012-12-23 تاريخ الأحد يوم وذلك
- #التطبيقي# المواد تسجيل#
- النشر أتمنى الأحد يوم متى موعده ويجيك يدخل طالب كل
- للجميع
- #الاتحادالطلابي#
- 
- <Internals\G-> - § 4 references coded [-.39% Coverage]
- 
- Reference 1 - 2.23% Coverage
- 
- I: 14:10, نوفمبر +9-5 551 42245-: الاثنين اليوم محاضرة عن اعتذر ..سلامتكم على حرصا :التعليم تكنولوجيا - 2- نوفمبر +9-5 551 42245-: S1: 14:11, نوفمبر +9-5 551 42245-: دكتور خير الله جزاك

- S1: 14:11, 2- نوفمبر +9-5 551 42245: انشاء الله حسنااتك ميزان في
- S2: 14:13, 2- نوفمبر +9-5 -515 52--: دكتور يا خير الله جزاك
- S Gh: 14:14, 2- نوفمبر قادر ط -
- S1: 14:33, 2- نوفمبر +9-5 551 42245: المجموعة أيقونة غير
- S5: 1:0-, 2- نوفمبر +9-5 9995 ----: ماقصرت يادكتور تسلم
- 
- Reference 2 - 3.30% Coverage
- 
- S2: 14:00, 2- نوفمبر +9-5 -515 52--: عليكم السلام
- S2: 14:00, 2- نوفمبر +9-5 -515 52--: متفرمت التلغون لان نفسه ع يعرف واحد كل شباب يا هنتوا لا
- S2: 14:00, 2- نوفمبر +9-5 -515 52--: ممسوحه كلها الارقام و
- S2: 14:01, 2- نوفمبر +9-5 -515 52--: الرشيدى مشعل فيصل انا
- SGh: 14:01, 2- نوفمبر قادر ط -
- S2: 14:02, 2- نوفمبر +9-5 -515 52--: الله و النعم و
- SGh: 14:02, 2- نوفمبر قادر ط -
- S4: 14:05, 2- نوفمبر +9-5 ---- 2-13: الحريجي مسامح عبدالعزيز
- S5: 14:5-, 2- نوفمبر +9-5 9995 ----: العازمي عبدالله يوسف
- S2: 15:05, 2- نوفمبر +9-5 -515 52--: بالجميع الله و النعم و
- S5: 15:15, 2- نوفمبر +9-5 9995 ----: زوود ماعليك
- 
- Reference 3 - 0.25% Coverage
- 
- 1-:2- 5 ديسمبر +9-5 551 42245: دحام بدر أنا
- 
- Reference 4 - 0.-1% Coverage
- 
- 1-:3- 1 ديسمبر +9-5 551 42245: للأهمية تبليغي ارجو ؟ سابقا المقرر هذا في وينجح الحظ يحالفه لم منكم من شباب يا :التعليم تكنولوجيا - 1 ديسمبر +9-5 551 42245
- 
- <Internals\\G-> - § 3 references coded [5.-9% Coverage]
- 
- Reference 1 - 1.90% Coverage
- 
- S-: 12:10, 22 أكتوبر +9-5 --94 0-09: مافي ولا لسبوع هذا دوام في دكتور عليكم السلام
- I: 15:0-, 22 أكتوبر +9-5 --94 0-09: دوام اليوم :التعليم تكنولوجيا - 22 أكتوبر +9-5 --94 0-09
- S-: 15:13, 22 أكتوبر +9-5 --94 0-09: الاربعاء ويوم دكتور انزين
- S2: 20:30, 22 أكتوبر +9-5 554 321-1: والزقاير عندك بوكي محمودو
- S2: 20:30, 22 أكتوبر +9-5 554 321-1: 😊
- S2: 20:33, 22 أكتوبر +9-5 554 321-1: السموحه
- S2: 20:33, 22 أكتوبر +9-5 554 321-1: بالغلط
- S1: 1:24, 25 أكتوبر +9-5 9944 1230: <الوسائط استبعاد تم>
- S1: 21:1-, 25 أكتوبر +9-5 9944 1230: مبارك عيدكم و .. والفايزين العائدين من عسك و بخير وانتم عام كل
- 
- Reference 2 - 1.-0% Coverage
- 
- I: 09:14, 22 أكتوبر +9-5 --94 0-09: جميعا بخير وانتم عام وكل .. مبارك عيدكم :التعليم تكنولوجيا - 22 أكتوبر +9-5 --94 0-09
- S4: 10:0-, 22 أكتوبر +9-5 999 ---- 30: سعيدة ايامك
- S2: 10:21, 22 أكتوبر +9-5 554 321-1: وسلامه بصحه وانت سعيده ايامك
- S3: 12:30, 22 أكتوبر +9-5 ---- 2299: سعيدة ايامك
- I: 1-:14, 30 أكتوبر +9-5 --94 0-09: اجازة بكره :التعليم تكنولوجيا - 30 أكتوبر +9-5 --94 0-09
- S1: 03:49, 31 أكتوبر +9-5 9944 1230: ماتقصر العافيه يعطيك
- I: 14:32, 5 نوفمبر +9-5 --94 0-09: العديلية مكتبة من المذكرة شراء او احضار وارجو .. دوام اليوم :التعليم تكنولوجيا - 5 نوفمبر +9-5 --94 0-09
- S3: 14:34, 5 نوفمبر +9-5 ---- 2299: انشاء الله
- 
- Reference 3 - 2.10% Coverage
- 
- S-: Hi doctor .. is there a lecture today or not?
- I: 15:0-, 22 أكتوبر +9-5 --94 0-09: دوام اليوم :التعليم تكنولوجيا - 22 أكتوبر +9-5 --94 0-09
- Me: today .. there is a lecture [clue of communication between us about the attending]
- I: 14:32, 5 نوفمبر +9-5 --94 0-09: العديلية مكتبة من المذكرة شراء او احضار وارجو .. دوام اليوم :التعليم تكنولوجيا - 5 نوفمبر +9-5 --94 0-09
- 
- <Internals\\G-> - § 5 references coded [4.3-% Coverage]
- 
- Reference 1 - 1.2-% Coverage
- 
- S2: 22:42, 22 نوفمبر +9-5 ---1 4419: يابو عبدالله ارحب
- S4: 22:42, 22 نوفمبر +9-5 ---- 5: بومنيف هلا
- S2: 22:42, 22 نوفمبر +9-5 ---1 4419: زود هلابك
- S4: 22:42, 22 نوفمبر +9-5 ---- 5: انضم

- S3: 01:02, 2- نوفمبر - +9-5 55- -4225: الخير صباح
- 
- Reference 2 - 1.43% Coverage
- 
- S4: - +9-5 ---- -5: بالخير الله مساكم
- S4: 1-:03, 2- نوفمبر - +9-5 ---- -5: الربع من واحد هذا الرقم ضيف تهون ولا السر هيد طلال
- ابشر: 4225- - +9-5 55- - 2- نوفمبر, 1-:03
  - بالجنه تيشر: 5- ---- - +9-5 - - 2- نوفمبر, 1-:03
  - انضم 5444 551 - +9-5 :التعليم تكنولوجيا - 2- نوفمبر, 1-:0
- 
- Reference 3 - 0.42% Coverage
- 
- 15:1- 5 ديسمبر -
- S1: its raining
- S1: I mean is there a lecture with this rain?!!!
- 
- Reference 4 - 0.51% Coverage
- 
- 15:1- 5 ديسمبر -
- S2: yes and exam .... Come [ they use for nearly everything that they have to say] ..
- 
- Reference 5 - 0.-4% Coverage
- 
- 15:14, 23 ديسمبر -
- S-: guys , the final is Tuesday ... right .. [this is the first time he participate .. and its only to make sure of the exam time]
- 
- <Internals\\G9> - § 1 reference coded [1.41% Coverage]
- 
- Reference 1 - 1.41% Coverage
- 
- S3: 13:1- 25 ديسمبر, 3993- 501 - +9-5 :الامتحان قاعه اي دكتور
- M.: 13:1- 25 ديسمبر, ط- :مرزوق
- S3: 13:25, 25 ديسمبر, 3993- 501 - +9-5 :تضارب في
- M.: 13:2- 25 ديسمبر, ط- :مرزوق مع تضارب
- S3: 13:2- 25 ديسمبر, 3993- 501 - +9-5 :اي
- M.: 13:29, 25 ديسمبر, ط- :مرزوق كلم مدري والله
- I: 13:5- 25 ديسمبر, :التعليم تكنولوجيا - 25 ديسمبر
-

## Appendix C

### 1- Filed Notes & Observation & The Focus Group:

Dates	Field Notes	
01.10.12	<p><b>Environment:</b></p> <ol style="list-style-type: none"> <li>1- No wireless.</li> <li>2- No equipped classes.</li> <li>3- No clear e-facilities .. e.g. (e-mails, e-library).</li> <li>4- Books expensive (although some teachers offer printed materials).</li> <li>5- Previous studies (schools) in Kuwait did not encourage or use technology..</li> <li>6- Some students who set in last rows in the classroom may show more resisting than other. Why???? ..this is may not correct .. I assumed this because usually they are careless (from my experience)</li> </ol>	<p><b>Observation: Interactional Analysis (WhatsApp)</b></p>
	<p><b>In class</b></p> <ol style="list-style-type: none"> <li>1. Most of the students were exhausted (afternoon lectures 15:30 – 17:00). This probably affect their decision and ability to engage effectively. So, morning is the best time.</li> <li>2. Discussion &amp; Quez about lack of communication &amp; important of CL &amp; and the whole module ..started to acknowledge what they know .. and let them know where we are going ..</li> </ol>	<p>The project did not start yet (on-line)</p>
03.10.12	<ol style="list-style-type: none"> <li>1. Most of them prefer WhatsApp to communicate with peers... maybe because it provide more privacy ..and in the end, there will be exchanging phone numbers</li> <li>2. Suddenly, the only group that decided to use twitter to collaborate change their mind and decided to follow others and use WhatsApp!! Maybe because they do not want to be left alone... isolated ..</li> <li>3. some decided to use both suggested Apps ..</li> <li>4. Oddly, No one prefer to use Blackberry, even that more than one carry this device.</li> <li>5. Groups divided by their own desire and choice.</li> <li>6. Researcher downloaded the preferred Apps by the majority .. WhatsApp.</li> <li>7. All groups (included the researcher phone number) exchange their numbers and names.</li> </ol>	<ul style="list-style-type: none"> <li>• Period (03-08).10.12</li> </ul> <ol style="list-style-type: none"> <li>1- Some of the groups did not participate in this period.</li> <li>2- Most of the students need a leader to guide them, and to start the communication.</li> <li>3- This role led firstly by the teacher to encourage students. I hope it will not continue!!.. after the investigation finished, in 2<sup>nd</sup> iterative ..this actually what happened ..</li> <li>4- Researchers .. ask several Quiz.. Define "learning, teaching, education technology.</li> <li>5- Also, how do you prefer the content .. Electronic or printed? Why?</li> </ol>

	<ol style="list-style-type: none"> <li>8. All participants discussed with the researcher (teacher) the way of communication and interaction... its appear not All..but the majority ..some were careless ..</li> <li>9. Questions such as How, when, what, and why discussed... integrate technology into education</li> <li>10. Teacher (researcher) talked about 40 minutes about the module and how it will be run.</li> <li>11. Some learners do not prefer to share their thoughts with everyone!! Privacy... shy ..</li> <li>12. Most of them need a huge amount of support and encouragement to participate (this is may refer to their previous experience of learning.. background ..schools). On other words, they are not used to use this kinds of learning methods (CL or learning with technology).</li> <li>13. Some of them see using Apps useless. So, HOW can we encourage them? .. after the investigation finished .. by bonus, and show them why they need it.. what is it good for? and how to use it .. ask questions during their using for the App e.g. how do you fell now? What is it useful for? ..</li> <li>14. Personal feeling, attitudes, desires and previous background .. play important role into use technology.</li> <li>15. Teacher will prepare the objectives, chapters for next session... its important to transfer the curriculums from printed to electronic .. this is not an easy way ..it have a system and criteria..</li> <li>16. Researcher will start to take field note, especially, on-line (Apps).</li> <li>17. Teacher start tech the first chapter.</li> <li>18. The first iterative start.....</li> </ol>	<ol style="list-style-type: none"> <li>6- Some preferred Electronic &amp; other printed .. they answer .. why.</li> <li>7- Some answers was smart &amp; encouraging.. others were superficial .</li> <li>8- Some learners go further and offer useful links have relation with our subjects. (e.g. books).</li> <li>9- Some of them use the Apps for social events (Exchange congratulations on Friday). This mentioned before by T2.</li> <li>10- Some students play leader role and add other to the Apps... and guide them and encourage them ..</li> <li>11- Some of them raised issues related to CL .. researcher ask them if they see it useful? Why? The answers were encouraging actually .. the group3 which raised issue about CL said its good to enhance the relation between students.</li> <li>12-</li> </ol>
08.10.12	<ol style="list-style-type: none"> <li>1- Researcher create VLE (haiku) to support students need .. as notice when debate by Apps. Some like electronic content .. so I prepare it for them... but, unfortunately, it was complex for some of them.. and complicated their study ..and it wasn't totally useful.. they didn't use it for discussion ..SO, its better to use a simple website to put the content and aims and previous exams and anything that related to their needs</li> </ol>	<p><i>Period (08-10).10.12</i></p> <ol style="list-style-type: none"> <li>1- Questions raised about how to enroll on-line into the website.</li> <li>2- Some students did not know the important of the Website.</li> <li>3- Teacher reply through the Apps to convince students to use the site.</li> <li>4- Teacher start to warn the students about the</li> </ol>

	<p>..NOT mine .. and use the e-mail next to the App communicate ..</p> <ol style="list-style-type: none"> <li>2- Teacher tech the rest of Chap 1 in lightly (not deeper)... to give the student a chance to discuss it deeper on-line by the App.. hopefully, this will offer also good chance for better collaboration.</li> <li>3- Nearly, half of the students were absence without any clue why.. maybe they were exhausted .. I am afraid that they hate this technique.. apparently ..the late time of the lecture was affect them in many ways .. 3:30 to 5:00pm.</li> <li>4- Researcher notice that because the encouragement of using Apps .. some student deliberately used their mobile during the class without my permission ... This encouragement transferred to disadvantage because it lead to distraction.</li> <li>5- Again... in all the time, and wherever we are .. they always need encouragement.</li> </ol>	<p>importance of participate. (he start to put grades).</p> <ol style="list-style-type: none"> <li>5- Teacher offer website with pin code for participation.. afterward he change the code because the old one was invalid.</li> <li>6- Most of the students participate by their own smartphone[advantage].</li> <li>7- Problems occurred during the registry period.</li> <li>8- Teacher delay participation later.. so he can fix the problems that faced students... which in the end cant solve it completely because of " big number students 60" and resist and lazy students "</li> <li>9- Questions about the printed materials raised.</li> <li>10- Teacher ask one student to copy the wanted chapters and left a copy for other students (cheaper than the book).</li> <li>11-</li> </ol>
10.10.12	<ol style="list-style-type: none"> <li>1- even that, more students participate. Still, there are about 30 – 40% did not. I think some of them try to delay this step in purpose .. maybe because they are lazy, OR shy!??</li> <li>12- Personally, teaching f2f now is more easier.. I do not have to waist a lot of time on repeating any topic... because of using the App ..they can ask me or their colleagues later .. and this is what happened really ..</li> <li>13- More students convince about using technology than before.</li> <li>14- The principle of Retribution has to be applied to guarantee more participation... Bonus ..</li> <li>15- I am persuaded more than ever that it is very important to use technology earlier (in schools) with students.. this gap is noticeable &amp; need to be fixed...</li> <li>16- Unfortunately, the local environment (Kuwait), especially, the public institutions e.g. PAAET.. are currently not encouraging.. a lot is missing .. from availability of wireless, smart classes, No VLE, .. etc.</li> <li>17- We are facing some problems with registration some students.. some already participate.. others waiting to fix the problem.. to overcome this</li> </ol>	<p>Period from 10-15.10.12</p> <ol style="list-style-type: none"> <li>1. Solutions offered by the teacher to overcome such obstacles... which wasn't successful completely ..</li> <li>2. Some students insist on writing long sentences. Although teacher warned them not to do so!!</li> <li>3. Plagiarism in some cases was obvious.</li> <li>4. Debate raised about the distance learning.. blended learning... some said its good and others refuse it ..</li> <li>5. Issues related to the Technology Publications, sculptures and paintings (Chap 2.. discussed).</li> <li>6. Some until now did not participate.. teacher think seriously to discount grades from them to encourage them to participate..!!.. but found it unethical .. so I stop it</li> <li>7.</li> </ol>

	<p>problem we agreed on using WhatsApp to interact for now..</p> <p>18- To overcome problems related to enrolling to the course .. researcher conducted few steps:</p> <p>F. Enroll as a student to see how its really work.</p> <p>G. Follow up steps &amp; capture screen.</p> <p>H. Put the image &amp; details in PowerPoint to facilitate the instructions.</p> <p>I. Converted the slides to a movie to upload it easily .. and they download it and see the steps of enroll ..</p> <p>J. Show it in the classroom.</p> <p>K. Grades for participate (inside class, on-line) record into the website.</p> <ul style="list-style-type: none"> <li>•</li> </ul>	
17.10.12	<p>1- As usual, teacher start the lecture by asking the same question.. Who didn't participate with the groups? Why?</p> <p>2- still, some didn't do that [enroll].. and they presented a different excuses.</p> <p>3- Some faced real problem such as .. they could not play the movie that I uploaded on the Apps .. this may because they have to download a suitable program (e.g. media player) from the Apps store.. or they can simply use their own laptops.</p> <p>4- Some of the students .. how much efforts teacher do.. they will not respond or collaborate.. (Resisting).. I do not know Why!! ..I think, mainly because they are lazy..</p> <p>5- Teacher show (the movie that he created) the students how to enroll into the class website by using the data show ..</p> <p>6- Still, we faced problems with some students who could not enroll ..( they follow the steps but the link drive them to different site).</p> <p>7- Also the movie did not work with Blackberry.</p> <p>8- The solution was .. every student register himself by using the class computer.. so now we presume that everyone is register... unfortunately, this is didn't happened ..</p> <p>9- By using App.. teacher feels that he no more need to explain everything about the course or the</p>	<p>Period 17-21.10.12</p> <p>1- Nothing new really going on now .. maybe because we going to vacation next week.</p> <p>2- One enthusiastic students shared a lot recently although before he was not convince about using technology!!... maybe because encouragement was successful?? Strangely,, he claimed that, this the third time he participate in this course and he failed with the last two!!</p> <p>3- Some Students more focus now .. and know what suppose to share with other .. by reading, analyzing to some extent .. and write within their own hand what they think ..</p> <p>4-</p>

	<p>curriculum or the topics to the students .. he only need to talk about the headlines and left the rest to the students to read, collaborate, and solve it.</p> <p>•</p>	
	<p>From 22.10.12 to 5.11.12</p> <ol style="list-style-type: none"> <li>1- Eid Holiday..</li> <li>2- After completing the 2<sup>nd</sup> chapter.. first exam will start.</li> <li>3- The 2<sup>nd</sup> iterative will start .. mainly about increasing interaction... some students pronounce that they prefer that teacher who ask questions &amp; lead the groups .. also, some complaint about not all the groups effectively interact... so teacher will blend some group and redistribute others ...to enhance the way of communication &amp; interaction... to some extent, it was a useful technique , still not solving participation problem completely .. some students resist and hide behind their colleagues!! Shy or lazy ..surprisingly, one of the student ...need more space and freedom to share ..and don't want to ask or lead the groups ..</li> <li>4- Why some of them prefer me ask? Is it true??? Because they need a leader to guide them and let them know what precisely they have to do...</li> <li>5- Some do not find answers that they look for within their group.. so its better to know the significant of participation to other groups ..</li> <li>6- Because of all previous reasons.. the 2<sup>nd</sup> iterative will start..</li> <li>7- Maybe in the end, the criteria of choosing wasn't right or enough.. it didn't depend on efficiency or proficiently ... instead their choose was mainly about the relationships and how much they know the other party.</li> <li>8- This choose wasn't completely helpful to increase the collaboration.. in some cases it prevent others &amp; isolate them.</li> <li>9- The need for new distribution &amp; leader &amp; schedule tasks is needed more than ever.</li> <li>10- Also, choosing their own task maybe wasn't a suitable strategy .. they may focus on issue and leave other significant ones.</li> </ol>	<p>From 22.10.12 to 5.11.12</p> <p>•</p> <ol style="list-style-type: none"> <li>1- Some of the absence students used the Apps to ask about what we already discussed inside the classroom.</li> <li>2- Students who attended try to guide and advice their colleagues .</li> <li>3- most students do not have access to other groups.. they feel disappointed if they want to know something... and they do not find it within their group.</li> <li>4- Valuable comments presented from the student about how much such Apps are useful.</li> <li>5- Once teacher stop guide the students they stop sharing and interacting!!</li> <li>6- Before we transfer to the 2<sup>nd</sup> iterative I will create a file for their comments to keep it as a record for their activities..( send the comments to my email &amp; open it as a text .. Then : copy and paste it in (word Microsoft).</li> <li>7-</li> </ol>

	<p>11- So its necessary to change the method of choosing.. groups + way of interact + Website .. but before we do that ...</p> <p><i>We need " F2F focus group" + "Discussion" before transfer to the second iterative.. I may distribute a paper and split them to groups to discuss such issues...</i></p>	
	<p>1/11/12</p> <p>1- Using field notes &amp; observation strategy wasn't easy job .. it need more experience to record everything.. &amp; separate my motions from the whole situation.</p> <p>2-</p>	
	<p>5-7.11.12</p> <p>1- Today we resume completing the 2<sup>nd</sup> chapter .. to prepare for the 1<sup>st</sup> midterm.</p> <p>2- Some students resist enroll into the website .. they see it now not useful.</p> <p>3- I am confuse .. how to use the website? .. actually its difficult to decide what to do? And in the same time I can't leave the site because its replace the printed paper (grades, discussion, work as a base for the module)... after the investigation finished .. the solution was simple .. use a normal website and e-mail .. the first to read and know the aims and syllabus and grades .. and the second for sending and receiving anything .. MOST important .. not to ask them to enroll, especially with big groups ..you will waste your time ..</p> <p>4- Maybe in iterative 2 I will develop it...</p> <p>5- The solution .. to encourage students to enroll .. they will not be able to see their own grades, pronounces, aims ..etc.. if they didn't register..</p> <p>6-</p>	<p>5-7.11.12</p> <p>1- After Eid vacation ( 1 week).. &amp; finishing Chap 2 &amp; before the midterm... students start again to communicate.</p> <p>2- Using nicknames make it difficult when record the grades of sharing .. it's better to provide their names.</p> <p>3-</p>
	<p>7-12.11.12</p> <p>1- Some enroll in different group &amp; still not sharing!! Why? Either they are lazy, shy, or they don't know how? .. this is have to be investigated ...</p> <p>2- For that &amp; with recommendation from my supervisor I will conducted a workshop to show to them the appropriate ways of participation.</p> <p>3- The supervisor ask me to collaborate with some of my colleagues who sharing me the interest about m-learning.. frankly, it maybe not a good idea because of the context</p>	<p>7-12.11.12</p> <p>1- Still the amount of participation is decline .. even with continues reminding &amp; encouraging.</p> <p>2- After sending some comments to all the group about their situation to encourage them .. some are encouraged and seem more careless ..</p>

	<p>differences (Kuwait not like other countries).. Also, there is no problems with the tools (how) but instead the environment (where).. its maybe useful only in exchanging references.</p> <p>4- More issues discussed with my supervisor ( typed in the file: informal exploration)..</p> <p>5-</p>	
	<p>13-18/11/12</p> <p>1- WhatsApp offer only opportunity to share about the subject .. difficult to send grades by App or assessment or assignment (it's not practical &amp; consume time ad efforts..</p> <p>2- Students in first iterative didn't benefit from each other .. they didn't use cumulative process... the majority worked alone.. not collaboratively ..</p> <p>3- There is no evidence about the effectiveness of the number of the group on achievement!!!</p> <p>4- Focus groups take place in this period .. students comments on papers about their feeling..perspectives about the process in 1<sup>st</sup> iterative..</p> <p>5- Instead of doing a workshop I gathering the students in circles with small groups and start a focus group with some questions about WhatsApp and smartphone advantages.. e.g.:</p> <p>F- Why you think some of you didn't share at all? Or occasionally?</p> <p>G- How can we improve it?</p> <p>H- How can we encourage them?</p> <p>I- How can we overcome problems?</p> <p>To see comments look <b>table1.</b> &amp; <b>Table2.</b></p> <p>6- Some shy &amp; hesitate to share even with small group!!</p> <p>7- Argument about taken action (reduce grades) raised between us? Some argue its not necessary to decrease grades for those whom not sharing .. when asked them if they think that there is a better way to encourage all to participate &amp; share with others .. they agree with me this a good strategy for now..</p> <p>8- So, it's necessary to adopt the Reward and punishment method... but, I didn't use it because it unethical as advice from my supervisor</p> <p>9- Apps are personal &amp; its not valid to use with academic institutions (public) it had to initiate by teachers .. [this is ma not correct .. academic institutions may use it to send info &amp;</p>	

	<p>announcements ..etc] its personal &amp; need permanent support &amp; supervision .. its suitable for small group..</p>	
	<p>19-21.11.12</p> <ol style="list-style-type: none"> <li>1- Interesting point raised from one of my colleagues.. he claimed that any use of technology will not be successful .. because according to him the curriculums didn't design to work with tech... instead it designed to work with the printed material.</li> <li>2- From the focus groups (today) .. groups divided to 6-8 students... according to what they preferred (look to the next schedule) .. &amp; we choose the most 3 important principles and consider it as our new guidelines (see the new guidelines below)..</li> <li>3- Ethical issues: <ol style="list-style-type: none"> <li>A. Driving /force all students to share with the Apps our they will be punished.</li> <li>B. I have obligation to push everyone to share/participate .. still, is this right? I am exhausted.</li> <li>C. The college don't provide equipped classes (e.g. computer) &amp; we ask them to enroll by them self ... it is a paradox and unreasonable .. it mean less support &amp; less engagement.</li> </ol> </li> <li>4- Obstacles: <ol style="list-style-type: none"> <li>A. Unequipped classes.</li> <li>B. Environment.</li> <li>C. Lack of maintenance.</li> <li>D. Lack of guidance's &amp; support.</li> <li>E. No Wi-Fi</li> <li>F. unsuitable curriculums to work with technology.</li> <li>G. Careless students .. who disappoint me..</li> </ol> </li> </ol>	<p>19-21.11.12</p> <ol style="list-style-type: none"> <li>1- During the process of transfer from the 1<sup>st</sup> iterative to the 2<sup>nd</sup> iterative I ask my students to keep the comments from the first participation .. so I can transfer it to my email &amp; then keep it in word file for each group.... Unfortunately one of the group leader erase the old group which caused losing this group information's &amp; comments... so it is very important to be very caution when transfer from step to another one in the future.</li> <li>2-</li> </ol>
	<p>22-26.11.12</p> <ol style="list-style-type: none"> <li>1- PAAET offer website for both teachers &amp; students .. this site offer the names of the students &amp; also place to put their grades .. but, unfortunately, it didn't provide more features to communicate &amp; send e-mail (not like LMS).. also there is no place to put the details of the grades...just the total grades..</li> </ol>	

	<p>2- PAAET offer a chance through their site for the student to register &amp; evaluate their teachers (good for empowering work)... where it was easy to use ..for part-time teacher ..Also students consider it as a new task and they did not do it..</p> <p>3- I have to present the previous guidelines from the 1<sup>st</sup> iterative ... Also from the 2<sup>nd</sup> iterative.</p> <ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> </ul>	
	<p><b>1<sup>st</sup> iteration:</b>  In this phase the theory was [The pedagogical affordances of smartphone applications for collaborative learning within Kuwaiti context (Pre-service teacher's)].</p> <p>.. smartphone's Apps have pedagogical affordances that useful for collaborative learning.. .. however, for the success of this investigation it is important to specify/assign some roles and responsibilities:</p> <p>1- Teacher responsibilities (who in this case the researcher) will divided as follow:</p> <ol style="list-style-type: none"> <li>a) Provide a complete instructions about what learners have to do, why they do it, where and how they do it before the course start.</li> <li>b) Ask the learners to download the most desirable application that they prefer to communicate, choose their preferred group, and the preferred time (e.g. daily or weekly).</li> <li>c) Download any Apps learners prefer to monitor their progress and participation. Even more, collaborate with the learners to find a solutions/answers for any problem or enquiries.</li> <li>d) Encourage the learners to communicate effectively, and collaborate peer-to-peer and group-to-group (e.g. providing a bonus grades). Further, illustrate the mobile affordances within the accessibility to record, and take pictures.</li> <li>e) Make sure that every individual or group get the appropriate feedback.</li> <li>f) Encouraging the self-assessment to increase the competition among the learners. For instance, ask them who was the most useful participant weekly.</li> </ol>	

	<ul style="list-style-type: none"> <li>g) Taking into account individual differences.</li> <li>h) Evaluate the whole work during and after the experiment end in attempt to understand why this model did or did not work.</li> <li>i) Monitor the groups periodically to make sure they are functioning effectively.</li> </ul> <p>2- Learners rights and responsibility:</p> <ul style="list-style-type: none"> <li>j) Learners have the right to use any kind of mobile device as long they can install one of the applications (WhatsApp, Blackberry, or Twitter).</li> <li>k) Learners can choose any group they like as long they will communicate effectively with members of their own group.</li> <li>l) Groups have the right to choose the activities for their own sake as long as the activities do not contradict with the curriculum and the scheduled lessons. For example, they can choose to answer one or more questions by identifying the problems and what questions call for communication in order to find the answers.</li> <li>m) Groups have the right to determine how many times they will communicate, whether after each lesson or weekly.</li> <li>n) Learners/participants must engage into the activities effectively (e.g. provide persuasive and influential answers) and collaborate with other learners for the success of the experiment.</li> <li>o) Record, share and reflect on teaching events individually and with peers.</li> <li>p) Activities must be derived from what has been learned during the lectures in the classroom.</li> <li>q) Exchanging thoughts and ideas among different group is allowed.</li> </ul> <p>1-</p>	
	<p><b>2<sup>nd</sup> iterative guidelines:</b>  In this phase the theory developed to be as following ..... ( smartphone's Apps to some extent.. enhance collaborative learning if we connected it to the curriculums &amp; students needs appropriately &amp; successfully.  So, the guidelines also developed:  <input checked="" type="checkbox"/> Teacher have to initiate some steps &amp; a workshop to train the students about:  1- Divide them to small groups (6-8).  2- How to use the required Apps.</p>	

	<p>3- How to collect data.. from where.</p> <p>4- What kind of data wanted &amp; unwanted.</p> <p>5- Examples of good &amp; bad comments.</p> <p>6- Prevent plagiarism &amp; long sentences.</p> <p>7- Understandable comments.</p> <p>8- They have the right to right a comments &amp; respond &amp; critics.</p> <p>9- Remind them about Retribution.</p> <p>10- After every lecture new activity for each group will be start ( Quez from the teacher)... the activity have to be from what they already learned.</p> <p>11- Use a website as e-resource for the module is a good choice( optional)... they can share &amp; know the aims .. the chapters.. new announcement.. grades ..etc.</p> <p>12-</p>	
	<p>28.11 – 02.02.12</p> <p>1- the big problem of using technology for any teacher is the big number of the students because in many ways its caused:</p> <ol style="list-style-type: none"> <li>a. Difficulties on register to any LMS.</li> <li>b. Enroll to the Apps (e.g. WhatsApp).</li> <li>c. Consume a huge amount of time &amp; effort.</li> <li>d. Demand 2 person at least ..for big numbers of students .. for teaching and technician maters ..</li> </ol> <p>2- some don't own personal computer .. others don't own email!!! But they know how to use the Apps!! .. because it related to fun and everyone now use it ..</p> <p>3- Questions about smartphone affordances had been asked, for example:</p> <ol style="list-style-type: none"> <li>A. Why/how portability are useful for learning?</li> <li>B. How can smartphones Apps improve social interactivity? Which improve CL?</li> <li>C. What/Why the context sensitivity of smartphones useful/offer?</li> <li>D. What is the impact of the feature "connectivity" on learning?</li> <li>E. How can smartphones maintain individuality?</li> </ol> <p>4- I feel in some times that I wasn't focus on the research.. instead I focused on teaching &amp; preparing &amp; asking questions about the module.</p> <p>5- The presence of the Apps alleviate &amp; reduce the need for LMS to discuss &amp; communicate .. so its now used only for show the aims, chapters, new announcements, and grades.</p>	<p>The same period..:</p> <ol style="list-style-type: none"> <li>1- I stop asking questions about the module .. instead I conducted activities through the Apps (WhatsApp) to investigate issues related to the pedagogical affordances of smartphone Apps for CL.</li> <li>2- Some responds were superficial &amp; others were good.</li> <li>3- Currently, students use the Apps to exchange info about their 2<sup>nd</sup> midterm.</li> <li>4-</li> </ol>

	<p>6- I cancelled the last chapter (7) .. it wasn't important.</p> <p>7-</p>	
	<p>6-12-12 to 25-12-12</p> <ol style="list-style-type: none"> <li>1- The majority of the students were Kuwaiti (maybe all)... with different specialist .. but all pre-teacher, librarians, and pre-specialist in educational technology.</li> <li>2- I think the environment have a big impact on transform the students to be better.. for example, one of colleagues in Exeter.. indicated that his children (Saudi) act differently and be more politely when they study in English schools .. in contrast to Saudi school that work in UK (through weekends)... Why? Is it psychological issue? .. or because each environment have its principles/rules in which it have to be obey ..</li> <li>3- Although most of the students finish the 2<sup>nd</sup> midterm .. yet, some of them didn't enroll until now into the LMS.</li> <li>4- Now, interact&amp; sharing &amp; exchanging info is reduced after the 2<sup>nd</sup> midterm finish... because in this period they have a lot of accumulative/load works from other subjects .. (approximately between 5-7) &amp; also exams.....</li> <li>5- Strangely, while the Apps suppose to enhance &amp; accelerate the learning &amp; students achievement.. this didn't happened .... Although, some students who actually shared &amp; participate .. eventually, their grades were weak or even worse!!! <b>WHY?</b></li> <li>6- So, I immediately asked the students by (WhatsApp) why they think this happened?!! Why their grades were weak?</li> <li>7- Precisely, I asked do you think WhatsApp facilitate your learning? If NO .. WHY? If yes.. How can justifying the conflict about what should happen &amp; what Actually happened ...?!!</li> </ol> <p>I get comments like:</p> <ol style="list-style-type: none"> <li>A. – yes, actually I didn't open the book!!</li> <li>B. – yes, reasons.. the design of the exam .. they hate choose &amp; right or wrong.</li> </ol> <p>[to see all comments about this matter .. go to 2<sup>nd</sup> iterative comments by the App] ..</p> <ol style="list-style-type: none"> <li>8- Moreover, I asked the students about the effect of peer-assessment.. &amp; if it</li> </ol>	<p>Same period:</p> <ol style="list-style-type: none"> <li>1- After finishing the 2<sup>nd</sup> midterm .. most of communication through WhatsApp were about the grades.. some of the students who faced problems in register into LMS ... or lazy .. or careless were the most communicators because they couldn't like others see their grades.</li> <li>2-</li> </ol>

	<p>will be useful if they assess each other.. (it supposed to ask this question before or during the investigation .. So, I didn't have a chance to apply this technique because o the time shortage.. instead I only ask to understand what they prefer).</p> <p>9- frankly, one of my colleagues complaint about the lack of equipment &amp; computers and said that ... "I have 20 computer &amp; 25 students .. How suppose I teach them all?! .....</p> <ul style="list-style-type: none"> <li>• .. to overcome this problem I asked some of my students to bring their laptops &amp; Wi-Fi devices ....</li> <li>• ..... still, there were other problem we couldn't overcome which is NO sufficient electricity blogs.. So, there are a lot of problem in this environment (institution PAAET)".</li> </ul> <p>10- Mean either, faced the same problem when the electricity cable was break .. the funny thing that the previous head of the department ask me by on me ..</p> <p>11- Naturally, I believe, students looking for the shortest ways to do things.. for instance, although, some of them enrolled into the LMS and can see their results from their .. strangely, they use the Apps to call me to get their grades ... WHY? Is the LMS is wasting time tool &amp; ridiculous ?!!!</p> <p>12- WHY? Some students succeeded in this module (with me) &amp; didn't succeeded with before.. same module + same curriculum + used Apps (WhatsApp)... - different teacher &amp; method .. is it the teacher effect.????</p> <p>13- I Asked Marzoug &amp; some students who take this subject before &amp; didn't succeeded about their opinion... &amp; quiz like is it the tool (WhatsApp) ? is it the teacher? Or is it the method of teaching? ..</p> <p>14- [The answers varied; and can be found in the transcript of App comments ..</p> <p>15- Based on advice from my supervisor i have to ask questions by Apps about the subject to overcome the problems</p>	
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	<p>of weak results ... instead I think its better to use the LMS to put copies of previous exams &amp; inform the students about it (cause time shortage).</p> <p>16- To make a good argument .. good evidence .. I have to investigate some of the brilliant/ smart/different answers from the exam &amp; ask the students from where they bring it ?? .. in another words, is there any correlation between their sharing by Apps &amp; their answers .. if yes.. it's a supporting evidence that Apps is useful/success... for me as a researcher smartphone Apps are already useful cause instead on meeting with students F2F .. I simply write to them what I want.</p> <p><b>17- As a sample .. 10-5 students answers will be under investigation .. it difficult to analyze everyone .. (discourse analysis). The choose was based on presenting new ideas...(sent by Apps 20/12/12).</b>  [answers in the App comments]</p> <p>18- Questions sent by the Apps (WhatsApp) about the following:  A. When they use the smartphone?  B. What do you feel about it? did it serve them?  C. What their opinion about peer-assessment?</p> <p>19- Answers &amp; comments were:  [answers in the App comments]</p> <ul style="list-style-type: none"> <li>•</li> <li>•</li> </ul>	
	<p>26-12-12/ 15-01-13</p> <ol style="list-style-type: none"> <li>1- In this period the final EXAM have taken place.</li> <li>2- Reviewing what they study .. asking questions related to the use of smartphone's and answers have been provided from both sides (Me-students).</li> <li>3- Assessment phase..</li> <li>4- I sent the 2<sup>nd</sup> iterative comments from the Apps (WhatsApp) to my email.. &amp; restore it in my laptop for the next phase (analyze).</li> <li>5- Assess their final grades.</li> <li>6- Put all the grades first in our LMS .. before put it into PAAET E-system .. in case if there is any mistakes..</li> </ol>	

	<p>7- Tell the students about their grades when ever its ready LMS... &amp; who faced a problem to register .. I will use the Apps to contact them .. Although they will see it all eventually through the PAAET E-system.</p> <p>8- Of course, there were some complaints about the grades .. which must of them were nonsense..</p> <p>9- Because we used the Apps we actually study &amp; communicated not for 6 weeks (twice weekly) for every iterative ... but its suitable to say that we met 2-3 hours daily through the apps.</p> <p>10-</p>	
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## 2. Focus Group

### 2.1 The focus group comments about the problems of using WhatsApp: (Reasons for not sharing):

- A. lack of focus on a single topic.
- B. negligence and neglect of some students.
- C. there is no relationship between students.
- D. shyness.
- E. Lack of assimilation by some students.
- F. A lack of interest by some of the students.
- G. The lack of encouragement from teachers.
- H. Some students dependence on discerning of some participants And follow-sufficiency.
- I. Preoccupation with other courses and tests.
- J. not to organize leisure time.
- K. the inability to use technology and the Internet for some.
- L. The inability to use the different resource appropriately.
- M. Some devices broken suddenly.. or not supporting some Apps

### 2.2. How to encourage the hesitaters?

- A. Choose a topic for each group and approved by the Group
- B. Honoring the best group in the effective
- C. Enrich the spirit of criticism.
- D. Change the members of the group with participants renewed every certain period of time
- E. Members should not exceed 6 per group ..actually in 2nd iterative they exceeded 8!! Some insist in sharing with whom he know only ..and don't want to get to know others.
- F. permanent follow up by the teacher to the discussion groups.
- G. Staying in touch and impose required duties ..
- H. Explain how to participate and Grading..
- I. Attention to the opinion of the student profile and response.
- J. Posts must be brief.
- K. Provide examples of the topics to be discussed

- L. Allowing the debate outside the subject matter to entice students to participate and enhance mutual understanding.
- M. Mandatory participation
- N. Determine the issue of participation of each group
- O. Give additional grades to participate.

### 2.3 The focus group comments about the significant of smartphone: What are they good for? Why?

- A. Gaining info.
- B. Easy to communicate.
- C. Connect anytime.
- D. Privacy.
- E. Communication ( Audio, video, image).
- F. Meet new people.
- G. Easy to shift between programs.
- H. Saving time & money (by using Apps).
- I. Easy to use.
- J. Inclusive device ( computer, phone, camera, calculator, clock.. etc).
- K. Allow group communication & teaching.
- L. Allow communication with outside world.
- M. Easy of navigation & permanent contact.
- N. Personal computer.
- O. Useful for social communication.
- P. Remind of appointment & important things.
- Q. Offer GPRS.
- R. Offer entertainment (games & Apps).
- S. Not expensive ( According to Kuwaiti context).
- T. Easy to carry.
- U. Apps & programs (Updated always).
- V. Keep personal information.

### 3. General notes for nvivo10:

First, **Why I do this project?** Mainly because I want to show to police makers in PAAET that they can think of using new things to develop the students experience. Hopefully, in the end they will hire me and give me a credit for my job.

Secondly, **what is it about?** I didn't found it useful to integrate VLE. Its always complicated and need expertise and training in which it consume a worth time. Thus, what is the replacement? Suddenly, cross to my mine. How about using something that they already use? something that they familiar with and appreciate. In addition to, its free and easy to use and install. Therefore, I immediately, think of smartphone applications such as Twitter, WhatsApp, and Blackberry.

Through these Apps, they can communicate, share, and exchange many things. For example, words, photos, links, and videos. They can say hi, get know each other, congratulate each other, laugh. Further, ask about things that related to their study

and future and attendance and exams, and as many other countable things to do with the Apps.

Thirdly, **what I expect to find? And why?** Well, I expected that everyone own and know how to use smartphone apps. Further, teacher and students appreciate it and policy maker will be interest. **Why?** As I said before, the majority use the Apps and its easy and free. Further, teachers and policy makers will be convince that it will facilitate the students communications in which it subsequently influence their achievement.

**What biases I bring to this project?** The acceptance of smartphone apps among learner. Exclude females. All like technology and hate the traditional way of learning. All own smartphones and know how to use it, and love it. policy makers and teachers in the ED are interest. Showing that technology is significance to increase communications and enhance achievement.

**Further**, using some method will be easy process to investigate what I want. While, I realized that it is very difficult to made a successful interview. For instance, if we let the interviewer go on and complete his sentences without stop him or ask him questions based on what he said he might speak about issues that have no relation to our topic. On the other hand, if we stop him, he might lose the sequences of his ideas and we lose important things that he may say. Its very important that we remember that the interviewee is always under some pressure because he is defensive. He feel that your questioning his knowledge and expertise. So, he is trying to show his best.

Moreover, using VLE to deliver the aims and content of the course supposed to be useful. This was not quite accurate.

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#### 4. Notes from teachers interviews:

- 1- Determining whose I am going to interview in [educational technology department] could be a purposive sample. [Expert sampling involves the assembling of a sample of persons with known or demonstrable experience and expertise in some area. expert sampling is essentially just a specific sub-case of purposive sampling. The advantage of doing this is that you aren't out on your own trying to defend your decisions -- you have some acknowledged experts to back you. The disadvantage is that even the experts can be, and often are, wrong] copyright ©2006, William M.K. Trochim, All Rights Reserved.
- 2- There wasn't a specific criteria. It was semi-structured interviews.
- 3- I met 3 teachers. One was the head of the department and the other two are old and new teacher.
- 4- Its appeared to me that the newest teacher was more interested in integrating technology [twitter ..twice] and more experience.
- 5- All teachers provide contraction information's. In the begging of the interview, they claimed that " we don't see it as a problem" when they asked about the lack of communications among their students. Maybe because they didn't understand the question correctly. Or they are was talking about them self's, and not about the students. Or they are simply don't look at it as a problem. However, how can we explain the contradiction of their own words [after we

resume & expand the talking] that there is a problem of communications lack!!!???

- 6- All teachers focused on their own work and efforts. And try to show that they know what are they doing!! Further, they tried to defend them self's.
- 7- I believe that, all teachers except the T3 [new one] not realizing the barriers of integrating technology. Moreover, the head of the department used only email to communicate.
- 8- There were contradiction between what T2 said about the availability of Wi-Fi spot and what other teachers and me noticed.
- 9- All teachers used technology with female students!!why? maybe because female are more interesting and the keenness of the boys!!!
- 10-All find technology useful but they don't use regularly. Maybe because of the overload work.
- 11-Maybe if I investigated more teachers it would be better.
- 12-Common problems; the large numbers of students, in which its not help to communicate effectively!!
- 13-Significant issue raised by T3. It was about " knowing your students is help and important" !! So, the question will be; .. is the Apps help teacher to communicate with the students and know them better?

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#### 5. Notes from the field note:

- 1- The local environment [Kuwaiti context] without doubt have big impact on students perspectives toward integrating technology , especially, in the way that they used to learn in schools. [e.g. Bader ... daughter in E school and in KSA schools]..
- 2- I need to talk about how significant the role of teachers and his support upon the success of any attempt to use or integrate technology or tools.[ success of Marzouk]
- 3- In the 1<sup>st</sup> iterative, exploring, and asking were more than sharing. However, after a while; in particular, in the beginning of the 2<sup>nd</sup> iterative, sharing was more.
- 4- I may include some picture, video, or links that students used to show how they appreciate this tool.
- 5- Many problems may occur because of the lack of unequipped classroom.

#### 6. Notes from WhatsApp comments:

- 1- M., who failed twice in this course before [they already once tried WhatsApp] are the most active person now!! And also helped others!! Why? Maybe; because of the teacher and the method of learning!!
- 2- Students used the App to exchange information's Not necessarily related to the topic. E.g. social, news, congratulations, exams, attendance..
- 3- They focus on Blooms taxonomy lower order thinking skill only [remembering] !! Why?
- 4- They used the App mainly, to help them to [remember/ maintain/ memorize] information's!!! Why they want to do that only? Maybe because this is what they usually do in schools before their exams. It's something related to their background.

- 5- Most of the written comments was Slang. So, in sometime it was difficult to understand what the students actually mean and difficult to translate.
- 6- Time of sharing [which recorded by the App] is changing always.. anytime & anywhere.
- 7- Filtering some local words while translating & transcription is a good strategy to maintain focus.
- 8- 60 students want to registered in the same time, and I have 2 lectures weekly [total 3 hours] .. how can I manage that? .. I was exhausted ..
- 9- The majority, usually, shared lately!! 9:00pm or later.
- 10-Some of them [the active students] tried by themselves through the App ..to summaries related topics and show it to others.
- 11- Even after a month .. Not all shared!!
- 12-Group 2 in the 1<sup>st</sup> iterative ..few have shared and it was mainly about Wisdom and prayer..
- 13-A lot of errors. This is one of the barriers [small screen] .. also some students were weak in grammar and vocabulary.. or weak in Arabic language!!!!
- 14-One of the barriers of smartphone .. no instant spelling check ..
- 15- Always, I have to keep my eyes on what they do. In addition, support them encourage them, and guide them ..Exhausted mission.
- 16-I feel sometimes, No one listen, follow, or discuss. They try only to express themselves!! Maybe they weren't familiar with kind of conversation and peer-reviewed!! Again it's a problem teaching method in local context.
- 17- Unfortunately, I did not used the App to specify the exam questions before I lunch it... or at least offer examples. This is without doubt would encourage them to use the App more .. and give them what they are keen about.. [ I was very busy because of the large number of the students]
- 18-Maybe it's not a good idea to integrate technology with large number of students ..especially , if you was alone.
- 19-Again, and Unfortunately, I did not design any case OR assignment that need to be solved collaboratively!! .. getting a grades have to be through developing a higher-order of cognitive skills such as ..critical thinking and problem solving. [limitation]
- 20-Developing such skills by smartphone will guarantee the minimum limit of building higher-order cognitive skill... e.g. His Hines Amir [Abdullah bin Zayed] said " we must lead people to succeed by force ..After that, they will thanks us"...
- 21-Exchanging roles, while some share .. others who already shared keep follow

#### 7. Notes from the 2<sup>nd</sup> iterative:

- 1- Normally, the activities start with a conversation between two students. Its keep running until they show their view or cut by a third party.
- 2- I have to split the words [in the App] by dots [...] to make sense of some sentences.
- 3- These new groups were more focus and active. The majority shared. Maybe this because my unethical thread [reduce grades] ..
- 4- In the mid of the trial .. more students participated to the group!! Why? Maybe because they didn't find a replacement .. no one will answer their question except throught the App.

- 5- They return the low grades of their own exams to many reasons; although they said WhatsApp is useful!!!! After I asked them through the app .. they said; because of not studying, fear, hesitate, personal circumstances ..and so on.
- 6- Expressing their self's and their feelings seems to be a big problem .. I think this going back to the way of learning into schools in Kuwaiti context!!! ..
- 7- I have to record how many times there were agreement and disagreement.
- 8- One of the participants believed that there is a lack of sharing because I was only ask questions and expect them to answer it and without give them freedom .. in which this method didn't give him enough space to share more..
- 9- When asking a question .. there wasn't instant sharing ..!!! they were busy!!
- 10-Group 8 comments were interesting .. and I may use it in the next conference ..
- 11-its very important to remember .. the important role of the leader .. to encourage and guide.

## Appendix D

### 1. Questions for the consultation phase: Informal Exploratory Technique & Questions and Answers session

Both researcher and his supervisor agreed upon conducting an informal investigation to collect some information related to the participants before the study start. We believe that such investigation will help to facilitate planning the study before it's begin. In such way, the collected information will help to create the initial conjectures, propose the first design principles and guide the first iterative phase of this study. The informal investigating questions (will divide to two kinds of questions. In one hand, the general questions and in the other hand, the practical questions. Informal questions for teachers and students about integrating smartphone Apps into their teaching and learning methods:

There are two kinds of questions:

#### **1- Perspective:**

- *Teachers:*

- A. Do you think students need to communicate? Collaborate? Why?
- B. Do you think it's a good idea to use Apps to communicate? Why?
- C. Will its meet their needs?
- D. Do you know what collaborative learning is?
- E. Can Apps support CL?
- F. Do they need it?
- G. Are you interest in use it?

*Students:*

- A. Do you think it's a good idea to use Apps to communicate? Why?
- B. Do you know what collaborative learning is?
- C. Do you think students need to communicate? Collaborate? Why?
- D. To what extent Apps will increase your communication and interaction?
- E. Do you need it?
- F. Do you have smartphone?
- G. Can you use it?
- H. Are you interest in use it?

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**2- Practical issues:**

• *Teachers:*

- A. Do you see lack of communication among your students?
- B. In what way you see it as a problem?
- C. Do you think it's going to work- Apps? If not why? What is the problems?
- D. Is everyone have smartphone?
- E. How will you do it?
- F. Do I need to assess (give marks) to encourage participants to enroll?

*Students:*

- A. Do you have smartphone? Can you use the Apps to communicate?
- B. What kind of Apps do you prefer?
- C. Do I need to assess (give marks) to encourage you to enroll?
- D. Do you think it's going to work Apps? If not why? What is the problems?
- E. Do you see lack of communication among your colleagues?
- F. In what way do you think we can employ such Apps?

## Appendix E

### Transcription of the semi-interviews with 3-teachers from Educational Technology Department (ETD), at PAAET in Kuwait:

#### 1. Teacher 1:

##### She (T1) ... Me (Researcher):

Me: do you think that your students need to communicate?

She: sure.

Me: Do they to collaborate with each other to the success of the course?

She: they must.

Me: Why?

She: they must, because I think looking for the teacher as the responsible for everything is wrong.. the responsibilities of the course should be carried by everyone who participate on it .. for example, even the person who clean the classroom have influence on communications and the dynamic interaction .. thus, what do you think about the main existence persons [participants] .. sure they have a role.

Me: do you think it's a good idea to use the smartphone Apps inside or outside the classroom?

She: I use it, and I think it's a good thing .. not because it is a new technology .. I don't care if too simple.. and not necessarily to obtain a "dazzle technology" .. just doing the purpose.

Me: what do you mean by purpose?

She: for example, if you have any aim .. you send a message telling the students that you cancelled the lecture, ok , if I have an email, WhatsApp, why not? .. because the speed of delivering the information .. it is something good.

Me: do you thing such this Apps will satisfy their needs? As a teacher do you feel actually that there was a lack of communication among the students?

She: for me, because I use [teach] a small groups ..(not completed sentences) .. this mean that I believe students should contact with each other .. make use from their own experiences .. for the record; the normal classroom contain at least 20 students .. all of the are not the same .. everyone have its own background .. and if I don't encourage them to communicate its wastages.. the experiences of every individual will lost if it's not exchange and circulation between all, especially, teachers and learners ... there are important stable information .. its truly that its important to know the facts, and the information's .. but the experiences we cant find easily .. so, if everyone own a treasure of experiences .. its better to encourage the communication.

Me: small question, do you the meaning of collaborative learning?

She: I think so, you as a teacher have to encourage them to communicate .. and the most significant point for me is communication.

Me: is it possible that these Apps serve the CL?

She: if you know the meaning of CL .. know what is the technology .. and know how to use. you can't decide if its help or not. Firstly, you have to use it and then you study the subject.

Me: so, you can't decide until you apply it virtually?

She: yes, if you didn't apply it you will not know .. and our words will be only a theory. We need to move away from the theory .. remove it .. and apply to connect between the two.

Me: so, do you think that they need the Apps?

She: if it serve a particular purpose, I need to know why I need to use it?

Me: are you interested in using such these Apps in the future?

She: WhatsApp, Yes .. (Why).. frankly, for now I am only using the e-mail. The e-mail is more easier for me, especially if I don't have another [phone] number that I can give it to the students (dilemma). "you know if I gave them my private number .. there will be no ..[uncompleted sentences].

Me: even that there are another solutions? (e.g. Alternative phone number)?

She: this is my point, I owned another phone number and I can use it.

Me: but, until now you didn't use it actually? Do you feel that you are interested?

She: yes, I use it with my family members, my friends, and my contacts.

Me: and with your students?

She: with my students, No.. but I use the e-mail.

Me: those were general questions; Now let's discuss the practical issues. Why do you see the lack of communications is a problem?

She: for me, truly I don't see it a problem!!! Actually, in my courses I count on the communication whether by face-to-face, or by e-mail. During the lecture all of our work are presentations, group learning ... for me there is no problem of communication... But maybe, the only challenge that I faced .. the big numbers of students .. {common problem with others} .. for example, the registered students into the [intro course / general course] were 80 students... for me this is a big challenge... because its important to know you students as individuals... this is important and big challenge.

Me: is it better to divide them to groups?

She: the solution, is to put them in group of 10 ... not 80 students.

Me: for instance, do you think if some one came to you and cooperate with you in using smartphone Apps, will its work or not?

She: Insha'Allah it will work, I will do my best... [unfinished phrases] .. it depend on what you mean by work... if you mean transfer of information's .. I think it will transfer it ... but if you are meaning something else I don't know.

Me: I don't want to influence your responds. I want to be neutral (small stop, to prepare new question).

She: completed- do you mean that I can send the message? This an easy. Sending the message and people receive it.. but, after that what will happened? I don't know.

Me: do you think it's better if the students collaborate with each other through start to questions and answer by them self through a free smartphone Apps such as twitter, or WhatsApp, particularly, that most of the people in Kuwait as we witness use it regularly? E.g. as a teacher in PAAET, in Kuwait why I don't let them communicate through these apps?

She: "they already do"!! .. we as a teachers mistakenly assume that "they don't " ... , "but actually, they do". And you ask the students and will find them communicate with each other, especially, if you create a groups. .. from what I seen after create the groups that they start to exchange phone numbers to communicate with each other. So, the assumption that students don't s use the Apps to communicate is wrong.

Me: from 2 years the situation was different (because I was a teacher in PAAET) .. but now the things are changed and better?

She: Yes.

Me: do you encourage using such Apps?

She: we have to respect students minds... based on this kinds of Apps become easier .. "Finger tips" ... its under your [uncompleted phrases] .. and they always uses.

Me: do you think all of your students, college students own smartphone?

She: most of them yes.

Me: for example, if I gave you an Apps and said try it, how will you do it?

She: normal, on the first week I don't teach, this week called acquaintance week.

Me: again, if you apply, how will you do it?

She: I am will apply in the first week. Instead of the e-mail and propably with the e-mail I will use WhatsApp .. the way will be as you said before .. owning another phone number and I distribute it to them ... and tell them that if you have any enquiry or if you like to communicate .. [uncompleted phrases... she count on me to understand here.. because we are from the same background, and context] .. she continued... Me as a head of the Education technology Department " it much better for me ... on-line communication" ..

Me: Why [I did not ask this question really, but I assume that for organize reasons]

She: for example, I cant see my students face-to-face outside the classroom .. and you that our students don't abide into the office hours.. "on-line" is make more comfortable... and I can enter it in anytime, at home [any place] night, day, morning. Thus, it will be inevitable that my students use it as a form of compel .. othe example, some of the teachers offer bonus grades for the students to encourage them to use WhatsApp.

Me: do you think "give mark" will "encourage them"?

She: some of them, yes.. its very much useful with them ... for instance, when I suggested before using e-mail with my students .. I did not found a big responses ... but when I said that there will be grades .. everyone shared .. however, you have to filter for messages that you receive.. some of them not important .. just for sharing.

Me: how can we filter it?

She: for example, when you offer grades for sharing.. students seek to get this "percentage" .. and you said to him you for sharing only you will get your grades ... so, you can't blame and said you didn't enriched the course [ this uncompleted phrases is a hint that we have to be careful with our instructions] ....

.. [she completed to ask] .. why you need to communicate [as a teacher she imply].. just for communication as something mechanism .. or you want them communicate for enrich the course .. moreover, the experiences transfer .. they have become intellectual analysis for the content of the message .. and they critics it.... and we have to consider a lot how can we use this means.

## 2. Teacher 2:

[He: T2] .. [Me: Researcher]:

Me: Do you think your students need to communicate with each other? In particular, after we saw [as a teachers] that the course end and some of the students still knowing each other?

He: I used WhatsApp with my male, and female students. (Reason) .. because it give the chance to create groups. So, you are [as a teacher] you can interact with them.... What is nice in this matter that in the 1<sup>st</sup> week [ I think he mean in this week they start using the Apps] students start to wondering who's number is this?

He: continued, in the 2<sup>nd</sup> week they start to know each other. Inside the classroom I invited them to sits together in groups .. and I evaluated the female students [I am not sure if we are dealing with male] who were 65... this is continued about 2-3 weeks after the course ended to communicate, but when I could not be there with them they withdraw because there is no control. However, "the communication was very excellent.. social, cultural, educational, and information .. even the exam was done by the WhatsApp" !!!

Me: How in practical you applied this experimental? Do you ask and they answer? Or they start ask and answer?

He: " All , there were mutual communication" ... because this experimental I conduct it in my PHD dissertation where I used the e-mail, and now I applied WhatsApp [there is no correlation between the two ideas] .. " I found success .. very effective " ...

He: continued, but, there was a problem, the reservation from the female students for many reasons:

- A. The lack of the smartphone's.
- B. Family don't allowed them to use the internet.
- C. Answers came lately at night [Is this advantages or disadvantages], because of the social circumstances or family commitments .. but, in the end, anyone participate into a group was communicate.. and there were raise question about the curriculum.

Me: some of your colleagues came to you and ask you to copy what you do. Moreover, What you done and what students done. How you actually apply it? during the experimental who was asking?

He: " I told the students that there must be a communication " , .. continued.. students ask, .. and some of them was comfortable in using e-mail, Facebook .. and some of them satisfied with SMS.

Me: even though, SMS message cost money?

He: Yes, cost money .. but it's the only way to some students... simply, because the new programs are not available in their personal phone.

Me: this sample that use the SMS, who can see the content?

He: only me, .. between me and here.

Me: its mean other students don't see it?

He: No, the rest of the students can't see it except through e-mail .. and when doing CC [I think he mean copy].

Me: do you know the meaning of collaborative learning?

He: " collaborative learning, or Collective learning, is one of the best kinds of learning because all of the educational process depends on the students acceptance of each other. if they did not love, interact, and harmony with each other, this kind of learning will not be achieved" .... [continued] The teacher must break the psychological barrier between him and the students at the beginning of the course.

Me: how?

He: through the communication tools, and create groups inside the classroom. I follow a technique.. sits the students in groups and everyone introduce himself... further, I tell them that I need a leader from the group to be the captain .. and he will be the representative of the group.. do training with them .. with changing the groups always

Me: you don't allow to one group to continues to the end of the course?

He: inside the classroom No, it depends on where the students sits during the lecture .. so who sits next together will be a group. But in the Apps they remain the same and don't change.

Me: you mean that there is no discrimination? For example, their ages, what they wear?

He: No, No, 60 female students divide into 10 for each group according to where they sits inside the classroom... and because of the difficulty of movement !!!!

He: [continued] " All of the electronic communication tools help to create educational groups that help to reach to the required aim which is collective learning" .. These are tools that create .. [uncompleted] .." As well as the teacher is an old tool itself .. It is a type of communication" .

Me: lets go to discuss the practical issues. Do you there were lack of communication between the students? Why you adopt WhatsApp?

He: I so it "Active " .. very "Active" .. because before I use it in education .. I used it with my family.

Me: what make you apply it education?

He: the nearest means now, new for communication is WhatsApp. .. Reasons:

- A. Free.
- B. Services are free.
- C. Available in all modern equipment.
- D. Easy to use by anyone who desire to learn it .. very easy.
- E. The main advantage is in our own work : All files can be sent .. May be Read, audio, film, music videos, or video .. free .. especially, in education .. subsequently, "you need this kind of technology".

Me: simple question, Do all the students own smartphone's?

He: well, we can say 90% .. for now .. and if don't have he will be forced [uncompleted] .. Because that these devices are cheap .. 20 or 30 KWD .. Where some students keen to get WhatsApp only .. or Twitter .. and "WhatsApp program is the dominance now".

Me: do you need to assess the students .. " Give marks " to "encourage them"?

He: Yes, I tell them .. who communicate with us will get a helpful and important grade .. its give motivation.. but, this is doesn't mean prejudice the right of others whom not own such phone or who not use it.

Me: How?

He: it mean I do not decrease his grades .. his right reserved .. who participate get " credit " .. which have to be effectual ... nice thing happened here: there are two students shared one phone and they were friend.

Me: in one phone!! They collaborate with each other? It's being a collaborative learning?

He: this happened because of the " traditional culture " .. traditions .. or kind of shyness .. .. and it's important to mention that there are some harassments [ I think he mean from females].

Me: it mean that there are ethical issues?

He: Yes, there is .. Nicely, in Fridays [ I think he mean in the weekend ].. we interact massively!!!

Me: on Friday!?!?

He: Because exchange congratulations religious (Friday prayers) .. Homilies ..Wisdoms ..

Me: so, we transfer from education to "social" ?

He: Yes, in addition to, information's .. " Where personally benefited from the information through communication in writing my articles for newspaper " .. " Where I was building my articles .. Based on the words of the students and their responses " .

He: [continued] Where I noticed something new for .. Found through WhatsApp and communicate with the women's that they are able to politics and theorizing .. Give their views on the events taking place in Kuwait, such as the man where I thought it is the only known these topics... for instance, a member of parliament proposed interest in Arabic .. Which found a good resonances/reflection and interaction from the students ..

Me: it mean that you can enter through the communication by the Apps to subject not necessarily related to the education?

He: its enter, and "women's can express through WhatsApp greater than in the classroom" .

Me: Why?

He: "because there is no " control ", on her feeling, on her ideas".

Me: open space?

He: Cyberspace allowed to express your opinion and say what you want.

Me: Students who own smartphone's, do they need to access to the internet?

He: yes.

Me: this expensive?

He: no, currently it's not, because it's cheap and inexpensive and can be [I believe he want to say .. buy it] by installments.. and it's available to all now.

Me: what is the lack in the college which you can see?

He: Lack of good educational environment, classrooms have to be prepared .. scientific, academic, through the furniture [ uncompleted phrases ].

Me: Ok, I have a phone but I don't have access to the internet. Isn't Insufficiency from the college for not providing network/wireless?

He: Yes, there is a wireless.

Me: in both college, male and female?

He: yes.

Me: when?

He: from 6 month maybe .. and even if there is no wireless .. " he can connected with others ..because the student is smart and he can connect " ... For example, I was having my phone where there is no Internet .. Office or college line was going down. Thus, the students open their own online and connect me with them on the Internet from their own phones.

Me: why you did not used Twitter?

He: my colleagues use it .. ... [so I went to meet him]

### 3. Teacher 3:

[He: T3] .. [Me: Researcher]:

Me: Do you think your students need to communicate?

He: sure, communication is something important .. the communication is exists.. we will not invent something new .. in the classroom the communication is exists .. But his strength and availability is what makes differences ..the students need the communication to be available more between the teacher and the student.

Me: do you think they need to collaborate?

He: using the concept of collaborative with the European sense, or in a scientific theory notion .. have to be used Cautiously, in particular within society like the Kuwaiti.. moreover the Arabic world in general.

Me: How?

He: we have feature that might not exists for European. It is value of shame.... Where colleagues shame from each other, this is lead to:

A. On the one hand, " task " will be intent on one person and the rest are climb on his back... or..

B. On the other hand, there is Inability to communicate between them self's.

This is what I noticed, my work in PAAET, I use the collaborative learning.. and I enter the collaborative learning .. he [continue]: apparently, At first I was optimistic more than ever .. [because] I think of the collaborative learning .. and I think it's important ... at first my "section" was counting on this concept .. or based on it ... all the section was consider collaborative learning .. Now .. No.. I noticed that the students cautious from it.

Me: Why? [looking for justifications]

He: cautious because as I said to you before, A. they think that the other individual is taking they own effort .. " Refuse to accept overall responsibility idea" ...

they think .. they said to you, let me do my task and give me mark .. but I done my task and my colleague take the same grade which he not deserve it ... this is the general notion here.

He: [ continue] in the same time; he Embarrassed to tell his colleague why you did not work .. this is our problem " Ashamed of confrontation" .. or because of "social considerations overwhelm us" .. Unlike Europeans, work time is work time ... you don't work I have no problem [uncompleted phrases] ... Here, [in PAAET, Kuwait] they cover the track of each other .. this is a disaster if we take it from the education concept ..

Me: both gender?

He: yes, both gender.

Me: do you think it's a good idea that you are using Applications of smartphones such as WhatsApp, twitter for communication?

He: personally, I have a general philosophical, especially, in education .. " use it for the need .. the need is what justifying the use and not vice versa" ...

He [continue] unfortunately, .. I am talking about all the societies and not only here .. in education time they start using technology because its available .. in another words, when a new device appeared I bring it to the college or the school.. integrate it into the education system not because it is or solve a problem, in contrast, it may cause a problem with it complexity ... but they integrate into the system for show off .. and others say that this institution are modern, sophisticated ... and we see a lot of devices lead to this result ..

Thus, I use it:

- A. with cautious.
- B. Need.
- C. Measure the retroactive .. search for the problem and then what best solution to solve it... and don't bring the device/tool because I like it or "Appealing" , or "innovation" .. because it will succeed no matter the tool will be... even if wasn't useful .. because of the "novelty effect" .. "Modernity lead to the success of thing because people dazzled" .. After a while it is clear that this thing has not added anything ... so, I'm cautiously using the tools, and "Applications".

Me: do you think if you applied/used with cautious you will meet the students need? Once again, are they need the Apps for communicate?

He: you are talking about the social networking applications?

Me: yes, with concentrating on WhatsApp, twitter, and Blackberry.

He: Sort of, but it not cancel existing problem .. which is the existence of communication problem.

Me: its exist!!

He: sure, there is a big problem .. communication problem ... exist .. moreover, its affect the behavior of the student with the teacher.

Me: how?

He: whimper, and I think e-mail included with the rest applications that I am talking about .. currently, teacher without e-mail, or at least lets talk about the college .. for example, lecturer who don't have e-mail might will be like from the student in the beginning but after a while student whimper from him .. [reason] .. because he come to see him once, twice, or 3 times .. did not found him, his office close, stop for an hour .. waste his time .. this issues, with time, might lead to vary the relationship between student and teacher.

Me: do you see that we need Applications or not?

He: I think its useful, its Apps useful, .. let us talk about twitter .. because my tests were in Twitter ... Twitter is useful .. but, we have to know that some students do not know what is Twitter .. you bring something that he is not familiar with...

Me: Meaning, "I will not suppose" all of my students know the Apps?

He: No, No, sure you need to be cautious .. me using Twitter [uncompleted] .... I present lecture on Twitter .. usefulness, .. and this is very important .. and this is what we missed here. [he gave an example].... If you didn't inform them the reason for doing this skills which he learned .. there is no point ..

Me: what your problem if you have groups you divide them according to what they prefer from Apps?

He: I don't have a problem with what students prefer .. I return back to Twitter matter .. I don't use Twitter for communication Only!!

Me: Ahhh!!

He: I'm building a learning community ..Work seminars with my students ..I lecture at Twitter ..And where discussion occurs .. I enter guests from outside Kuwait .. I have two experimental about Twitter .. results wasn't only for communications .. for example, I used inside the classroom ... where I have a lecture (intro) .. [introduction to ET] contain 65 students .. two days weekly .. every day one and a half hour .. so you say hello and laugh [ice break] .. Half an hour has passed .. so, sixty minutes left ... for each student one minute .. although sometime they reached 75 students .. Thus, I have one

minute for every student... if they want to ask .. if every student ask .. I don't have time to give a lecture!!

Me: So, what is the solution?

He: the solution is, .. I bring another "Data show" .. go on-line from my device .. and put my account at twitter .. through a "hash tag" ... I used the "hash tag" way ... build a new "hash tag" .. place it on-line in the lecture .. So, I have a "hash tag" on the name of the lecture with the date .. and I explained the idea for the students...

He [continue]: the idea is simply; when I explain .. you have question wrote it .. the question display during we are talking ...

He [continue]: the idea;

- A. I collect questions about the lecture.
- B. Answering the questions that I feel it might influence the lesson sequence and important.
- C. Passed the questions that I can answer later.. or its not that important.
- D. Entering the "novelty effect" .. Where the tool Twitter be interesting for the student.

He: [continue]: however, I benefited from other things I did not expected .. female students initiate answers .. where one of the student understand the answer through my lecture, and she wrote the answer .. Became an interaction...

He [continue]: more importantly, students came to me .. surprised me in the end of the course .. by doing a "print out" all the questions and answers in the lecture...

Me: by them self, they done a "print out"?

He: exactly, what was going on .. that I wrote the question after the lecture end though the "hash tag" .. choose questions that deserve to answer .. start wrote a short answers for the questions ...

Me: this is your role?

He: in the end, for not wasting the time of the lecture ... I finish them at home or "Diwanya" ... what did they do? Print the questions and the answers which were in the lecture ... and they do a "malsama" = [note book] ... they use it for study...

He [continue]: most of them tell me, this is was better than the memos which is all on-line.. generally, I have only on-line memos .. He [complete] .. it was more concise and useful ..

He [continue]: So, you integrate it [technology] for a purpose .. and my purposes were:

1. Shorten the time.
2. To control the big group through the questions .. where as they can ask during the lecture .. do not waste the lecture time .. and I do not have time during the lecture.
3. Neutralize the shame, especially among female students .. the female student shy from asking .. she fear that her colleagues say that she is stupid .. this is clear ..

Me: is this problem exist with male also?

He: Yes, it exist with the male .. but, with the students .. little of them .. with the female its more!! .. it exist more with the students whom asking frequently!! .. in each section there are 2 or 3 students they always asking ... those are useful for [refreshing the students,.. I am not sure about this words] .. but they Interrupt .. and taking others time ... So, [solution] let them ask on the "hash tag" and I answer ..

He [continue]: the intent , that you are creating technology for specific aims.. You will find that you have achieved important benefits than the original benefits .. in which you plan.

Me: So, you don't use the Apps for communication?

He: I did not integrate into the classroom because I am in the class .. I integrate it for other benefits .. the concept of "hash tag" .. of course not the concept of Twitter .. twitter exist for communication .. because I wasn't in the class .. but this is the "hash tag" concept ..

Me: what is your opinion of communication outside the classroom? Do the Apps removed the barriers of getting to know each other? Increase the relationships among them?

He: Not in this way.

Me: what we witness [ I mean as a teachers in PAAET] that there are people are who isolated, they gathered according to their ages, certain wears, certain ways [ of act], those are groups with each other, Do you notice that?

He: sure, this is normal.

Me: how can you emerge them?

He: frankly, I don't think that have a big influence .. but .. [uncompleted].

Me: you did not though that you will do it outside? [using the Apps outside the classroom]

He: Yes, I have another experimental on Twitter .. I said to them the next lecture will be instead of 8am .. it will be 8pm on the evening... they tell that they can't attend .. I told them I don't want you to come .. the session was small .. 15 female students .. we can't come at night.

Me: why you do the experimental with small group? Is because it small?

He: sure.

Me: Why, do you think the big group don't suitable for outside? [classroom]

He: Sure, I think, in my opinion:

1. It easy to control.
2. New experimental, ' this is like your baby, you want it to success' .. so, you try to put the appropriate environment .. e-learning.
3. Graduate students ..[senior] have greater abilities.

Me: excellent, continue.

He: The project is about a certain topic .. I asked the students to go to my website and they will find "outline" for the lecture ... So, kindly, do your research .. this is my routine .. I give a "heads up" for the next lecture.. and ask them to do search .. I do not go into the details until the lecture time ... after searching we will gather at night on-line through Twitter .. we will have two guests from Kuwait .. one from Netherlands .. and one from Germany .. they all have advance information's about the topic.

Me: Kuwaitis, or foreign? And how about translation?

He: both, there was no problem, because some the female students were talking English , thus, the discussion was happen with two languages [English, Arabic].

Me: Sorry, how two languages in the same time?

He: Depends on "conversation" .. the German participant will speak in English, .. and not all the students know .. but the majority can read .. some don't know how to respond .. but he know the question .. and know the idea that discuss... we are talking about university level .. the majority know English in general.

Me: you did not feel that there is a problem because of the language differences?

He: For me, there was no problem.

Me: once again, male or female? And do you think that male have problem with language [English]?

He: female, I don't think male have a problem .. I think college student without language wouldn't work ..

Me: I'm talking realistically?

He: I'm talking realistically, there have to be, .. group have a problem .. but, the current generation the level of language is more higher ... much more than our generation ..

Me: how you handle the language?

He: I did not, handle the language .. I left to the "flow" of the lecture ...

Me: sorry, but there was a chance that some people only "follow" and didn't share?

He: no, of course, everyone has share .. and all in effective way.

Me: how did you found the solution for the languages? And is there anyone who had tell you that I don't English?

He: Yes, there were, [the solution]: " I signed for each version" .. one of the most excellent student in English language .. where we have two foreign guest .. this is was step 2 .. however, "step 1" .. Amber [ the foreign guest] participate with us ... and start asking one point .. and students start to correspond to here and share here ... some of who are a proficient .. I re started to answering by both languages .. in the same time I was discuss here [the guest] .. and send in Arabic summaries about the conversation to the rest of the students ... I was telling them that we are talking about .. (this and this) ... then, some of the fluent students in English started to establish a summary to what happened..

Me: you established a support from you and from their colleagues!!?

He: exactly, .. yet, we didn't have any problem, in contrast, even the foreign participators .. [uncompleted sentences].

Me: I was bet on, .. this institution [PAAET] don't obtain nether technology nor internet, while, one teacher [was the head of the department once before] told me it exist!! What do you think? And do you have Wi-Fi?

He: where!! .. frankly, I do not know about it.

Me: can the students connect to the internet here?

He: connect to the library before.. the other teacher [T2] is knowing better than me.

Me: simple question; do all students own smartphone?

He: all of them, yet, if you have a complete "section" who own .. and one is not .. I will not call it except that they all own .. in general .. covered .. in the past .. year 2000 .. the computer wasn't available .. now, this problem have finished..

Me: is the problem of projectors lack solved? And its availability?

He: I don't have a problem, .. and all the classes in our division have projectors!!

Me: Do you feel that your students interested in such subjects? Not for novelty or innovation effect?

He: Very, .. lets be honest.. "Twitter, WhatsApp" .. at the start, people were crazy about it... day and night people use it ... and I was effective in away previously [uncompleted] ..

Me: boring?

He: this is the novelty effect, and this is normal about everything new .... And this including technological tools ... however, this is not meaning that its useless .. and this return us back to the main point ...

Do I use it because it is something new .. or the need for.

Me: its mean that the need is what drive to use the Apps?

He: As I said previously; I have two problems:

1. The large number of the students and ..
2. The large number of questions .. with..

3. The students shy ..... which waste the time of the lecture ... and every time that the number is huge .. problems were more visible ... for example, the small group .. [ I interrupt].

Me: you can make them communicate?

He: of course, they known by name .. and during the 2 or 3 lecture I know all the names.

Me: you give the student value when you call him by his name?

He: of course, whereas, in the big groups I apologize immediately from not memorizing their names.

Me: you said that our students are interested in Apps. Yet, do you have to give "grades" .. to .. "encourage" the students?

He: Personally, I do not think of that!! Even the attendances and absence ..

Me: Why?

He: I don't care about .. minor issues .. the "Grade" I given for the student on how he absorb the curriculum ... for the production from the information that he have ...

Me: don't you see that the effective contribution deserve "grades"?

He: there is "grades" ones it turn to report I asked him to do ... after all of this .. formulate article .. and this what I assess him for ... the questions is not his production .. through it you are prepare yourself for the production ...

Me: sharing, questioning, and answering don't have grades?

He: because it's a "process" .. and I assess you on the "product" .. not on the "process".

Me: how do you encourage them? Because always there are students who called "resisters".

He: student do not need grades to cooperate .. student need you to give his value [importance] ..his humanity value .. this is what make him cooperate .. I treat as a student .. you will run away because you will treat me as a teacher ..

He [continue]: I treat you as a friend, as a brother, .. you will doing this thing [he meant the student] ..We don't have a resisting students ...

For example, the worst student I have can transform to genius ... Thus, the resisting we [teachers] are doing it .. treat the student in justice ... his value will be seen clearly.

Me: excellent; the last question; its related to the "Ethical issues". We have the sensitivity of Kuwaiti female students status .. customs, and traditions. For example, exchanging the phone numbers, and the local environment, communication, home [parents and constraints].. Do you see it a problem?

He: of course, this is one of the "barriers" that I faced in my PhD dissertation .. whereas.. female students have to "upload" their method of teaching in schools .. So I put it as a "barriers" .. like the shy .. and the tradition of the society .. which limited this [he mean the success of his experimental] ..

Me: I feel there is (but)?

He: of course, big but .. and this is take a week of discussion between me and my supervisor to place it or Not !! ... I was refusing the idea.

Me: Why?

He: because I did not feel it .. we don't have any problem .. if you deal morally with people.

Me: So, exchanging phone numbers between, and with female students wasn't a problem?

He: No, I did not notice it entirely .. and they were dealing with me and do "YouTube" ..

Finish 31:00 minutes

