# Plymouth Precision Teaching Project (2007-08): An investigation into student, staff and practice outcomes.

Submitted by **William George Roberts** to the University of Exeter as a thesis for the degree of Doctor of Education in Educational Psychology, March 2009.



I certify that all material in this thesis which is not my own work has been identified and that no material has previously been submitted and approved for the award of a degree by this or any other University.

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# ABSTRACT

This thesis describes an investigation into the outcomes of a developmental project focussed on improving the word reading skills of a group of (*n*=77) secondary school students across five different school settings in a South West of England Local Authority. The 'Plymouth Precision Teaching Project' was conducted during the 2007/8 academic year commencing in September 2007 through to April 2008. The project involved the delivery of regular Precision Teaching (PT) programmes across two cohorts (1 and 2) of students by Teaching Assistants (TAs) in each school who themselves received ongoing training and support throughout the project. This thesis reports on three inter-connected aspects of research stemming from the project:

**Aspect One** considered the impact of PT interventions delivered by trained TAs on groups of secondary school students with literacy learning needs through a quasi-experimental design.

**Aspect Two** investigated the adaptations made by TAs within PT programmes to improve student word reading skills; from here a framework for systematic teaching adaptations was formulated, trialled and reviewed.

**Aspect Three** drew on the experiences of school staff and their learning throughout the initiative. The value of participating in the research was investigated through exploring

TAs' reflections on the development of their understanding of the processes and practices surrounding 'teaching and learning'.

Outcomes of the research point to the continuing contribution of PT to addressing basic reading skill needs through heightened structure to intervention delivery, promotion and scrutiny of 'treatment fidelity' and an ongoing, systemic approach to the development of staff skills. This thesis also emphasises the mutual benefits that a collaborative project such as this can bring about; not only can staff contribute to the development of intervention approaches and provide high-quality interventions, but they can also develop their professional knowledge too. As a venture networking schools, a local authority educational psychology service and a university department, it is suggested this thesis reflects a description of the ground modernised educational psychology services should seek to occupy more and more.

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# CHAPTER 1

# Introduction

## 1.0 Background and current context

Services for children continue to undergo significant transformation on a national level following the central government's *Every Child Matters* (ECM) agenda (DfES, 2003a). Not only is service delivery becoming increasingly more accessible and unified through localised delivery, but there is also a heightened emphasis on measuring the impact of services on the lives of children. Under ECM, all statutory services involved with the welfare and development of children are expected to align their functions and demonstrate their impact in line with the five ECM outcomes for children and young people – being healthy, staying safe, enjoying and achieving, making a positive contribution, and economic well-being (DfES, 2003a). Within the five ECM outcomes there is an increasing emphasis on the 'standards agenda' as a way to increase local authority (LA) accountability in terms of their contribution to the educational achievement of children.

For implementation from April 2008, the Department for Children Schools and Families (DCSF) has released a new performance framework (DCSF, 2007) which drives forward the emphases on the measurement of service delivery. This document is important as it not only reinforces the five outcomes and importance of service impact but also, under 'enjoy and achieve', heightens the significance of improving the attainments for those

seen to be underachieving. As a key objective, the DCSF framework highlights the need for services to be seen to be making every effort to '*close the gap in educational achievement*' (DCSF, 2007, p. 14) in terms of literacy and numeracy including those presenting with special educational needs (SEN).

Linked to this drive to improve educational achievements has been the introduction of a national approach to improve the teaching of literacy through the implementation of the National Literacy Strategy (NLS) a decade ago (DfEE, 1998). Following the NLS's inception, investment in it has been sustained over the last ten years with a range of developments and initiatives (e.g. DfEE, 2000; DfES, 2001b, 2003b) including the more recent 'Rose Review' (Rose 2006), designed to reform NLS delivery and address the continuing concern regarding literacy attainments nationally (Stainthorp, 2002). Consistent with the government's newly focussed endeavours to address those identified as underachieving, increasing interest has been directed toward those children who require additional support or more personalised programmes (e.g. Wave 2 and 3 interventions), involving an increasing range of interventions to be implemented by school staff (DfES, 2001a) followed by a sequence of research reviews of the area in 2002 and 2007 (Brooks, 2002, 2007). However, despite such substantial investment in literacy the recent *Primary Review* about the 'condition and future of primary education in England' undertaken independently by The University of Cambridge has produced some concerning initial findings (e.g. Tymms & Merrell, 2007; Whetton et al., 2007). These include:

- *The limited impact of the national strategies on reading standards* (Tymms & Merrell, 2007)
- *Gains in reading skills at the expense of pupils' enjoyment of reading* (Whetton et al., 2007)
- *Increases in test-induced stress among primary pupils, and in pressure on their teachers* (Tymms & Merrell, 2007)
- *A narrowing of the primary curriculum in response to the perceived demands of the testing regime* (Tymms & Merrell, 2007)
- *The persistence of a much bigger gap between high and low attaining English pupils in reading, mathematics and science than in many other countries* (Whetton et al., 2007).

(*The Primary Review*, 2007, p. 2)

Given such a concerning picture, it is with little surprise that some have called for greater scrutiny of the NLS over recent years with regard to its evidence base and the teaching approach it represents (Solity, 2003; Solity, 2008; Solity & Deavers, 1999; Solity et al., 2000). Moreover, given the substantial level of interest surrounding the improvement of children's literacy development, it is worthy of note that many effective assessment and intervention techniques underpinned by credible research and psychological theory (e.g. Solity & Deavers, 1999; Solity et al., 2000) appear to be largely unrecognised within national policies and initiatives (Fox, 2002).

## 1.1 Research foci

This sets the context for the focus of this thesis on the outcomes of an intervention for children in need of more personalised programmes of literacy support. As a brief overview, the work outlined here represents an evaluation of a developmental project, Plymouth Precision Teaching Project (PPTP), encompassing three interconnected strands:

- a quasi-experimental examination into the impact of 'precision teaching' (PT) as a literacy intervention spanning a six-month period involving seventy-seven secondary school children
- the development of a systematic framework to facilitate the implementation of PT programmes
- an investigation into the professional learning for participants delivering the interventions

### 1.1.1 Precision teaching

As an intensive monitoring and evaluation approach appropriate for addressing concerns relating to the acquisition of basic skills (Boys & Lyndon, 2008; Haring & Eaton, 1978; Lindsley, 1972, 1990, 1991; Roberts & Hampton, 2008) PT can be seen as being in the 'formative assessment' tradition. It is underpinned by a theoretical model of teaching and learning (Doughty et al., 2004; Haring & Eaton, 1978) that highlights the need for the pursuit of accuracy as well as fluency in student performance that provides a platform for the 'mastery' (Binder, 1988; Block, 1971; Bloom, 1968, 1971, 1986), maintenance and generalisation of skills (Binder, 1996; Doughty et al., 2004; Haring & Eaton, 1978). Central to this theoretical model of learning is an emphasis on fluency as the 'gateway' to

mastery learning: key outcomes of fluent performance are captured in the acronym RESA (Fabrizio & Moors, 2003) that emphasises the *retention*, *endurance*, *stability* and broader *application* of skills over time (Hughes et al., 2007). Through regular monitoring of student performance in terms of accuracy and fluency, PT offers an intensive formative assessment approach focussing on providing vital information for improvements to intervention or, as West & Young (1992) put it:

*Precision teaching is not so much a method of instruction as it is a precise and systematic method of evaluating instructional tactics and curricula* (West & Young, 1992, p. 114).

However, movements within the 'formative assessment' approach have developed separately and significantly over recent years with teachers participating in a range of whole school and class based research programmes focussing on the development of assessment approaches that go beyond static 'summative' models (e.g. James, 2007). The spirit of such approaches is one of optimism in that, through the collection of detailed pupil data in response to learning activities, much can be learnt that can further improve input in class: it is the seeking-out and use of assessment information that sets formative approaches apart from summative ones. In the same way PT, albeit highly structured and occurring on an individual basis, also seeks out such important assessment data to feed directly into future adult-learner activity focussed on reaching the mastery of new skills (Raybould & Solity, 1988).

Despite the reported effectiveness of PT, recent UK studies are generally limited in the sense that their use is frequently based on populations of children from primary schools, four to eleven years of age (e.g. Chiesa & Robertson, 2000; Downer, 2007; Flynn, 2004) and examine the effects of the approach on relatively small participant groups (e.g. Chiesa & Robertson, 2000; Downer, 2007; Roberts & Hampton, 2008; Hughes et al., 2007). It is not completely clear as to why there is such a lack of research focussing on secondary aged children (eleven to sixteen years) although, in their research relating to the use of the approach with five nine- and ten-year-olds, Cheisa & Robinson (2000) comment on the sporadic publication of research in PT. They not only explain this phenomenon with regard to the 'bad press' behavioural approaches have received over the years (Todd & Morris, 1992), e.g. outdated 'drill and kill' approaches, but also by the seemingly time-consuming and daily organisational burden such intervention presents at a time when teacher workload appears to be increasing. Given this position, one may venture to suggest that this may be even more the case in secondary school settings where, in addition to these 'primary' issues, logistical factors such as movement between lessons throughout the day and contact with different teaching staff with diverse agendas and pressures may exacerbate matters further. However, investment in providing recommended strategies for schools to use with children with basic skill difficulties by the present government has been significant over recent years. Guidance to support these groups has come from the Special Educational Needs Code of Practice (DfE, 1994; DfES, 2001b) and more recent strategy documents (e.g. DfES, 2004a) where schools are required to identify a pupil's special educational needs (SEN) and offer provision to meet these needs. Such provision may include class, small group or individualised approaches

(i.e. Wave 1, 2 or 3 interventions), and require careful planning and organisation to ensure effective delivery even within the most complex settings. Given the apparent inconsistency of substantive published contemporary research regarding PT and its application to children beyond the primary phase of their education, the first aspect of this thesis offers an analysis of the outcomes of PT through a four school-term project with a sizeable group of secondary aged children (i.e.77) in need of literacy support from a range of settings (three mainstream and two special schools) within a South West of England Local Authority.

### 1.1.2 Developing the approach

Secondly, although a substantial amount of published work has investigated the effectiveness of such interventions and the theoretical concepts that underpin it (Doughty et al., 1994), little has been published that seeks to develop the key 'formative' aspect of PT procedures. As Solity & Bull (1987, p. 26) describe, the 'five basic steps' of PT are to:

1. *Specify the children's tasks in observable, measurable terms*
2. *Record progress on a daily basis*
3. *Chart progress on a daily basis*
4. *Record the teaching approach in relation to children's progress*
5. *Analyse the data to determine whether:*

- *progress is satisfactory*
- *changes are needed in teaching approach in order to maintain or accelerate progress*

In line with formative assessment approaches a critical element of PT lies in the interpretation and decisions made within the final step (above). The analysis of data (relating to accurate and fluent student performance) which informs future teaching decisions is central to PT practice. However, recently developed structures consistent with current movements in assessment to ensure effective, timely decisions on adapting interventions appear limited. The second part of this thesis examines changes made to PT programmes to identify a framework of the kinds of adaptations relevant to using PT. Formulation of a robust framework may not only be of benefit to those already experienced in practising this approach, but may also be of assistance to educational psychologists in training and advising staff on optimising delivery in schools.

### 1.1.3 Participation as continuing professional development

The final aspect of this thesis relates to the professional development of those delivering PT interventions as part of the research. As noted earlier, the practice of formative assessment and research aimed at refining and evaluating its impact has accelerated over recent years (e.g. Gardner, 2006; James, 2007). Much of the research to date concerning formative assessment has been about how these approaches can be developed and adopted to support class practice (e.g. Barrett et al., 2002; Black & Wiliam, 1998a, 1998b; Cowie & Bell, 1999; LTS, 2005; QCA, 2005; Torrance & Pryor, 1998, 2001).

However, outside some 'self-study' guidance materials (DfES, 2005b) there has been little, if any, published work that relates to the growing number of teaching assistants (TAs) in schools. This gap is especially significant given the part TAs play in supporting learning for children, something which is repeatedly identified as an important aspect of their role (e.g. Clarke et al., 1999; Farrell & Balshaw, 2003; Lacey, 2001; Rose, 2000; TDA, 2006). The third aspect of the thesis explores how TAs develop their understandings and practical skills relating to aspects of 'teaching and learning' through engaging in PT interventions.

### 1.1.4 Developing the concept of precision teaching

As a concluding point, the work described in this thesis seeks to go further than simply reviving the practice of PT or offering some developments to the procedures involved. This work aims to promote a more appropriate concept of the approach through synthesis of its key features in line with more recent developments in assessment (e.g. Black, 1995; Black & Wiliam, 1998a; Cowie & Bell, 1999; James, 2007). On this point it is of some interest that PT, though clearly having 'formative' intentions and possessing a long-standing international research base, has experienced some difficulty in establishing a clear concept of itself. If we hold West & Young's (1992) definition (above) as representative of practice, PT is clearly neither a *teaching* approach nor a *method* solely employed by teachers. Hence, it is not unreasonable to question the title 'precision teaching' as a way of offering a clear and helpful conceptualisation for those interested in learning about it or promoting it to others.

With the above in mind, it is with little surprise that inspection of the literature reveals how PT has paraded under a number of different names over the years including 'precision recording' (Raybould & Solity, 1988), 'precision monitoring' (Wilding, 2006), 'precision instruction' (Roberts, 2005) and 'precision measurement' (Boyce, 2003). Raybould & Solity (1988) briefly discuss how PT has caused some confusion within the teaching community highlighting the name as a potential 'misnomer', although they maintain the title of PT given the emphasis on evaluating and influencing teaching practice. This resistance to renaming PT is challenged within this work through conceptual analysis and examination of empirical aspects, for example, the range of activities undertaken by school staff implementing PT. Given the strong parallels between PT and formative assessment practices that incorporate general and specified aspects of monitoring and evaluation of teaching or instruction, this thesis presents a synthesis to produce the broader, more accurate title of 'precision assessment' (PA). Within this new conceptualisation, PT is neither restricted to evaluating teaching, nor does it solely have a tight monitoring brief around performance. PA is a broader concept comprising all of these functions drawing on information from other, less mechanistic, aspects at play within adult-learner interactions (Cowie & Bell, 1999).

## 1.2 Structure of the thesis

The forthcoming chapters provide a detailed overview of the relevant literature (Chapter 2), research activities (Chapter 3), and outcomes/findings (Chapters 4, 5 and 6) relating to the three key parts of the research on which this thesis is based. To support the reader a

list of all abbreviations defined within the main body of the text are also provided within Appendix 1.0.

In sum, this thesis represents an evaluation of Plymouth Precision Teaching Project (PPTP) undertaken across the academic year 2007-2008, and each of the following chapters offers relevant coverage to each of the three parts of the research in turn. The first part, Aspect One, considers on the performance of seventy-seven secondary aged students who received PT intervention to improve their sight-word reading skills, a key competency for independent reading (Ehri, 1998), as monitored within a quasi-experimental research design. The findings presented involve performance comparisons within and between two groups across two separate cohorts (i.e. Groups A and B form Cohort 1 and Groups C and D form Cohort 2) for measures of sight-word reading and academic self-concept. The second part, Aspect Two, relates to the development of a framework for PT practice with a view to supporting practice in schools; this is presented as a developmental model produced over two phases. The framework can be seen to be a direct product of TA practice through analysis of written records and responses from semi-structured interviews across their work with both cohorts. The final part of the research, Aspect Three, aims to illuminate the professional learning of the eight TAs who participated in the project through information gathered from visits to schools throughout the project and interviews held after all PT intervention had ceased in the school summer term, 2008. As a distinctive contribution to research into the application of formative assessment, the final aspect offers reflection on the personal development of participating

TAs with regard to their understanding of elements of practice relating to effective teaching and learning.

# CHAPTER 2

# Literature Review

## 2.0 Introduction: assessment, intervention and educational psychology

If there has been one aspect of practice that has dominated debate and publications since the dawn of educational psychology as a profession it has been the relative merits of approaches to assessment and intervention. As a summary, Cline (1993), cited in Freeman and Miller (2001, p. 4), highlights much of the practice of generations of educational psychologists (EPs):

*In the past a favourite metaphor for the process of educational assessment involved notions of sorting and categorising. Then the metaphor of a template became fashionable: assessment was about achieving an exact match between the profile of the learner and the shape of a teaching programme. Latterly the image of assessment and teaching as a dialogue has appeared with increasing frequency.*

Although Cline ignores assessment activity encompassing broader 'systemic' work (e.g. Bronfenbrenner, 1979) which has been part of EP practice for many years (Burden, 1981; Frederickson, 1990; Miller & Leyden, 1999; Nichols et al., 1990), his description of three popular approaches to 'individual' assessment highlights an interesting phenomenon in the profession. Given Cline's characterisations, quoted above, of summative psychometric/normative assessments (Trickey, 1993), curriculum-based assessments

(Frederickson, 1993) and dynamic assessment (Stringer et al., 1997) it would appear reasonable to state that the broad assessment practices of the profession have not evolved in a linear fashion. Although practice is often shaped by epistemological interests and value systems, the impact of influences such as professional identities, professional training experiences, legislative frameworks and practical constraints amongst others, the profession has seen assessment practices vary in their prevalence (Stobie, 2002). Stobie (2002) highlights how the broad practices of EPs over the last half-century do not show a unidirectional progression; she shows how 'change' and 'continuity' co-exist:

*…many of the features of traditional practice are still alive alongside aspects of 'reconstructed practice'* (p. 230).

Assessment practices often regarded as synonymous with the 'traditional' EP role include the use of summative, psychometric/normative approaches to assessment. Stobie (2002) talks of the construction of EP practice from the late 1940s through to the 1960s predicated on the work of the psychometrician Sir Cyril Burt (the first recognised school psychologist), which is consistent with the findings on practice from interviews with Stobie's older cohort of EPs (practising between 1948-1970) that highlighted an '*overemphasis on test usage*' (p. 230). Following the construction of early practice, the literature can be seen to highlight the profession's desire to move away from summative, norm-referenced approaches to assessment toward more formative and interventionist functions. This point is described in Bill Gillham's seminal text *Reconstructing Educational Psychology* (REP) in 1978:

…*the heart of educational psychology must be theory and technology of change* (p. 20).

This was not a new consideration, as previous authors reflecting on early practice had noted that the activities of EPs needed to go beyond testing toward formulating ideas for intervention (e.g. Bruner, 1966). Moreover, Leyden (1978), writing in REP, also signalled the need for a move outside psychometrics, as such practice did not allow EPs to ask questions that would be helpful in ameliorating difficulties. However, the use of summative psychometric assessments can be seen to have continued in spite of the REP movement in the late 1970s and continues to have presence within practice today. This is not to say a broad range of creative practice does not exist within the profession, as many examples exist with the emphasis on developing interventions that have a positive impact on the lives of children (e.g. Solity et al., 2000). In fact, it was this interventionist perspective underpinning the role that was core to the REP movement or, as Gillham (1999) puts it, in considering the impact of REP two decades later:

*A clear strand was the perception that if we were to help children we had to change what happened to them. The difficulty of getting across this kind of understanding and, above all, achieving it in practice is still, I suggest, the central challenge to our effectiveness, and value, as a profession* (p. 220).

## 2.1 Educational psychology, 'raising standards' and the case for 'helpful' assessment

In considering the way forward in terms of helpful (intervention-driven) assessment models, the following quote from Dombrowski (2003), in line with Gillham (1978, 1999), offers an important reminder of the purpose of EP practice:

*…some have criticised standardised assessment as inefficient and wasteful of a school's resources as well as the psychologist's and child's valuable time. Some contend that rather than spending time administering a series of assessment batteries, the psychologist should be facilitating intervention for children* (p. 4).

Putting summative, norm-referenced approaches aside, the two other broad models of assessment (DA and CBA) alluded to by Cline (1993), and discussed in more depth by Lauchlan (2001), can be seen to have key interests in common. Both DA and CBA take a formative, optimistic view of assessment techniques in emphasising the importance of environmental influences in explaining and supporting children's development. Frederickson et al. (1991) outline the need for EP practice to add more than a description of a child's assets and weaknesses by offering an understanding of 'why' particular patterns of strength and difficulty are being experienced. It is argued that reliance on 'within-child' descriptions, as in those underlying psychometric measures, that make little effort to explore 'inputs' or environmental stimuli, renders assessment practices impotent within the context of offering relevant intervention. It is an exploration of the environmental context that drives such assessment practices here.

Any description of approaches to assessment that may lead to more effective intervention for children and young people would not be without its critics; and this is certainly the case for methods based on principles of DA or CBA. For example, Lauchlan (2001) notes how CBA approaches have been:

*…frequently criticised for being too restrictive, focussing on the child's achievement within the constraints of the school curriculum as opposed to considering the child's ability to learn outside of the academic environment. In restricting assessment to that of curriculum tasks, other aspects of a child's learning such as attitudes, values and motivation were neglected* (p. 8).

However, Solity (1993) disputes this point arguing that such approaches have been misunderstood as they aim to encapsulate broader environmental factors such as *'the existing curriculum, learning environment and general school provision'* (p. 30). Moreover, substantial evidence does indicate how adoption of such 'formative' approaches to assessment can have a positive impact on children's progress (e.g. Solity et al., 2000). CBA is defined briefly by Tucker (1985) as:

*…any procedure that directly assesses student performance within the course content for the purpose of determining that student's instructional needs* (p. 200).

Hence, CBA uses assessment to seek out learning progress over time in light of the environmental interventions implemented (Solity, 1993). A key philosophical component

to this approach is that all children can progress should an appropriate instructional environment be made available; it is the suitability of the environment and the child's interaction with it that is assessed, not the child (Frederickson & Cline, 2002; Solity & Bull, 1987; Solity, 2008). Careful monitoring of children's responses to intervention is central to this model, so that changes may be made to intervention when a child's progress is not satisfactory. This approach can be seen to contrast with norm-referenced measures that seek to uncover individual profiles and compare them with a similar group of children on whom the test was standardised, or criterion-referenced approaches that compare pupil performance with a stated criterion or mastery level.

Based on earlier work by the American psychologist Robert Glaser (1962), CBA has been used interchangeably with terms such as 'assessment-through-teaching' (ATT) (Solity, 1993; Solity & Bull, 1987; Solity, 2008) or 'curriculum-based measurement' (CBM - Fuchs & Fuchs, 2003). Solity (2008) describes Glaser's approach in the model presented below:

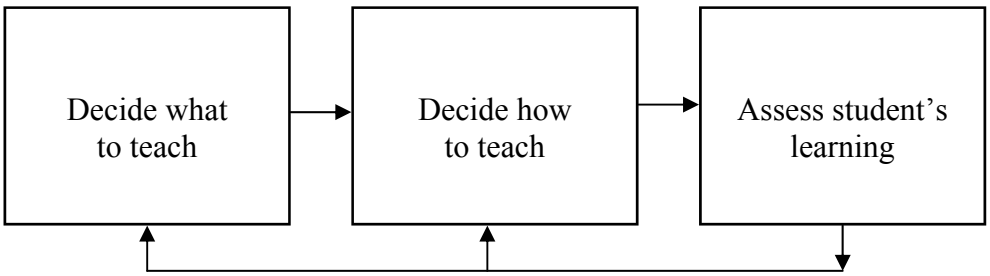



**Figure 1: A model of 'assessment-through-teaching' (Solity, 2008 after Glaser, 1962)**

He points out:

*Within this framework deciding what to teach, deciding how to teach and assessing student's learning are interrelated* (Solity, 2008, p. 76).

Common assessment and intervention approaches frequently cited within this tradition include the use of behavioural methods such as task analysis (TA - Howell et al., 1979), PT (Lindsley, 1964, 1990) and direct instruction (DI - Becker et al., 1981; Engelmann & Carnine, 1982), all of which focus on forming appropriate intervention through an analysis of the child's skills and environmental factors.

Writing in 2002, Frederickson & Cline noted an increase in interest in CBA approaches in the UK over the previous ten years. They attributed this to being a response to the target-driven nature of the National Curriculum, a movement in SEN assessment toward identifying needs as opposed to the diagnosis of disability, and previously highlighted concerns relating to the use of normative assessment in multi-ethnic contexts (Frederickson & Cline, 2002, pp. 160-161). Furthermore, it is crucial to point out that inspection of research studies evaluating CBA models and connected interventions indicate impressive outcomes for youngsters (e.g. Binder et al., 1990; Johnson & Layng, 1992; Lindsley, 1992; Raybould & Solity, 1982; Solity et al., 2000), so the resurgence in this area should not solely be seen as due to factors external to the utility of CBA. Although the literature published in the field relating to CBA, PT and DI in the UK over recent years has been sporadic compared to that in American journals (Chiesa & Robertson, 2000; Kessissoglou & Farrell, 1995), many published articles from the UK, USA and Europe continue to show strong evidence of CBA and related approaches in

supporting children's basic skill development (e.g. Butler et al., 2001; Gavine et al., 2006; Hughes et al., 2007; Milo et al., 2005; Solity, 2003).

Perhaps the most impressive piece of recent research which draws on aspects of CBA and includes use of DI and PT is the work of Jonathan Solity and his colleagues in the 'Early Reading Research' (ERR) project (Solity et al., 2000; Solity & Shapiro, 2008). Utilising a broadly CBA approach within class-based teaching, Solity et al., (2000) report how the ERR, a six-year research project, is an effective approach to improving basic literacy standards, to ensure that every child can reach age and skill-appropriate targets in reading (Deavers et al., 2000; Solity et al., 1999). The ERR involves a range of interventions that include PT as a specific method adopted for some children to accelerate their progress. PT has long been recommended by some educational psychologists (EPs) in this country as suitable for monitoring the development of 'high frequency behaviours', e.g. sight-word reading or counting skills, (e.g. Boys & Lyndon, 2008; Cheisa & Robertson, 2000; Downer, 2007; Muncey & Williams, 1981; Raybould & Solity, 1982; Roberts & Hampton, 2008; Solity, 1991), and work of a similar nature has also been undertaken by professional psychologists and researchers in the United States of America (Binder, 1988; Binder, 1993; Binder, 1996 ; Cancio & Maloney, 1994; Kubina & Morrison, 2000; Lindsley, 1990, 1991; Lovitt & Fantasia, 2000, Teigen et al., 2001). Building on an established history of positive research outcomes, this study aimed to contribute to contemporary UK research database on the effectiveness of this approach on student outcomes. More specifically, the study examines the effectiveness of PT with a less frequently sampled participant group (i.e. secondary aged students) using a quasi-

experimental design. However, in addition to this ‘experimental’ element, the research also focussed on two further areas of development and research.

## 2.2 Precision teaching, formative assessment and movements in education

Although PT has its origins within the early work of B.F. Skinner (Lindsley, 1991), falling within ‘applied behaviour-analysis’(ABA) approaches to teaching new skills (Sulzer-Azaroff & Mayer, 1977; Haring et al., 1981), it is also compatible with a range of assessment approaches also referred to as ‘formative’ assessment' (Gavine et al., 2006). Instead of the focus being on an assessment of learning in terms of ‘products’ (summative assessment), formative approaches strive to illuminate the ‘processes’ underpinning learning experiences to improve outcomes: an assessment for learning (AfL). Despite an overwhelming emphasis on summative assessments as a way of measuring pupil outcomes (e.g. national school attainment tests), increasing attention has also been shown towards AfL approaches by various governmental groups (e.g. the Qualifications and Curriculum Authority (QCA) and Learning and Teaching Scotland (LTS), with further impetus being given to these kinds of approaches through recent national strategy and guidance documents published by the Department for Children, Schools and Families (DCSF, 2008a, 2008b). These moves have also extended the concept of AfL to involve peer and pupil self-assessment within class settings (James, 2007). Moreover, inspection of government-led initiatives indicates teachers are enthusiastically taking part in such activities across the UK (e.g. DCSF, 2008b; LTS, 2005; QCA, 2005).

In 1996, at the request of the Assessment Task Group, latterly known as the Assessment Reform Group (ARG), in a sub-group of the British Educational Research Association (BERA) Paul Black & Dylan Wiliam reviewed the research literature surrounding models of formative assessment with a view to advancing its implementation in schools (ARG, 2002). Their substantial article (Black & Wiliam, 1998a) was summarised in the booklet *Inside the Black Box* (Black & Wiliam, 1998b) which, in considering the processes surrounding assessment practices in schools, concludes:

*Certain inputs from the outside were fed in or made demands; namely, pupils, teachers, other resources, management rules and requirements, parental anxieties, testing regimes and so on. Some outputs would follow; pupils who are more knowledgeable and competent, better test results, teachers who are more or less exhausted. However, how can anyone be sure that a particular set of inputs will produce better outputs if we don't actually study what goes on inside the box?* (p. 1).

Hence, approaches in formative assessment aim to look deeper than the products of teaching. By assessing processes 'inside the black box' of teaching, assessment information can be used to modify work in order to make it more effective. Interestingly, the impact of such approaches are not only reported to be seen in academic gains, but also in terms of pupils' self-esteem (Miller & Lavin, 2007); a finding consistent with other studies (e.g. Burden, 1998a, 1998b; Polychroni et al., 2006; Topping et al., 2003) linking school achievement with the more specific notion of academic self-concept (ASC).

With this in mind, The Assessment Reform Group (2002, p. 4) gave this definition of assessment for learning:

*'Assessment for Learning' is the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there.*

James (2007) highlights an important aspect of this definition, one that goes beyond teacher use of assessment data to plan formatively for learning improvements:

*One significant element of this definition is the emphasis on learners' use of evidence. This draws attention to the fact that teachers are not the only assessors. Pupils can be involved in peer- and self-assessment and, even when teachers are heavily involved, pupils need to be actively engaged. Only learners can do the learning so they need to act upon information and feedback if their learning is to improve. This requires them to have understanding but also the motivation and will to act. The implications for teaching and learning practices are profound and far-reaching*' (James, 2007, p. 2).

Based mainly on Black & Wiliam's (1998a, 1998b) work, and more recently published evidence, James (2007) goes on to highlight a range of key innovations often combined in teaching practice that support the processes and goals of AfL with the more long-term focus on learner autonomy in a range of contexts. These include:

- careful use of questioning

- giving appropriate feedback
- sharing criteria with learners
- use of self-assessment techniques
- formative use of continuous summative tests

Work in this tradition has also been carried out by practising educational psychologists (EPs). Barrett et al., (2002) refer to studies carried out by a group of EPs focussing on the practice of teachers *'noticing'* student needs and *'adjusting'* their teaching accordingly to improve literacy learning at class and individual levels. To do this a *Framework of enquiry for monitoring literacy learning* (Barrett et al., 2002, p. 299) comprising six key elements that allowed for the process of assessment and following adaptations to be illuminated was developed. Consistent with an AfL approach, they include a focus on questions such as:

- *How are teachers incorporating their observations on how children are learning in order to make adaptations accordingly?*
- *How is teaching being tailored to individual needs within 'inclusive' group and class settings?*
- *How are the children themselves involved in the monitoring of their own word level progress?*

(Barrett et al., 2002, p. 299).

These questions were used within the context of several case studies to emphasise and illuminate the processes involved by teachers reflecting on their practice in order to refine their actions or, as the authors describe it, an exposure of teachers' *'monitoring minds'* (Schon, 1991). This study allowed considerations of how adjustments are arrived at and offers some examples of them. In this way, the Barrett et al. study can be seen to sit comfortably within the formative assessment tradition. Gavine et al. (2006) outline four key elements of this formative assessment approach:

*Formative assessment can be considered as comprising four components which are built into lesson planning and form a structure for it. They are, the establishment of a standard or expected level of student performance; gathering of information on student performance; development of a mechanism to compare the two performance levels; and development of a mechanism to alter the gap* (Gavine et al., 2006, p. 100).

This definition can also be seen to mirror practice within PT. As noted in the introduction, it is important to stress that PT is not an intervention technique. It is a measurement and evaluative technique that can be utilised to make practice decisions, and has been used frequently in the teaching of basic skills where there is need to *'alter the gap'* (e.g. Chiesa & Robertson, 2000; Downer, 2007; Hughes et al., 2007; Roberts & Hampton, 2008). In PT, behavioural objectives are used to define expected levels of student performance and, through frequent assessment and feedback processes involving the child, adaptations can be made to interventions to improve performance. In this way, PT does not directly prescribe what should be taught or even how to teach it, it offers

precise measurements of students' responses to intervention from which teachers may *infer* the need to carry out interventions or adaptations. Hughes et al., (2007), stress the key formative function of PT:

*In short, PT provides teachers with all the information they should require to make effective decisions about learning* (Hughes et al., 2007, p. 223).

In line with Glaser's (1962) ATT model presented earlier (Solity, 2008), Yeomans and Arnold (2006, p. 151) present an expanded version consistent with a PT approach:

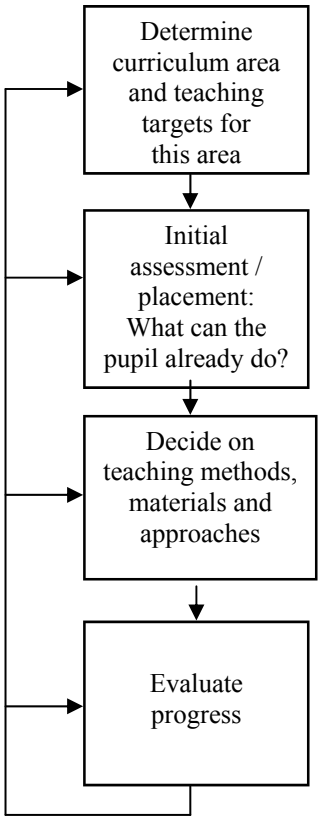



**Figure 2: An expanded version of 'assessment-through-teaching' (Yeomans & Arnold, 2006; after Glaser, 1962)**

Following the determination of curriculum area and targets through initial assessments, the planned practical steps generally taken within daily PT sessions are shown below. These follow the five aspects of daily practice and are an operational representation of the 'five basic steps' of PT outlined earlier (Solity & Bull, 1987, p. 26):

a) a short teaching session relating to a new skill (e.g. teaching activities focussing on a list of words)

b) a timed ‘probe’ or test (usually for 1 minute) used to measure a student’s accuracy and fluency on that targeted skill
c) data from the probe is recorded in terms of a number of items correct and number of items incorrect within the minute test
d) this data is plotted on to a standard celeration chart (SCC) each day to allow a ‘picture of learning’ to be developed
e) charted data is reviewed in line with pre-set criteria for accuracy and fluency, and future teaching decisions (element ‘a’ above) are guided by the progress shown on the chart and discussions with the child

Within PT, progress in ‘*learning’*, as referred to by Hughes et al., (2007) is judged through the development of accurate and fluent performance on daily tests or probes (step ‘b’ above). Over successive days of practice the data from probes (i.e. number of correct and incorrect responses within a one-minute period) are plotted on a chart to produce *‘learning pictures’* (Hughes et al., 2007, p. 223). These learning pictures, or ‘learning curves’ as they are sometimes referred to, offer a key formative function in helping indicate whether the task, teaching or any other relevant factors are conducive to learning that particular skill.

## 2.3 Precision teaching and models of formative assessment

Helpful to the elucidation of the PT model in practice is the useful distinction in the AfL literature between ‘planned’ and ‘interactive’ formative assessment processes (Cowie &

Bell, 1999). In their studies of teachers working with class groups, Cowie & Bell characterise planned formative assessment by:

*…the teachers eliciting, interpreting and acting on assessment information. The purpose of the planned formative assessment determined how the information was collected, interpreted and acted upon. Hence these four aspects are interrelated and mutually determining* (Cowie & Bell, 1999).

They are illustrated in Figure 3:

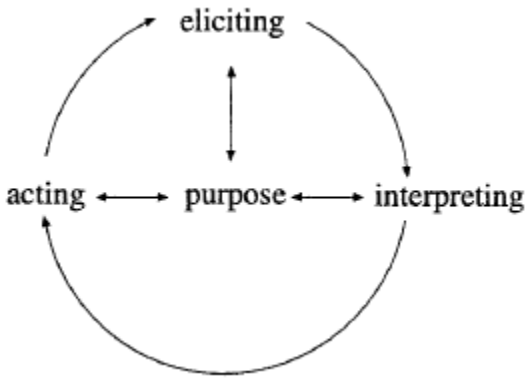



**Figure 3: Planned formative assessment (from Cowie & Bell, 1999, p.103)**

Cowie and Bell (1999) described the planned mode as a cyclical process often starting with student activity, followed by some sort of data collection, teacher reflection and then the teacher and student considering the next steps to take. This model is consistent with most descriptions of PT in the literature (e.g. Hughes et al., 2007; Solity & Bull, 1987), thus paralleling much of what occurs within elements ‘a’ to ‘e’ outlined above:

The *purpose*, or the driver to PT work, focusses on achieving a particular learning objective. The *acting* element reflects much of what happens in the teaching element 'a' (as a product of the latter interpretation phase, 'e'), the *elicitation* through the 'probing' and data collection elements ('b, c, d') with the *interpreting* occurring in the final element 'e'). It is the 'feed-forward' from this final stage focussed on achieving the PT objective that is a crucial aspect to the planned process of PT and of formative assessment as a general concept; without it the approach would be summative assessment. In the planned stage of interpretation staff have an opportunity to implement a diverse range of interventions to enhance teaching and learning in response to the information gathered. Hence, the teacher's pedagogical knowledge is crucial here, shaping the action taken as part of the planned formative assessment process.

Cowie & Bell's description of actions following interpretation can be developed in the following way: actions in a PT context could include:

*Purpose-referenced ways of acting:* addressing errors and miscues through focussed teaching and practice; reinforcing positive examples and achievements; adjusting task difficulty

*Student-referenced ways of acting*: emphasising students' personal relative gains/progress since starting the programme; noticing particular aspects of improvement

*Care-referenced ways of acting*: acting in a way to sustain and enhance the quality of interactions and relationships between themselves and the student

However, such planned processes are not always enough, a point Torrance and Pryor (1998) make with regard to different types of formative assessment:

*It is to suggest that formative classroom assessment can never be reduced to a set of procedures or practices that will 'work', but rather should be conceptualized as an open, interactive process that might 'get somewhere'; we are invoking an 'intelligent systems' metaphor rather than Newtonian cause and effect.* (Torrance & Pryor, 1998, p.159)

In the same way, Cowie & Bell (1999) highlight the presence of interactive approaches within formative assessment practice:

*Interactive formative assessment was that which took place during student-teacher interactions. It differed from the first form-planned formative assessment in that a specific activity was not planned. The interactive assessment arose out of a learning activity. Hence the details of this kind of formative assessment were not planned, and could not be anticipated* (Cowie & Bell, 1999, p. 107).

Interactive formative assessment is said to occur at any time during student-teacher interaction (i.e. across all elements of planned PT intervention). It requires sensitivity to student activity within interaction that may feed-forward into actions for improvement. Similar to work carried out by Barrett et al., (2002) this interactive process involves noticing, recognising and responding to student behaviour in line with a given purpose:

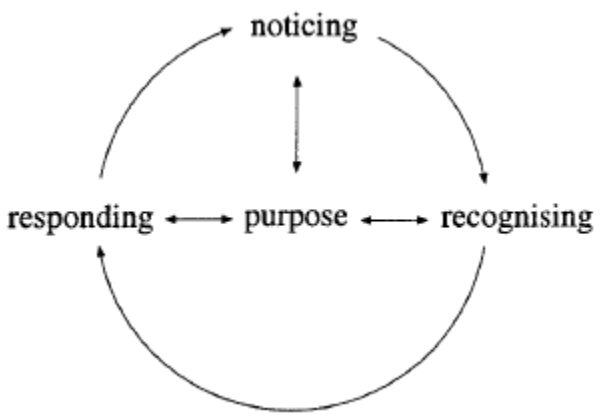



**Figure 4: Interactive formative assessment (from Cowie & Bell, 1999, p.107)**

In this context, Cowie & Bell highlight a broader, mediating purpose to formative assessment involving the subject of concern (objective) *as well as* social and personal learning. They note that teachers attempt to address 'the whole child' within this mode:

*They formatively assessed a wider range of learning outcomes…The teachers' specific purposes of interactive formative assessment emerged in response to what sense they found the students were making. The purposes of the interactive formative assessment were an important part of noticing, recognising and responding. Interactive formative assessment was therefore embedded in and strongly linked to learning and teaching activities* (p. 108).

This position can be seen to be congruent with a key, yet often unarticulated, element of PT approaches. Central to PT is the dictum that 'the child knows best' (Lindsley, 1972) as, in addition to the 'hard data' gathered via PT techniques, the contribution of the student in its broadest sense is of vital importance in determining the adjustments made

(Binder & Watkins, 1990; Gavine et al., 2006). In this way, it is argued that PT can be seen to offer a platform that goes beyond traditional behavioural measures to inform interventions as in planned approaches, and so allows for exposure of the learner's understanding and experience through interaction.

Cowie & Bell point out that the 'noticing' element (Figure 4, above) is distinct to elicitation in the planned model, as the information noted was often short-lived, unpredictable and difficult to record within interactions. If the teacher was not present when the information was noticeable, the information was rarely available at a later time. They highlight ephemeral examples of information noticed including verbal (student comments and questions) and non-verbal (body language, how they interacted with staff, the tone of discussions) data. This information forms crucial insights into student thinking and actions *in situ* and so can feed into a broad range of action to support teaching and learning.

The aspect of 'recognising' stemmed from the teachers' comments that while they were observing, talking to or listening to a student they would notice something and recognise its significance to the student's development and their understanding of it. Recognising is differentiated from noticing because it is possible to observe and notice what a student does without appreciating its significance; in these examples its value may only surface after the event. This skill was highlighted as often dependent on teacher experience and pedagogical knowledge, and some staff involved in their study pointed out that this aspect may be difficult for less experienced staff to engage in.

The third part of the interactive assessment model is that of 'responding', that is, teachers responding to what they have noticed and recognised. This can be seen to be similar to the acting phase in the planned model. However, the timing of response here tended to be immediate, often encapsulating one or more of the actions highlighted earlier (*subject, student* or *care-referenced* actions). The immediacy of response can be seen to reflect more responsive, flexible practices illustrative of an interactive model.

Links between planned and interactive processes in formative assessment are illustrated by Cowie & Bell (1999) in Figure 5:

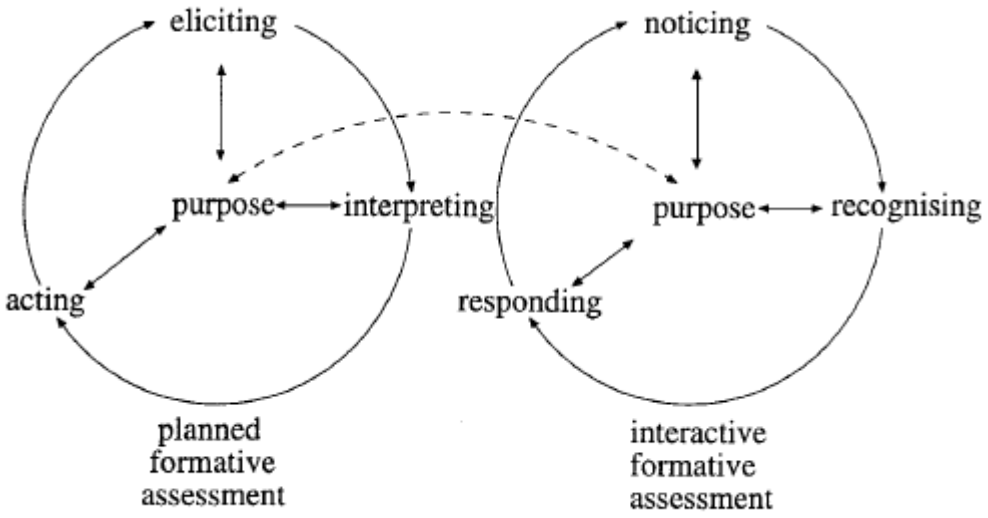



**Figure 5: A model of formative assessment (from Cowie & Bell 1999, p. 113)**

The linkage between the two formative assessment processes is found in the function of 'purpose'. The purpose in practice affects the nature of actions by teachers, with the movement from planned to interactive formative assessment often being stimulated by

noticing something in the planned processes. Cowie & Bell suggest that most teachers tend to start with planned processes, and then move to more interactive approaches across all aspects of interaction in order to respond to uncertainties or seek validation:

*They may have suspected that things may not have been alright and wanted to check things out; they may have noticed a student's or a group of student's misconceptions; they may have wished to follow up a hunch, or monitor the learning occurring* (Cowie & Bell, 1999; p. 113).

This emphasis on interactive processes within individualised interactions can be seen to offer illumination of the broader assessment function that PT offers. PT is typically characterised as a planned, convergent formative assessment approach, though, through its intensive nature there are opportunities for noticing, recognising and responding within an interactive framework are often (anecdotally) referred to. However, the intricacies of these actions and the decisions made by staff have not surfaced within published work to date.

## 2.4 Illuminating elements of formative practice in intensive programmes

### 2.4.1 Computer-based interventions

Although the literature on teaching programmes for children with additional needs highlights the importance of making adaptations (Fuchs & Fuchs, 1998) and some broad attempts are made to illuminate the processes that underpin them (Barrett et al., 2002),

published research about a systematic way to undertake changes through intensive, face-to-face teaching models appears limited. One initial port of call for unearthing work in this area could lie in the development of systematic computer-based approaches for the remediation of literacy learning difficulties that necessitate the use of structured decision making approaches to making changes to interventions (e.g. Fasting & Halaas-Lyster, 2005; Karemaker et al., 2008; Underwood & Brown, 1997). One such example, enjoying high levels of exposure and use in schools in the USA and UK, is that of *SuccessMaker* (Pearson Digital Learning, 2007) which is designed to address basic literacy and numeracy learning needs. Such approaches are underpinned by the presentation of exercises based on a sequence of developmental learning objectives determined by *'probability models of learning'* (Thrall & Tingey, 2003, p. 4):

*This probability is updated based on the sequence of student responses according to the following assumptions:*

*(1) The student's most recent response, if correct, indicates an increased probability of success on the next exercise;*

*(2) The student's more recent responses are better indicators of the student's current understanding than are earlier responses.*

These assumptions are operationalised in the Section, *'Adapt instructional strategies to the student's pattern of response'*:

*As previously mentioned, the courseware assesses the student's mastery of a learning objective by calculating the probability that the student will answer the next exercise correctly. More generally, the calculated probability and the number of exercises attempted by the student determine the courseware's decisions to change the learning objective, strand, or mode of presentation. Table 1 summarizes these decision rules.*

*Table 1: Courseware response to student performance.*

| *Student Performance* | | *Courseware Response* | *Description* |
|---|---|---|---|
| *Excellent* | | *Mastery* | *Record mastery; select and present next learning objective.* |
| *Good* | | *Mixed presentation* | *Present another exercise from the same learning objective; then select a new strand.* |
| *Moderate* | | *Sequential presentation* | *Present a sequence of exercises from the same learning.* |
| *Low* | *1* | *Tutorial* | *Present any tutorials associated with the objective.* |
| | *2* | *Pre-requisite review* | *Present prerequisite objectives.* |
| | *3* | *Delayed presentation* | *Mark the objective for later presentation.* |
| | *4* | *Move on* | *Record the objective as not mastered, but move the student to the next objective.* |

**(Thrall & Tingey, 2003, p. 6).**

With regard to effectiveness, the publishers also offer a selection of positive evaluations on their website (http://www.pearsondigital.com) on which to base their claims that the programme offers:

*Proven instruction to help every child achieve success.*

(http://www.pearsondigital.com/successmaker/).

However, concerns regarding such research summaries (e.g. Pearson Digital Learning, 2002) relate to the possibility that publishers may only make public positive evaluations that will promote the product and benefit sales. Moreover, it is important to point out that

all quoted research has yet to appear within peer-reviewed journals, and so has not been subject to rigorous scrutiny by experts in the field.

Of interest here is that, although student progression through the teaching exercises relating to defined objectives is dependent on levels of competence on previous items based on measures of 'probability', the precise detail of the steps in which teaching adaptations are made is not published to allow inspection. Detail regarding the various levels of 'Student performance' (i.e. 'Excellent', 'Good' etc.), and how they relate to 'Courseware' concepts such as 'Mastery' or 'Mixed presentation' are copyrighted and so not open to analysis. A number of important concerns can be levelled at these kinds of interventions:

- the 'user-interface' (whereby keyboard skills can be a barrier to developing fluency)
- the definitions of stages of learning, for instance 'mastery', used
- the generalisation of the skills practised to other contexts
- their expense
- the time taken to conduct
- the appropriateness of using 'fixed' developmental models of teaching objectives for literacy (e.g. Solity et al., 2000) and, perhaps most importantly:
- the lack of interaction and dialogue about learning with students and recognition of personal states (Cowie & Bell, 1999).

Even if the details of the probability models underpinning such a system were open to inspection, the studies promoted withstood critical peer-review and other issues were resolved, it is difficult to comprehend how the last point of contention (above) could be addressed. The absence of interaction or dialogue around learning and sensitivity to a student's emotional needs also highlights the significant limitations of computerised approaches. In the course of natural, face-to-face teaching sessions many inter-personal interactions take place between the teacher and the student. Examples include the use of dialogue between teacher and student in the negotiation of goals and teaching, the teacher's awareness of emotions or personal states that may affect learning, and the implementation of more personalised, timely interventions. Such interactive features of formative assessment highlight the sensitive, reciprocal nature of approaches that go beyond planned processes as in computer-based systems. A point consistent with the findings of Cowie & Bell (1999), and emphasised by Black (1995):

*The distinguishing characteristic of formative assessment is that the assessment information is used, by the teacher and pupils, to modify their work in order to make it more effective* (p. 7).

In this way, PT can be seen as an interactive formative assessment model that, unlike computerised approaches, avoids teaching being *done* to the child – instead the emphasis is on working sensitively *with* the child to improve performance.

### 2.4.2 'Face-to-face' interventions

Given the limitations of computerised approaches, exploration of the limited work on adaptations to instruction within face-to-face teaching work is required. One study, by Simmons et al., (1998) with groups of children highlights a range of modifications to teaching that staff may implement. However, this study did not report the use of such instructional adaptations in a sequenced or systematic manner. The modifications were listed as a range of possible 'suggestions' for teachers within whole class teaching. In fact, the weight of research into adapting teaching approaches has largely focussed on broad areas of intervention, rather than clear procedures for modification within a systematic framework (e.g. James, 2007).

Perhaps the most important development in this area can be tracked back thirty years to the work of Marie Eaton (Eaton, 1978), a key contributor to the seminal text in the field of PT entitled, *The Fourth R: Research in the Classroom* (Haring et al., 1978). In her chapter *'Data Decisions and Evaluation'*, Eaton outlines a flowchart for improving the outcomes of PT sessions through key decision rules to be implemented at specific stages in such programmes.

Inspection of Eaton's flowchart and the decisions available highlights three key methods of adaptation when progress is not adequate after three days of programme implementation (Eaton, 1978, pp. 177-179). They are:

- Return to an earlier or *'pre-requisite'* skill

- Slice the task by making the skill to be learnt easier through teaching *'component parts'*
- Various – *'A myriad of variables could be changed: the materials, the length of the time sample, the instructional technique, the drill procedure, the reinforcer, or the mode of response.'*

Following the implementation of one of the above areas of adaptation, Eaton recommends that the programme is to run for a further three days. Should the programme not have been successful, changes such as those listed above could be implemented or, as Eaton (pp. 184-185) puts it:

*Possible program changes are far too numerous and complex to list here. They are limited only by the teacher's inventiveness.*

This would therefore require a stepping back in the cycle to the decision point after the initial three days of implementation until success is achieved. With the exception of meeting a programme objective at some point, it is neither made clear how this cycle may ever end, nor is there detail around the motivational interventions that may occur during programme sessions. In some ways the tenor of the chapter, if not the text in general, is directed more toward teachers or those trained to a reasonable level of proficiency in applied behavioural analysis, which renders some aspects challenging for the range of staff who may wish to employ such methods: this point of accessibility is key given the spread of experience and knowledge those who may wish to utilise this technique.

However, at the end of the chapter, Eaton notes the several caveats in relation to the infancy of the model presented:

*The rules suggested in this chapter are in the early stages of development. They are suggested as guidelines rather than ultimate truths. Rules should help the teacher do a better job of instructing the pupils in his/her charge. If they are not serving that function, or if they seem too difficult to use, the rules should be changed.* (Eaton, 1978, p. 189)

From a detailed web-based literature search, the only other reference to an approach to adapting teaching in PT programmes was found in Solity & Bull's book, *Special Needs: Bridging the Curriculum Gap* (1987, pp. 133-137), nearly twenty years after Haring et al. produced *The Fourth R*. Unsurprisingly, as the book refers to Haring et al., (1978) frequently, they propose changes similar to those by Eaton (1978). In order to improve a pupil's performance using this approach, Solity & Bull (1987) outline that *'There are four ways of making changes to the programme'** (p. 133):

1. Changes to the sequence of tasks or skills (e.g. reordering the curriculum)
2. Changes to task or skill slices (e.g. reducing the number of items taught)
3. Changes to the teaching approach (e.g. focussing on word reading 'accuracy')
4. Increasing motivation (e.g. use of incentives)

*These four areas are also noted more briefly in other work including Raybould & Solity (1982, p. 12) and Arnold & Yeomans (2005, p. 125)

Despite their general utility as practical ways forward, unlike Eaton (1978), no model for the timing of their implementation is offered. It *may* be the case that as every child is an individual, adults involved in delivering PT programmes need complete flexibility to respond to each student's progress within these four broad areas in a unique manner and so a systematic framework is redundant. However, given relatively limited efforts in this area and the lack of recent research dedicated to this aspect that accommodates contemporary models of formative assessment, current researchers are left with such claims unanswered. What is being suggested here is that by building on the early work of Eaton, stressing the need for structure and adaptations, and some continuing interest regarding the most helpful adaptations, a practical, modernised framework that encompasses 'what to change' and 'when to change it' may be developed for evaluation and refinement. Such a model would not only note the history of research practice in PT, but also relate to more recent developments in formative assessment (e.g. Cowie & Bell, 1999; James, 2007). The implementation of a sizeable contemporary study focussing on the outcomes of PT interventions provides an ideal platform through which to pursue this kind of development, and through a detailed analysis of successfully implemented programmes key, timely adaptations may be uncovered that could be structured in some way as was approached in work during the late 1970s. Should this be possible, then the formulation of a clear, comprehensive and useable framework to assist educational psychologists in training and advising staff on the approach may help optimise practice in schools. This would represent a helpful innovation to a well-established and frequently

endorsed course of action by psychologists to support children with persistent literacy needs.

## 2.5 Formative assessment and professional development

In times when concern regarding the national shortage of qualified teachers and the standards children achieve at school continue, a range of solutions to address these issues have been proposed by government (Burgess & Shelton-Mayes, 2007). Within the broad agenda of promoting school improvement and pupil achievement the role of *all* staff in schools has become increasingly emphasised in national policy with recent agreements focussing on 'workforce remodelling' through continuing professional development (CPD) opportunities and new career pathways (e.g. TDA, 2006). TAs form a significant portion of the school-based workforce, and numbers have more than doubled in England since the advent of the present Labour Government in 1997 (DfES, 2005a). Burgess & Shelton-Mayes (2007) note the increasing numbers of TAs registering on the Higher Level Teaching Assistant (HLTA) programme (nearly 14,000 by December 2005), with almost 7,000 being awarded HLTA status at the time (TDA, 2006). This increasing profile and level of responsibility can be seen to reinforce the perception that support staff, such as TAs, are an important aspect of the government's modernisation plans for education. A remodelled workforce is viewed as core to part of an agenda that aims to:

*… find new ways, for the 21st century, of helping schools to realise the potential for all our children* (ATL et al., 2003, paragraph 1)

Among a host of expanding duties many TAs are involved in providing direct support for children with additional needs (Blatchford et al., 2004; Butt & Lance, 2005; Groom, 2006; Lacey, 2001; TDA, 2006) and are often occupied in delivering specialist programmes outside regular class teaching for basic literacy skills (e.g. *'Wave 3 interventions'*, DfES, 2003b). Moreover, the role of the TA in supporting the learning process through formative assessment has been identified as an important aspect of their role in feeding into plans for personalised learning for students (Arnold & Yeomans, 2005; Clarke et al., 1999; Farrell & Balshaw, 2003; Lacey, 2001; Rose, 2000). However, much of the research to date concerning formative assessment approaches has referred to the practices of teachers in terms of how this approach can be developed and adopted to support class practice (e.g. Barrett et al., 2002; Black & Wiliam, 1998a, 1998b; Cowie & Bell, 1999; LTS, 2005; QCA, 2005; Torrance & Pryor 1998, 2001). As a case in point, 'formative assessment' as the subject of CPD for teachers has also been investigated in some depth in recent work by John Gardner (Gardner, 2006) and his colleagues at the University of Cambridge in the 'Learning how to Learn' project (www.learntolearn.ac.uk; e.g. James & Pedder, 2006; Pedder et al., 2005). Conversely, little published research evidence can be found when we specifically consider the use of formative assessment approaches as an area of professional development activity for TAs.

As part of routine practice in class, small group or individual settings, TAs are often required to engage in a range of assessment practices that inform the planning,

monitoring and evaluation process (Blatchford et al., 2004). In their substantial national review of *The Deployment and Impact of Support Staff in Schools* Blatchford et al. (2004) highlight various examples of such activity. From their survey of teacher's views on support staff activities, they outline how:

*Support staff facilitated planning and preparing for lessons, and contributed ideas and help in preparation.*

*Support staff allowed teachers to differentiate the work for more pupils, targeting the pupils who needed help and ensuring that all ability levels were catered for.*

(Blatchford et al., 2004, p. 17)

However, Blatchford et al. (2004) describe how TAs' contributions to assessment and planning practices often occur in a 'scattered' manner whereby these actions are engaged in at different levels through a variety of activities with no reference to researched frameworks or theoretical models. Materials provided by the DfES (DfES, 2005b) aim to offer more structure to such practice through the promotion of an AfL approach, though the manner in which such support staff are using and informing developments about these methods is not represented in the research literature. As noted earlier, James (2007) highlights a range of key innovations often combined in teaching practice that support the processes and goals of AfL or formative assessment (i.e. use of questioning, giving appropriate feedback, sharing criteria with learners, use of self-assessment techniques, formative use of continuous summative tests), which present as clear, practical examples

of such practice ‘in action’ that could be seen to contribute to greater rigour in TA assessment work. Given the profile of research to date, it is posited that an examination of TAs’ understanding and practice application of these kinds of approaches within a structured assessment model such as PT offers an innovative starting point to research work for this expanding population of the school workforce.

## 2.6 Summary and research aims

As an intensive type of formative assessment, PT has the potential to contribute in a positive manner to the ongoing concerns regarding literacy attainments nationally. PT is frequently recommended by educational psychologists to address basic skills difficulties, and so the first aspect of the study aims to contribute to the contemporary research database through a study of a group of 77 secondary school children receiving such intervention. As outlined at the beginning of the following chapter the aim of this aspect of the study was to:

*…investigate the impact of PT interventions delivered by trained TAs on groups of secondary school students with literacy learning needs.*

To do this:

*…the ‘impact variables’ measured were word reading skills and academic self-concept (ASC).*

However, within this work, the specific evaluation of PT's impact on pupil outcomes should be seen as a 'backdrop' providing a platform for two further areas of development and evaluation:

Firstly, developing a practical systematic framework for adaptations within PT practice offers an opportunity for innovative research. The thirty-or-so-year history of PT and related approaches highlights some attempt to promote more systematic ways to employ interventions within programmes, and so revisiting developments of this kind appears more than timely. The case for work in this area is driven by a number of key factors that converge within the present context; they include the lack of recent work in this area and apparent lack of accessibility and completeness in early models of systematic adaptations, and contemporary developments in formative assessment. As in more contemporary models of formative assessment, the exploration and illumination of the planned and interactive interventions undertaken within PT sessions offers a route to generate a useable framework to optimise practice in schools. As stated at the start of the next chapter, the broad aim of this aspect of the research was to:

*…draw on the activities undertaken by school staff in the first aspect by investigating the teaching adaptations made by them using PT programmes to improve student word reading skills; from here a framework for systematic teaching adaptations was formulated and trialled.*

The third aspect of this thesis is an investigation into the learning of those often involved in delivering PT programmes to students. The research aim articulated in the subsequent chapter was to:

*…draw on the experiences of school staff and their learning throughout the initiative. The value of participating in the research was investigated through exploring TAs' reflections on the development of their understanding of the processes and practices surrounding 'teaching and learning'.*

The weight of research into professional development regarding formative assessment practices to date has solely involved qualified teachers and so, as a significant proportion of the school workforce, TAs' experiences of formative assessment practices as a route to support effective teaching and learning as a professional development opportunity represents another distinctive area for investigation.

# CHAPTER 3

# Foci, Orientation, Methodology and Methods

## 3.0 Introduction

In line with the areas for study emerging from the literature review, the research focussed on evaluating three inter-connected aspects of a developmental project (i.e. Plymouth Precision Teaching Project - PPTP) undertaken from September 2007 to April 2008 in a South West of England Local Authority.

### 3.0.1 Research aims & questions

#### 3.0.1.1 Aspect One

The aim of the first aspect was to investigate the impact of PT interventions delivered by trained TAs on groups of secondary school students with literacy learning needs. The 'impact variables' measured were word reading skills and academic self-concept (ASC). This broad aim was the basis for the following research questions, which served to expand the contemporary database on the use and outcomes of PT:

***Research Question 1***. *'Do secondary school students with reading difficulties receiving a PT intervention out-perform those receiving usual teaching arrangements with regard to the development of their word reading skills?'*

***Research Question 2***. *'Do secondary school students with reading difficulties receiving a PT intervention out-perform those receiving usual teaching arrangements regarding reported levels of academic self-concept?'*

#### 3.0.1.2 Aspect Two

The aim here was to draw on the activities undertaken by school staff in the first aspect by investigating the teaching adaptations made by them using PT programmes to improve student word reading skills across two phases of research; from here a framework for systematic teaching adaptations was formulated, trialled and reviewed. This second aim was developed into the following research questions:

***Research Question 3***. *'What are the precise teaching adaptations made by staff to improve student performance toward defined success criteria within PT programmes?*'

***Research Question 4***. *'Is there an order in which these adaptations are made that is more efficacious?'*

***Research Question 5***. *'What will be included in a structured framework for teaching adaptations, and how useful is it in practice?'*

#### 3.0.1.3 Aspect Three

As a broader evaluation of the project's impact the third aspect aimed to draw on the experiences of school staff and their learning throughout the initiative. The value of participating in the research was investigated through exploring TAs' reflections on the

development of their understanding of the processes and practices surrounding 'teaching and learning'. This third aim underpinned the sixth research question:

***Research Question 6****. 'In what ways have TAs involved in the project improved their understanding of the processes and practices surrounding teaching and learning?'*

### 3.0.2 Research orientation

Discussing appropriate methodology and method for this initiative involves an outline of a theory of knowledge or an epistemological orientation to be adopted within the research. Epistemology is to do with the nature of knowledge, its possibility, scope and general basis (Hamlyn, 1995). It is important to identify an epistemology in order to define the boundaries of what counts as knowledge as this shapes the interpretation of the findings derived from research activity: differing epistemologies represent differing views on the nature of reality and knowledge.

The importance of coherence between aspects of the research process and structure is well noted in the literature (e.g. Crotty, 2005; Mertens, 2005), with clear, cogent linkages needing to be made from the knowledge underpinning research to theoretical models, methodology and method: this provides transparency and a rigorous justification of the research activity. Crotty (2005) reinforces this 'flow' in the figure replicated in Figure 6 (see below):

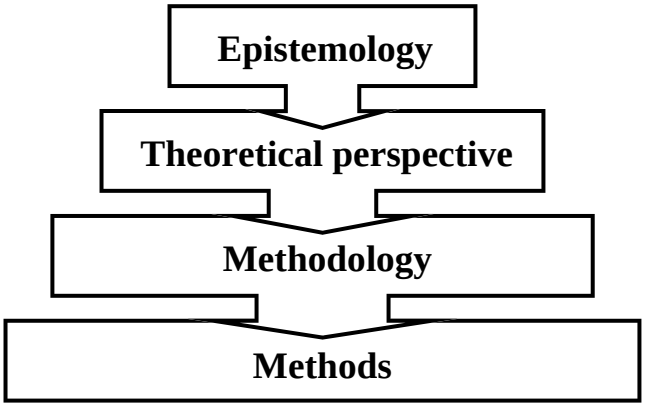



**Figure 6: Core elements for research planning (after Crotty, 2005, p. 4)**

### 3.0.2.1 Methodology and coherence

When embarking on a new piece of research one may start from a pragmatic position that seems somewhat distant from these epistemological concerns. It is possibly true that many start from a 'bottom up' position in considering relevant methods and methodology which will help answer a specific question (Robson, 1993) – it is obvious that we must develop a process that is capable of answering the question – though it is key that we also implement our methods in a way that is consistent with the view of reality and knowledge

that we assume. Hence, it is in the interest of coherence that we must ask questions about epistemology and theoretical perspectives.

Within the broad scientific paradigm, often termed as the traditional or empiricist position (Creswell, 1994), lies the objectivist epistemology:

*Objectivism is seen as the epistemological view that things exist as meaningful entities independently of consciousness and experience, that they have truth and meaning residing in them as objects, and that careful research can attain that objective truth and meaning* (Crotty, 2005, pp. 5-6).

This particular epistemological view can be seen to underpin the theoretical perspective known as 'positivism' (and, to a notable extent, 'post-positivism'), which may lead to a particular methodology; one that can address these parameters, (e.g. survey research) and methods such as measurement, scaling and statistical analysis. From this 'top down' approach we can be seen to start to develop a research process that is thorough and has sound foundations. Indeed, this 'scientific' position may, for instance, be contrasted with more interpretive research paradigms (often associated with qualitative methods) which hold differing views on the nature of reality, knowledge and, in turn, the theories it can legitimately support. Clarity is crucial here, as there can be little doubt that it would be highly problematic to adopt an objectivist position, while at the same time undertaking an interpretive epistemology, or as Crotty (2005) puts it:

*To say there is objective meaning and, in the same breath, to say that there is no objective meaning certainly does appear contradictory* (Crotty, 2005, p. 15).

However, there are many examples of qualitative methods being undertaken in a highly rigorous and scientific way. Hence, those who argue for the use of combined approaches do not do so on these exalted dimensions - differentiation occurs at the 'methods' level. Hence, it is possible to enjoy the benefits of a range of research methods in our work, even using those routinely associated with alternative paradigms, though it is crucial we remain consistently objectivist or interpretivist in their use and in the understandings we derive from the data gathered.

#### 3.0.2.2 Research planning and contemporary 'science'

Over the last fifty or so years the positivist perspective has seen some changes, as research activity in the social sciences involving the application of the scientific paradigm portrayed by positivist theories and compatible methodologies has experienced significant criticism. The post-positivist theoretical stance (Cook & Campbell, 1979) evolved in recognition of the criticisms made of the positivist model in its application to the social world. On an epistemological level, post-positivists continue to draw on an objectivist epistemology in agreeing that a reality exists and that knowledge can be uncovered, though they recognise that what can be known is constrained by human abilities. What is posited here is that knowledge or evidence can be gained within the context of probability through the acquisition of evidence, rather than proof. Hence, the post-positivist researcher's role is to gather knowledge or evidence by eliminating less

likely explanations (Reichardt & Rallis, 1994). Furthermore, the detachment of the researcher from the researched person or subject (as independent entities) that characterises the positivist stance is modified. The position for post-positivists is that the 'baggage' of the researcher (i.e. the theories, hypotheses and background knowledge they hold) can influence what is recorded. Nonetheless, objectivity is seen as key to rigorous research practice and researchers strive to maintain a neutral presence to minimise the contamination of data collected and use standardised procedures to enhance standards of reliability and validity. These are standards that many authors regard as critical to high quality research (Robson, 2005) or, as Morse (1999) puts it:

…*by definition good, rigorous research must be valid and reliable*.

#### 3.0.2.3 Orientation of the present research

The overall spirit of this study, as evidenced by the intentions, planning and the treatment of the information obtained was post-positivist in orientation. The research was underpinned by an objectivist epistemology and the pursuit of relationships between objects or events that may be generalised further afield. This orientation is perhaps most apparent within the first aspect of the study which is based on maintaining post-positivist principles through an experimental methodology using quantitative data collection and analytical methods. Consistent with post-positivist theory (Robson, 2005) and experimental methodologies (Campbell & Stanely, 1966) the specific purposes of the first aspect of the study were to address the Research Questions 1 and 2 by:

- comparing performances under comparable conditions
- attempting to infer causality between variables
- generating ‘objective’ measurements of treatment
- attempting to generalise from the findings or establish a generalisable conclusion

The use of a quasi-experimental design is an appropriate strategy to achieve these goals. An experimental design (Campbell & Stanely, 1966) involves the random allocation of participants to one of two groups: an experimental group and a control (comparison) group with the former in this study receiving a daily PT reading programme. Within a post-positivist orientation this method allows, through ‘objective’ measures of specific variables, comparisons of performances with controlled conditions, inferences of causality between variables and the intention of generalising beyond the present research.

*Prima facie* inspection of the research activities undertaken within the last two aspects of the study may suggest the adoption of a different perspective compared to that assumed in the first element of the research. Within an ‘action-research’ methodology the second aspect draws on information from quantitative sources (coded, written records) and qualitative sources (semi-structured interviews) carried out in structured manner. The last aspect (Aspect Three), grounded in an ‘illuminative’ case-study methodology, drew solely on findings from qualitative means: semi-structured interviews and summative written records held by the researcher regarding conversations held during the project. Although both areas of research may ostensibly have commonalities with more

interpretive approaches to research, with a general emphasis on the particular context and understandings of each participant, the data collection methods and interpretations undertaken can be seen to be consistent with the orientation adopted for the first aspect where general trends or consensus of practice across the information gathered were sought out. Consistent with post-positivist practice, the overriding aim was to seek views from participants about their experiences during the initiative in order to arrive at broad generalisable practice themes that may be explored further within and beyond the present study.

### 3.0.3 Methodology, method and procedures

Considering the use of a range of different methods within a post-positivist orientation, the central concern governing such pragmatic aspects related to 'fitness for purpose'. It is not unreasonable to posit that certain methods lend themselves more readily to answering certain types of research questions. Or as Robson (1993) states:

*The general principle is that the research strategy or strategies, and the methods or techniques employed, must be appropriate for the questions you want to answer* (p. 38)

For example, if the effects of a specific intervention are to be evaluated, then an experimental research design would be compatible while, if an in-depth study of a specific situation is needed, an ethnographic methodology using a range of qualitative methods may be more relevant. With these considerations in mind, the research described

below represents a 'mixed-model design' (Mertens, 2005) whereby quantitative and qualitative methods were used to provide information for the different research questions. For clarity, the following sections detailing methodological issues are split into three portions, each relating to the respective aspects noted above.

## 3.1 Aspect One

### 3.1.1 Research overview and design

The first aspect of the study investigated the outcomes of PT interventions within a quasi-experimental design (Campbell & Stanely, 1963) with students in need of support with literacy learning across five secondary schools in Plymouth, UK. The secondary school settings involved were three mainstream schools and two specialist schools (one for children with social/emotional/behavioural needs and another for those with moderate learning difficulties). The schools were located across Plymouth, with the mainstream settings located in three distinct areas of the city with regard to measures of socio-economic deprivation. For the purposes of the research and to ensure anonymity each school was given a numerical code (1-5) as were all students (1-82).

Firstly, students from each school were randomly allocated to either an intervention group (Group A) receiving PT, or a comparison group (Group B) receiving their usual teaching arrangements (UTA). Throughout the research PT was an additional intervention to UTA for all participants as it was conducted during registration, break or lunchtime periods. These first two groups formed Cohort 1, monitored across terms 1 and

2, both receiving a period of PT intervention lasting six weeks. The groups in Cohort 1 swapped conditions after six weeks, with the initial comparison group (Group B) moving to receive PT intervention, and the original PT group (Group A) then receiving no additional intervention (i.e. UTA). A second cohort (Cohort 2), comprising Groups C and D, followed the same pattern of intervention across the following two terms (terms 3 and 4): Group C received PT intervention first and Group D afterwards. In this case the PT intervention was added to through the provision of a structured framework to facilitate programme delivery (see Aspect Two) and lasted five weeks per group in accordance with Plymouth City Council school term dates. These arrangements (i.e. a 'cross-over' repeated-measures design shown in Table 1) allowed measures of progress with or without PT intervention for both groups in Cohorts 1 and 2. Given that both groups were to receive both treatments in opposite orders, it was anticipated that this counter-balancing would militate against any threats to the validity (e.g. *'testing'* or *'order effects'*; Fife-Schaw, 2002) of the measures taken by the end of the study.

| **Groups** | **Cohort 1** | | **Groups** | **Cohort 2** | |
|---|---|---|---|---|---|
| | **Term 1 (6 weeks)** | **Term 2 (6 weeks)** | | **Term 3 (5 weeks)** | **Term 4 (5 weeks)** |
| **A** | **PT** | **UTA** | **C** | **PT** | **UTA** |
| **B** | **UTA** | **PT** | **D** | **UTA** | **PT** |

**Table 1: Research arrangements for Aspect One**

The PT intervention periods for each group are noted below:

- Group A – in Term 1 from 10.9.07 – 19.10.07 (6 weeks)
- Group B – in Term 2 from 5.11.07 – 14.12.07 (6 weeks)
- Group C – in Term 3 from 7.1.08 – 8.2.08 (5 weeks)
- Group D – in Term 4 from 25.2.08 – 28.3.08 (5 weeks)

### 3.1.2 Participants, procedures and methods

#### 3.1.2.1 Background and initial steps

In May 2007 an initial meeting was held at each school with either the Head Teacher or the Special Educational Needs Coordinator (SENCO) to discuss the project. Participation was confirmed for all five schools and in June and July 2007, led by the researcher, an intensive PT training programme for all nominated members of staff (eight TAs across the five schools) was undertaken. In an effort to promote consistency in practice (i.e. *intervention* or *treatment 'fidelity'* - Eames et al., 2008; Hardeman et al., 2008; Schinke et al., 1991) a number of key steps were taken. For one, at the start of the project the training materials were presented to all TAs at the same time and were identical to those that have been presented annually to trainee educational psychologists over the last eight years by the researcher at The University of Southampton (see Appendix 3.1.1 for a summary). Across a practically based two-session training course, the TAs were given an introduction to the theory of the approach and the practical methods involved in operationalising the *'five basic steps'* (Solity & Bull, 1987) of PT with an emphasis on how and when changes to a programme may be implemented as outlined in the literature

review. In this way the daily PT format promoted was summarised as *'teach-test-chart-review'* covering steps 'a' to 'e' below:

*a) a short teaching session relating to a new skill (e.g. teaching activities focussing on a list of words)*

*b) a timed 'probe' or test (for one minute) used to measure a student's accuracy and fluency on that targeted skill*

*c) data from the probe is recorded in terms of a number of items correct and a number of items incorrect within the one-minute test*

*d) this data is plotted onto a standard celeration chart (SCC) each day to allow a 'picture of learning' to be developed*

*e) charted data is reviewed in line with pre-set criteria for accuracy and fluency, and future teaching decisions* (within element 'a' above) *are guided by the progress shown on the chart and discussions with the child*

There was also a particular emphasis on practising Direct Instruction teaching techniques (Becker et al., 1981; Engelmann & Carnine, 1982) in step 'a' (above) using the *'model-lead-test-review'* approach (Solity, 2008), and derivatives of, as a helpful technique to developing students' word reading accuracy and fluency throughout PT programmes. Between sessions the TAs were given follow-up activities involving practising PT with a selected student within their school setting: their findings were brought back to the group to discuss and learn from them at the beginning of the following session using an

established group-supervision model (e.g. Bozic & Carter, 2002; Hanko, 1999) - see Appendix 3.1.2 for an overview.

A further meeting was also held in July 2007 involving all TAs and the respective school SENCOs. It took the form of a presentation recapping on the training conducted and an outline of the research design, school-based requirements and support to be offered by the researcher (see Appendix 3.1.3 for a summary of the presentation, and Appendix 3.1.4 for other materials provided). Consistent with advice from the literature promoting *'treatment fidelity'* (Harchik et al., 1992; Schinke et al., 1991) a number of other key steps were taken; in summary, they were:

- Use of standard record forms to promote a regular format to PT delivery and to detail daily practice for inspection (see Appendix 4.2.1 and 4.2.6.2 for examples)
- Group support sessions held at the schools and at a central location to discuss practice issues relating to the project (see Appendix 4.3.2 for summaries)
- An observation of a PT session (PT Practice Observation - PTPO) for each TA including inspection of their record sheets and SCCs during terms 1 and 4 (see Appendix 4.1.1 and 4.1.2)
- Additional audio recordings of PT sessions for one TA from each school for one week during terms 3 and 4 to ensure consistency between practice and written records to generate a Reliability of Recording Measure (RRM) - (see Appendix 4.2.7)

- Detailed discussion of record sheets and practice issues through semi-structured interviews through Aspect Two of the research (see Appendices 4.2.2, 4.2.5, 4.2.10 and 4.2.11)

Details regarding these procedures and arrangements are detailed at the appropriate sections of this and the following chapter.

#### 3.1.2.2 Participants

Prior to the onset of the research in September 2007, the students involved were identified by the schools' SENCOs alongside another senior manager as those in need of additional support with regard to the development of their reading skills in line with national recommendations for Wave 2 or 3 interventions (DfES, 2003b, p. 2):

***Wave 2*** *- Additional small-group intervention for children who can be expected to catch up with their peers as a result of the intervention.*

***Wave 3*** *- Specific targeted approaches for children identified as requiring SEN support (on School Action, School Action Plus or with a Statement of special educational needs).*

This selection procedure meant that the sample of students participating were controlled; that is to say, they were not representative of the population of secondary students at large as they all presented with a degree of need regarding their word reading skills.

The total number of students initially participating in the study was eighty-two. However, following the withdrawal of a small group throughout the project due to illness and attendance/punctuality difficulties (students 7, 8, 11, 27 and 32), seventy-seven (fifty-three boys and twenty-four girls) remained who completed the planned interventions and assessments. The ages of the students ranged from 11 years 4 months to 16 years and 2 months (Mean: 13 years 6 months). Table 2 (see below) provides a brief summary of the all the student participants involved and their respective schools and type of setting:

| **School (Type: mainstream or special school)** | **Number of students** | **Student codes** |
|---|---|---|
| 1 (mainstream) | 12 | 15-20, 33-38 |
| 2 (special) | 14 | 1-6, 39-46 |
| 3 (special) | 32 | 21-26, 47-72 |
| 4 (mainstream) | 9 | 28-31,73-77 |
| 5 (mainstream) | 10 | 9-10, 12-14, 78-82 |

**Table 2: Number of students from each school and type of setting with individual codes**

The distribution and profile (sex) of students across different schools and the Cohorts/Groups is presented in the following table. Further anonymised details regarding each individual participant, can be found in Appendices 4.1.5, 4.1.10 or 4.1.15.

| | **Cohort/Group** | | | |
|---|---|---|---|---|
| **School** | **1 / A (Total number of students =14)** | **1 / B (Total number of students =13)** | **2 / C (Total number of students =27)** | **2 / D (Total number of students =23)** |
| **1** | 3 (male= 1; female= 2) | 3 (male= 3) | 3 (male= 3) | 3 (male= 3) |
| **2** | 4 (male= 4) | 2 (male= 2) | 6 (male= 4; female= 2) | 2 (male= 1; female= 1) |
| **3** | 3 (female= 3) | 3 (male= 1; female= 2) | 13 (male= 9; female= 4) | 13 (male= 11; female= 2) |

| | | | | |
|---|---|---|---|---|
| **4** | 2<br>(female= 2) | 2<br>(male= 2) | 2<br>(male= 1;<br>female= 1) | 3<br>(male= 3) |
| **5** | 2<br>(male= 1;<br>female= 1) | 3<br>(male= 2;<br>female= 1) | 3<br>(male= 1;<br>female= 2) | 2<br>(male= 2) |

**Table 3: Participant group size and profile across the study (Cohorts and Groups)**

### 3.1.2.3 Assessment procedures

Measurements of baseline performance and progress for students' sight-word reading skills in all groups were taken against the NLS Reception (45 words), Years 1 to 2 (163 words) which includes the names of the days of the week, the twelve months, numbers from zero to twenty and ten common colour names, and Years 4 and 5 (124 words) high-frequency word lists taken directly from *The National Literacy Strategy: framework for teaching* (DfEE, 1998; pp. 60-63). These lists were split up into three corresponding sections for administration during the study (Lists 1, 2 and 3). In total 332 words make up these lists which are described in the NLS guidance materials as:

*…essential high frequency words, which the pupil will need to handle even very simple texts. These words usually play an important part in holding together the general coherence of texts and early familiarity with them will help pupils get pace and accuracy into their reading at an early stage.* (DfEE, 1998, p. 60)

With regard to the first two lists of words (Reception and Years 1 to 2), the guidance states that:

*By the end of Year 2 pupils should be able to read all these words easily in and out of context.* (DfEE, 1998, p. 60)

In relation to the final list used, intended for pupils in Years 4 and 5, the guidance points out that:

*Teachers should expect many Y4 pupils to have little or no difficulty reading most of the words below* (DfEE, 1998, p. 62)

These words formed the content of what is termed as the 'reading accuracy measure' (RAM) assessment throughout the research. Each RAM took place individually with each participating student during school site visits by the researcher at specified periods across the school terms (see Table 4 and Table 5 below). During every RAM assessment each participant was asked to read the words from an A4 printed booklet (see Appendix 3.1.5) while the researcher marked their responses as either correct or incorrect. These measures were not only used to demonstrate skill levels (i.e. number of words read correctly) before and after PT intervention, but also formed the basis of the curriculum (a 'PT programme plan') to be undertaken through PT sessions. Each PT programme plan was comprised of six lists of six words formed from the next words read incorrectly from the preceding RAM assessment (see Appendix 3.1.6 for the programme plan pro-forma). Additional content (i.e. six item word lists) for further PT programmes were made available from the researcher if necessary.

Alongside the RAM each student also completed Burden's (1998a) *Myself as a Learner Scale* (MALS) test to provide a single measure of their self-image as a learner or ASC across the project producing a score ranging from 20 to 100. In the MALS standardisation sample of 389 secondary aged boys and girls, the average score range was 60 to 82 (Burden, 1998a). The key research activities undertaken on school sites relating to students in Cohort 1 (during terms 1 and 2) are outlined in Table 4 below. The occasions at which each assessment (RAM and MALS) was undertaken for the students in Cohort 1 are referred to as **'pre'** (September 2007), **'mid'** (October or November 2007) and **'post'** (December 2007) measures. The cells in the table are shaded in the following format corresponding to timing of each of the respective measures: 'pre' shaded pink, 'mid' shaded orange and 'post' shaded blue.

| ***School site visit dates*** | **Group A** | **Group B** |
|---|---|---|
| ***4th -7th Sept 2007*** | **Pre-measure** (via RAM and MALS administration) taken and PT programme plan developed | **Pre-measure** (via RAM and MALS administration) taken |
| ***30th Oct-2nd Nov 2007*** | **Mid-measure** (via RAM and MALS administration) allowing a review of progress following 6 weeks of PT intervention | **Mid-measure** (via RAM and MALS administration) allowing a review of progress without intervention to date and PT programme plan developed |
| ***17th-19th Dec 2007*** | **Post-measure** (via RAM and MALS administration) allowing a review of progress without PT intervention for 7 weeks | **Post-measure** (via RAM and MALS administration) allowing a review of progress following 5 weeks of PT intervention |

**Table 4: Research activities undertaken during school site visits for Cohort 1**

In addition to the assessment procedures outlined above for Cohort 1, research activities for students in Cohort 2 were supplemented by an increase in the range and frequency of measures taken. Firstly, an additional measure of reading skill development was taken for

students in Cohort 2 through the use of a standardised word reading test (i.e. Wechsler Individual Achievement Test – WIAT II UK; Wechsler, 2005). This test, suitable for primary and secondary aged children, provided a 'raw score' (from 0-131) and a norm-referenced measure (i.e. a 'reading age' from 4 years to 16 years of age) undertaken to sample students' word reading skills more broadly than solely through the RAM. Secondly, as a further point of comparison for students in Cohort 2, 'follow-up' word reading skill measures using the RAM and the WIAT II UK were also taken for all participants in July 2008 to monitor the development of their word reading skills on a longer-term basis. In effect these measures followed a further, extended period of 'usual teaching arrangements' (i.e. UTA) for all students in Cohort 2 as it was agreed with each school that no further intervention outside their regular curricula arrangements would be offered until the new school year commenced in September 2008.

In the same style as Cohort 1, the occasions at which each assessment (RAM, WIAT II UK and MALS) was undertaken for students in Cohort 2 (during terms 3 and 4) are referred to as **'pre-'** (January 2008), **'mid-'** (February 2008), **'post-'** (April 2008) and **'follow-up'** measures (July 2008). The cells in the table below are shaded in the following format corresponding to timing of each of the respective measures: 'pre' shaded pink, 'mid' shaded orange, 'post' shaded blue and 'follow-up' shaded white. The research activities undertaken on school sites for Cohort 2 were:

| ***School site visit dates*** | **Group C** | **Group D** |
|---|---|---|
| ***2nd-4th Jan 2008*** | **Pre-measure** (via RAM, WIAT II UK and MALS administration) taken and PT programme plan developed | **Pre-measure** (via RAM, WIAT II UK and MALS administration) taken |
| ***18th- 22nd Feb 2008*** | **Mid-measure** (via RAM, WIAT II UK and MALS administration) allowing a review of progress following 5 weeks of PT intervention | **Mid-measure** (via RAM, WIAT II UK and MALS administration) allowing a review of progress without intervention to date and PT programme plan developed |
| ***1st-4th April 2008*** | **Post-measure** (via RAM, WIAT II UK and MALS administration) allowing a review of progress without PT intervention for 6 weeks | **Post-measure** (via RAM, WIAT II UK and MALS administration) allowing a review of progress following 5 weeks of PT intervention |

| | |
|---|---|
| *7th-11th July 2008* | **Follow-up** RAM and WIAT II UK assessments for Cohort 2 |

**Table 5: Research activities undertaken during school site visits for Cohort 2**

As a summary, Table 6 (see below) is presented showing the combination of intervention and assessment activities undertaken across the project relevant to Aspect One. This represents a synthesis of tables 1, 4 and 5 presented above.

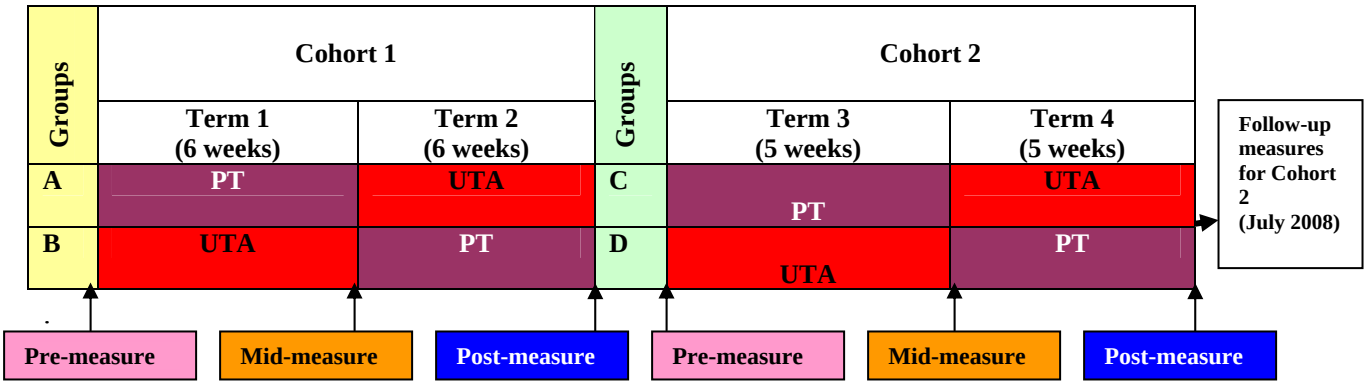



**Table 6: Intervention and assessment arrangements for all Cohorts/Groups**

### 3.1.2.4 Intervention procedures

Those receiving PT intervention experienced daily sessions involving the *'teach-test-chart-review'* procedure from a TA focussing on lists of initially six words (each list representing the 'curricular content' for a single PT programme) based on errors from the RAM conducted by the researcher just prior to their PT intervention period. Only one PT programme was undertaken at a time, with each TA starting each new programme with the *'model-lead-test-review'* teaching procedure focussing only on words from the current programme. The focus of the daily sessions was to build accurate and fluent word

reading, and so all TAs were permitted to adapt their teaching and make other interventions in line with their assessments of each student's progress as the sessions continued. All TAs were required to record the details of their teaching methods and any other interventions they implemented during each session using specific codes (detailed later) on specified record sheets (see Appendix 4.2.1 and 4.2.6.2). After a short teaching input (*'teach'*) lasting up to five minutes for each daily session the students' progress on the words taught were measured in terms of accuracy and fluency using a daily 'probe' (*'test'*) of one minute, with the number of correct and incorrect responses being recorded on an SCC (*'chart'*) and immediately relayed to the student for discussion regarding present progress and the next steps to take (*'review'*). Students receiving PT intervention did not move on to the next new programme until they had demonstrated meeting minimum accuracy and fluency *success criteria** (i.e. achieving at least fifty correct responses per minute with three or less errors over three consecutive sessions) on their current programme. Following success on three separate PT programmes the students were presented with a review-programme (or 'mixed probe') comprised of all words 'mastered' in the previous three. These review programmes were carried out in the same format as all those previously delivered and only ceased when the minimum success criteria* were met.

#### 3.1.2.5 'Support' procedures

As noted earlier, 'support sessions' were held for all TAs involved at specified times throughout the project. These sessions allowed for general discussion and any questions or queries to be responded to by the researcher in an effort to maintain consistency in PT

practice across schools. They also acted to reinforce the content of the initial training received by the TAs and the use of any further materials provided. The sessions were held twice in each school with their respective TAs and twice centrally for all eight TAs to attend during the initiative. All school-based support sessions followed an observation of each TA conducting a PT session (i.e. PT Practice Observation - PTPO) with one student to ensure the sessions were being carried out in the planned format. This was a planned step to ensure consistency in practice and so contribute to confidence in 'intervention fidelity'. A summary of the findings from the sixteen PTPOs are presented in the following chapter and Appendix 4.1.1 and 4.1.2. The dates for these PTPOs and support sessions are outlined in Table 7 below:

| School | Date of PTPO & School-based support session 1 | Date of central-base support session 1 | Date of PTPO & School-based support session 2 | Date of central-base support session 2 |
|---|---|---|---|---|
| 1 | 17th Sept 2007 | 5th Nov 2007 | 19th Feb 2008 | 19th Mar 2008 |
| 2 | 17th Sept 2007 | | 18th Feb 2008 | |
| 3 | 17th Sept 2007 | | 18th Feb 2008 | |
| 4 | 18th Sept 2007 | | 18th Feb 2008 | |
| 5 | 18th Sept 2007 | | 19th Feb 2008 | |

**Table 7: Dates of PT practice observations (PTPOs) and support sessions held**

The key points of discussion covered in all support sessions were recorded by the researcher using a structured 'support session' pro-forma (see Appendix 4.3.1), and a summative record of the discussions held during each session can be found in Appendix 4.3.2. In addition to supporting TA practice in schools using the formats and procedures agreed by the researcher, information obtained from these sessions was also used to contribute to the findings presented within Aspect Three of the research as some of the

issues and comments related to the professional development and practice of the TAs as they progressed through the project.

### 3.1.3 Analysis of findings

The *Statistical Package for the Social Sciences* (SPSS) version 13 (SPSS Inc., 2004) was utilised for the analysis of the data gathered within this aspect of the study. Initially, all of the data produced from the RAM, MALS and WIAT II UK assessments was explored through descriptive statistics and measures of normality, and then subjected to 'within' and 'between' group statistical analysis as dictated by the 'normality' of the data to offer a range of comparisons pertinent to Research Questions 1 and 2 stated at the beginning of this chapter. The findings from these analyses are presented in the following chapter under the headings of each of the two research questions. The data available for comparison across the different cohorts was as follows:

- RAM and MALS assessments for Cohort 1
- RAM, MALS and WIAT II UK assessments for Cohort 2

## 3.2 Aspect Two

### 3.2.1 Research overview and design

The second broad aim of the research was to draw on the activities undertaken by school staff (TAs) in Aspect One by investigating the changes they made to PT programmes: from here a framework for systematic teaching adaptations was formulated and then

trialled in the second phase of the project during terms 3 and 4 involving Groups C and D (Cohort 2). In this way this aspect can be seen to have two phases allowing for development, implementation and refinement of a framework for PT practice. This second aim relates to the three key research questions outlined earlier (p. 63).

In responding to these questions, the second aspect of the study can be seen as distinct from the first through the adoption of an 'action-research' methodology (Argyris et al., 1985; Lewin, 1946; Wilkinson, 1996). This was undertaken through the use of semi-structured interviews with all participating TAs coupled with inspection and discussion of their records regarding the changes they made to daily PT programmes throughout delivery. Through a 'grounded' approach (Glaser and Strauss, 1967), the data gathered from interviews and coded records regarding PT sessions with Group A (time factors did not allow the inclusion of findings from Group B) was drawn together to formulate an intervention framework for implementation by staff during the second iteration of the quasi-experimental design element (i.e. with Cohort 2). This collaborative, cyclical model of research is broadly consistent with most published work on action-research methodology (e.g. Bassey, 1998; Kemmis & Wilkinson, 1998). Robson (2005) describes it in the following way:

*This involves planning a change, acting and then observing what happens following the change, reflecting on these processes and consequences; and then planning further action and repeating the action* (Robson, 2005, p. 217).

The details of the methods and procedures employed within this action-research methodology are outlined below.

### 3.2.2 Participants, procedure, methods and analysis

#### 3.2.2.1 Participants

Eight TAs took part in the project across the five schools involved. In order to maintain their anonymity each of them was given a numerical code (i.e. TA1-TA8). The table below (8) provides a brief summary of the all the TAs involved and their respective schools and type of setting:

| School (Type: mainstream or special school) | Number of TAs | TA codes |
|---|---|---|
| 1 (mainstream) | 2 | 1, 2 |
| 2 (special) | 1 | 3 |
| 3 (special) | 3 | 4, 5, 6 |
| 4 (mainstream) | 1 | 7 |
| 5 (mainstream) | 1 | 8 |

**Table 8: Number of TA participants and respective schools**

The TAs involved were all female and varied in terms of their lengths of experience as a TA, academic qualifications, career or educational aspirations and the courses or qualifications they were undertaking at the time of the project. These details were collected at the end of the project following the main body of the final interviews (9-16) using the 'Participant Information Record' (PIR). A summary of the profile of the TA participant group can be found in Chapter 4 within the findings for Aspect Three.

Individual TA details can be found at the end of their respective interview transcripts (9-16) in Appendix 4.2.11.

#### 3.2.2.2 Procedure, methods and analysis (Phase 1)

For the first phase of this aspect of the research all TAs were asked to keep a record of the changes they made to each PT programme alongside the SCC charts on a PT record sheet (see Appendix 4.2.1) as standard practice. To do this, the areas for programme adaptation suggested by Solity & Bull (1987, pp. 133-137) were coded against following each daily PT session on the record sheet. These were:

- Changes to the sequence of tasks or skills (Code 1)
- Changes to task or skill slices (Code 2)
- Changes to the teaching approach (Code 3)
- Increasing motivation (Code 4)

Analysis of the coded changes recorded by each TA for students in Group A occurred at the end of term 1. This took the form of 'frequency counts' of the different codes and their sequence across successful PT programmes. An analysis of programme duration was also undertaken and combined with an inspection of the most frequent code use across programme sessions to provide the initial basis of a framework to be implemented in the second phase of the study (terms 3 and 4). Following this data analysis, printed summaries of the coded changes made by each TA were prepared as a reference

document for use within the interviews held with each TA during term 2 to illuminate further the changes that were undertaken.

The use of a semi-structured interview process within this aspect provided an appropriate format to obtain relevant information on the research questions based on the experiences of the TAs and their coded data without being overly restrictive. Given the connections with the coded 'changes' element, the interview procedure needed to be capable of recognising and responding to the individuality of each participant's experiences while maintaining focus on the key topics (Powney & Watts, 1987; Robson, 2005). The provision of 'prompts' and lack of timing restrictions within a semi-structured approach allowed for individual experiences and other serendipitous information to surface that might otherwise have remained unearthed within more restrictive interview models. This first round of interviews was carried out on the days noted in Table 9:

| School | Interview number | TA/s involved (TA code) | Interview date |
|---|---|---|---|
| 1 | 1, 2 | 1, 2 | 5th and 6th November 2008 |
| 2 | 3 | 3 | 6th November 2008 |
| 3 | 4, 5, 6 | 4, 5, 6 | 7th and 8th November 2008 |
| 4 | 7 | 7 | 5th November 2008 |
| 5 | 8 | 8 | 8th November 2008 |

**Table 9: Schedule for all interviews for each TA in each school held in term 2**

Given the summaries of each TA's respective coding records for their work with students in Group A, four key topics were investigated within interview. These were covered through discussion of:

- *utility of the current coding record sheet*
- *how decisions about adaptations were made*
- *discussion of summarised coded data provided regarding the frequency and sequence of different teaching adaptations*
- *the nature of teaching adaptations made by staff to improve student performance*
- *those teaching adaptations that appear most efficacious*

See Appendix 4.2.2 for the full interview procedure and question structure.

The TAs' responses to the interview questions were interrogated using a 'thematic analysis' (Boyatzis, 1998; Braun & Clarke, 2006; Tuckett, 2005). Responses to the specific questions were grouped thematically according to shared clusters of meaning across all eight interviewees. These shared clusters of meaning generated 'primary themes' that were quantified in terms of their frequency of response to each question. On occasions these primary themes were elaborated upon by interviewees, generating a range of distinct elaborative themes within the broader primary theme. Again, within each primary theme, these elaborations were quantified in terms of their frequency: all themes were tabulated collectively to represent an overview of responses to the entire interview across all interviewees.

From this analysis the emerging data was then compared across schools to seek patterns of consensus in the practice of making teaching adaptations at different stages of each

programme. As in a grounded model of research, these themes were then drawn together with the findings from the coded record sheets to formulate an initial model or, as it is referred to within this study, a ***'framework for the systematic adaptation of teaching interventions' (FSATI)*** to be implemented with Groups C and D as the second phase of Aspect Two. This newly developed framework consisted of a 'flowchart', a guidance document (referring to principles and practice) and a revised record sheet to be used to monitor interventions (see Appendix 4.2.6).

**3.2.2.3 Procedure, methods and analysis (Phase 2)**

Evaluation of this framework through further semi-structured interviews and inspection of the written records of changes made on the FSATI Record sheet (see Appendix 4.2.6.2) took place following the cessation of PT programmes after term 4 in 2008 in order to formulate a refined version. The initial framework, FSATI, and accompanying record sheet implemented with students in Cohort 2 allowed greater specificity in the recording of different adaptations made by the TAs. On this occasion, records of changes to programmes related to these codes:

- **Code 1** represented a 'change to the sequence of tasks' (i.e. reordering words from PT programme plan lists)
- **Code 2** represented a 'change to task size' (i.e. increasing or decreasing the number of items taught)
- **Code 3** represented a 'change to teaching arrangements', subdivided into four specific codes: changes to instructional procedures (i.e. moving from accuracy to

fluency building activities) – **code 3a**; changes to organisational arrangements (i.e. timing of sessions, duration of daily intervention) – **code 3b**; changes to teaching materials (e.g. size and type of materials) – **code 3c**; changes to teaching activities (e.g. variety of 'games' utilised) – **code 3d**

- **Code 4** represented interventions to 'increase student engagement', subdivided into four specific codes (recognition of positive task-related behaviours, e.g. improvements in accuracy and/or fluency, observed effort during PT sessions or programme completion) – **code 4a**; recognition of personal commitment to the intervention (e.g. regular attendance and punctuality, additional practice at home) – **code 4b**; interventions to develop relationships with student using more personalised approaches (such as discussions in response to mood or disposition) – **code 4c**; consultation about other aspects of the PT intervention to encourage student engagement (such as teaching approach, task expectations, task objectives and task sequence) – **code 4d**)

In order to examine consistency of this particular area of practice, a check for the reliability of the reported codes was undertaken generating a 'Reliability of Recording Measure' (RRM). The need for consideration of this issue was also raised by one participant (TA7 in Interview 7) in response to Question 2a in the first round of interviews held during term 2 (see Chapter 5, p. 140). So one TA from each school was asked to record their PT session with one student using an audio tape recorder for a whole week (five consecutive daily sessions) for a student in either Group C or D, while still reporting the changes implemented on the FSATI record sheets in the usual way. These

taped recordings were submitted to the researcher at the end of term 4 with all of the completed record sheets for Groups C and D. The tape recordings were 'blind-marked' (without reference to the TAs' actual record sheets) by the researcher in terms of examples of the ten codes allowed within the FSATI. TAs were required to only record each code once on the record sheet, even if that change or programme adaptation was used more than once during a session. This was stressed in the FSATI Guidance document:

*In the interest of practicality, each change code is only required to be entered once for each daily session on the sheet to confirm implementation despite possible repeated use* (see Appendix 4.2.6.1).

Hence, for the purpose of comparison the presence of one recorded code on the record sheet was seen as an accurate record even if in practice (via the audio-recording) it was used on more than one occasion. Furthermore, it was also planned that if any other interventions outside the four FSATI codes were audible in the taped sessions, they would also be recorded by the researcher as potentially useful to the planned revision of the framework. In such cases it was planned that action outside the four codes would be specified giving examples of the statements used. Comparisons of the consistency of the recorded codes between 1) recorded practice (as noted by the TAs on the standard FSATI record sheets) and 2) the audio recordings, are presented in the following chapter. The recordings involved the following participants and took place across the following weeks:

| School | TAs involved (TA code) | Student recorded (Student code and Group) | Audio recording number | Date of recording (week beginning) |
|---|---|---|---|---|
| 1 | 1 | 33 (C) | 1, 2, 3, 4, 5 | 7th January 2008 |
| 2 | 3 | 39 (C) | 6, 7, 8, 9, 10 | 7th January 2008 |
| 3 | 4 | 47 (C) | 11, 12, 13, 14, 15 | 7th January 2008 |
| 4 | 7 | 75 (D) | 16, 17, 18, 19, 20 | 22nd May 2008 |
| 5 | 8 | 81 (D) | 21, 22, 23, 24, 25 | 22nd May 2008 |

**Table 10: Details of participants and dates of audio-recordings used to generate a 'Reliability of Recording Measure' (RRM).**

As for the first term, analysis of the recorded codes (collected for Group C and D) at the end of term 4 was completed in summary form for each TA in each school. This took the form of 'frequency counts' of the different codes and their sequence across completed PT programmes. An analysis of programme duration was also undertaken and combined with an inspection of the most frequent code use across programme sessions to provide the basis of a revised framework (FSATI version 2) presented in the subsequent chapter. Following this data analysis, printed summaries of the coded changes made by each TA were again prepared as an important point of reference within the final interviews held with each TA in each school at the end of the entire project to illuminate any further revisions for the second version of the FSATI. The interview questions focussing on this review of the framework were completed on the same day as those relating to a review of TAs' 'professional learning' for Aspect Three of the study (described below). In this way, questions relating to the FSATI formed 'Part 1' of the final interviews for each TA held during term 5 of the study (see Appendix 4.2.10). These interviews were carried out on the following days, as presented in Table 11 (see below):

| School | Interview number | TA/s involved (TA code) | Interview date |
|---|---|---|---|
| 1 | 9, 10 | 1, 2 | 7th May 2008 |
| 2 | 11, | 3 | 16th May 2008 |
| 3 | 12, 13, 14 | 4, 5, 6 | 20th May 2008 |
| 4 | 15 | 7 | 29th April 2008 |
| 5 | 16 | 8 | 29th April 2008 |

**Table 11: Schedule for all final interviews for each TA in each school**

Topics investigated within this second round of interviews included:

- *utility of the newly developed framework, guidance and record sheet*
- *how decisions about adaptations were made*
- *the nature of teaching adaptations made by staff to improve student performance*
- *those teaching adaptations that appear more or less efficacious*

As for the initial set of interviews held in term 2, the same thematic analysis procedure was undertaken for TAs' responses. Alongside the coded data provided, the interviews provided evidence on which to develop the second version of the FSATI.

## 3.3 Aspect Three

### 3.3.1 Research overview

The last element of the research focussed on drawing on the experiences of school staff throughout the entire project in terms of it representing a form of continuing professional

development (CPD). Given the experience of those school staff participating in the project including the support offered to all TAs (i.e. initial training and 'support sessions' delivered by the researcher throughout the project) this aspect aimed to illuminate TAs' reflections on the development of their thinking around effective 'teaching and learning'. This final aspect of the research adopted an approach to enquiry that is referred to in the literature as *'reflective practice'* (Burden, 1998c; Schon, 1991), or a form of *'illuminative evaluation'* (Parlett & Hamilton, 1972). Burden (1998c) outlines the idea underpinning this approach:

*The basic idea was simple: evaluation studies should throw light on what was going on; traditional experimental designs did not allow this to happen.* (p. 15)

In this vein, Parlett (1981) highlights the reflective element that illuminative approaches to research can emphasise:

*Its tenets, methods and operating styles derive from cumulative practice and from reflecting, after each study, on what happened, went wrong and went right*. (Parlett, 1981, p. 219)

The following section outlines the operationalisation of an illuminative methodology though the use of 'retrospective' semi-structured interviews with all eight school staff involved.

### 3.3.2 Participants, procedure, methods and analysis

As a series of 'case studies' all eight TAs involved with the project were interviewed during term 5 of the study using a semi-structured interview aimed at investigating developments in their understandings surrounding processes and/or practices involved with 'teaching and learning'. The interview questions for each TA focussing on this aspect were completed on the same day as those relating to a review of the FSATI for Aspect Two, and so formed 'Part 2' of the final interviews for each TA in term 5 (i.e. Interviews 9-16 - see Appendix 4.2.10). As noted earlier these interviews were held on the following dates:

| School | Interview number | TA/s involved (TA code) | Interview date |
|---|---|---|---|
| 1 | 9, 10 | 1, 2 | 7th May 2008 |
| 2 | 11, | 3 | 16th May 2008 |
| 3 | 12, 13, 14 | 4, 5, 6 | 20th May 2008 |
| 4 | 15 | 7 | 29th April 2008 |
| 5 | 16 | 8 | 29th April 2008 |

**Table 12: Schedule for all final interviews for each TA in each school**

The 'profile' (e.g. sex, work experiences, qualifications and career aspirations) of this participant group obtained via the PIRs (Personal Information Records) is summarised in the following chapter within the findings for Aspect Three.

The information from these interviews formed a retrospective account of personal professional development for each participant. Questions 8 and 9 in this section of the interview covered two key topics for investigation (i.e. developments in understanding of

teaching and learning and developments in personal practice), and these were supplemented with a series of two optional prompts. The first prompt (Questions 8b and 9b) afforded the researcher the opportunity to stimulate elaboration on any pertinent, initial comments made by the interviewee. The second prompt (Questions 8c and 9c) presented the researcher with the option to directly guide the interviewee to comment on a specific area linked with effective teaching and learning in the form of formative assessment practices; this was only offered if the interviewee had not mentioned it in some way at an earlier stage of the interview. In this way Part 2 of these interviews allowed a direct focus on TAs' professional learning with a leaning toward some of the key strands of formative assessment practice highlighted in the literature (e.g. Black & Wiliam, 1998a; Cowie & Bell, 1999; James, 2007). This included:

- *how teaching affects learning and vice versa*
- *dialogue with students and use of questioning*
- *giving appropriate feedback*
- *sharing criteria with learners*
- *use of pupil self-assessment techniques*
- *use of information from students' previous work*
- *noticing and acting on the emotional content of the learning situation*

The responses obtained from interviews were analysed in the same manner as those for Aspect Two. The emergence of primary and elaborative themes allowed reflection on the general impact of the initiative in terms of the development of TA thinking around

aspects of teaching and learning. In order to add to the findings from the interviews, reference was also made to the notes from the 'support sessions' held on school sites and at a central-base throughout the four-school-term project. Again, these notes were analysed in terms of emerging themes at different stages of the initiative in order to highlight any progression on a project-wide basis in addition to reported examples of TAs' professional development gleaned from the final individual interviews.

## 3.4 Time scales & schedule

As outlined in depth above, the key research activities undertaken, participants groups involved and the school terms within which they occurred are set out in Table 13 (see below). The precise dates on which all activities were undertaken are outlined in earlier sections of this chapter.

| *Terms* | **Aspect One**<br>**Participants:**<br>**Students** | **Aspect Two**<br>**Participants:**<br>**Teaching Assistants** | **Aspect Three**<br>**Participants:**<br>**Teaching Assistants** |
|---|---|---|---|
| ***1*** | - Cohort 1 (Groups A and B) - RAM / MALS assessments.<br>- PTPOs (1-8). | - TAs complete PT record sheets. | - School-based support sessions attended and notes taken by researcher. |
| ***2*** | - Cohort 1 (Groups A and B) - RAM / MALS assessments. | - Collation and analysis of coded responses from PT record sheets for programmes completed in Term 1.<br>- Interviews (1-8) with TAs regarding PT practice and codings. | - Central-base support sessions attended and notes taken by researcher. |
| Production of ***Framework for the systematic adaptation of teaching interventions (FSATI)*** | | | |
| ***3*** | - Cohort 2 (Groups C and D)- RAM / MALS / WIAT II (UK) assessments. | - TAs use FSATI within PT intervention for Group C.<br>- Data for RRM collected. | |
| ***4*** | - Cohort 2 (Groups C and D)– RAM / MALS / WIAT II (UK) assessments.<br>- PTPOs (9-16) | - TAs use FSATI within PT intervention for Group D.<br>- Data for RRM collected. | - School and central-base support sessions attended and notes taken by researcher. |
| **Cessation of all PT programmes within PPTP** | | | |
| ***5*** | | - Collation and analysis of coded responses from FSATI record sheets for programmes completed in Term 3 and 4 using the FSATI.<br>- Interviews (9-16) with TAs regarding the FSATI. | - Interviews (9-16) with TAs regarding developments in thinking and practice surrounding 'teaching and learning'.<br>- Completion of the PIR. |
| Production of ***Framework for the systematic adaptation of teaching interventions (FSATI) version 2*** | | | |
| ***6*** | Cohort 2 (Groups C and D)- WIAT II (UK) and RAM assessments. | | |

**The following abbreviations are used in Table 3.4.1:**

| | |
|---|---|
| FSATI | Framework for the Systematic Adaptation of Teaching Interventions |
| MALS | Myself As a Learner Scale |
| PIR | Participant Information Record |
| PPTP | Plymouth Precision Teaching Project |
| PT | Precision Teaching |
| PTPOs | Precision Teaching Practice Observations |
| RAM | Reading Accuracy Measure |
| RRM | Reliability of Recording Measure |
| WIAT II UK | Wechsler Individual Achievement Test Version 2 UK Edition |

**Table 13: Time-schedule and participants for research activities for Aspects One, Two and Three**

## 3.5 Ethical considerations

It is essential that any research is undertaken in accordance with relevant ethical guidelines. Given the psychological and educational nature of the research, this study is bound by the key principles and practice implications derived from the following two documents:

- Code of Conduct, Ethical Principles and Guidelines of the British Psychological Society (BPS, 2000)
- Revised Ethical Guidelines for Educational Research (BERA, 2004)

With these in mind, it was the intention that the project was undertaken within a spirit of openness and honesty. Attention was paid to ensure that the informed consent of children and young people was obtained (supported with parent/carer consent) and that they had the right to withdraw. Denscombe and Aubrook (1992) note with reference to research carried out with school children that:

*…researchers who wish to retain ethical integrity will need to take positive steps to ensure, as far as is possible, that pupils are not only formally free to decline to participate but feel free to say no* (p. 130).

With particular regard to the need for informed consent, approval for participation for each student was confirmed by each school through the completion of a permission slip by each student's parent/carer which was discussed with each student by the school SENCO and returned to the school prior to the start of the initiative (see Appendix 3.1.7). A verbal agreement for involvement was also obtained for each TA in each school at this early stage. As part of this informed consent process it was stressed that, at any point, the student or TA involved could withdraw from the initiative should they so wish. A full description of the initiative was offered to each student and TA before they commenced direct involvement, and their 'right to withdrawal' was also emphasised again at that point.

The data collected throughout the project was anonymised following collection, with staff and students being made aware that they were able to inspect their respective data in its raw or collated form at any point. All of the results from the study across all schools were reported anonymously through the use of numerical codes relating to each school and participant.

In order to fulfil the need for researchers to '*debrief participants at the conclusion of their research'* (BERA, 2004, p. 10), key findings relating to individuals and the project as a whole were fed back to school staff groups, parents/carers and students through various means in line with their requirements (e.g. letters followed by individual meetings for each student and group discussions with staff - see Appendix 3.1.8 and 3.1.9 for parent/carer and student 'debriefing' letter templates which were copied to each school

SENCO when completed). A presentation was also made to all school staff involved and members of each school's senior management team in June 2008 (see Appendix 3.1.10).

Furthermore, in order to address the need to *'employ methods that are fit for the purpose of the research'* (BERA, 2004, p. 11), full details of methodology and methods to be employed, the treatment methods for the data gathered and the presentation of anonymised data to University staff supervising this study emphasise that this research was open to inspection at appropriate levels throughout its development and delivery.

## 3.6 Chapters 4, 5 and 6: outcomes and findings for Aspects One, Two and Three

For the purposes of readability the following three chapters are presented, each relating to the three aspects of the study in turn. Chapter 4 relates to Aspect One of the research and focusses on Research Questions 1 and 2:

***Research Question 1***. *'Do secondary school students with reading difficulties receiving a PT intervention out-perform those receiving usual teaching arrangements with regard to the development of their word reading skills?'*

***Research Question 2***. *'Do secondary school students with reading difficulties receiving a PT intervention out-perform those receiving usual teaching arrangements regarding reported levels of academic self-concept?'*

Chapter 5 considers the information gathered in relation to Aspect Two, which targets Research Questions 3, 4 and 5:

***Research Question 3***. *'What are the precise teaching adaptations made by staff to improve student performance toward defined success criteria within PT programmes?'*

***Research Question 4***. *'Is there an order in which these adaptations are made that is more efficacious?'*

***Research Question 5***. *'What will be included in a structured framework for teaching adaptations, and how useful is it in practice?'*

Finally, the findings for Aspect Three are covered in Chapter 6, focussing on Research Question 6:

***Research Question 6***. *'In what ways have TAs involved in the project improved their understanding of the processes and practices surrounding teaching and learning?'*

# CHAPTER 4

## Aspect One: Outcomes & Findings

### 4.0 Introduction

This chapter reports the work carried out in relation to Aspect One of the study, focussing on the first two research questions stated in the previous chapter:

- ***Research Question 1***. *'Do secondary school students with reading difficulties receiving a PT intervention out-perform those receiving usual teaching arrangements with regard to the development of their word reading skills?'*
- ***Research Question 2***. *'Do secondary school students with reading difficulties receiving a PT intervention out-perform those receiving usual teaching arrangements regarding reported levels of academic self-concept?'*

This chapter begins with an overview of the findings from the Precision Teaching Practice Observations (PTPOs) as a measure of the consistency in which PT interventions had been carried out during specified periods of the study. Following this the results pertinent to Aspect One are analysed and arranged in line with ***Research Questions 1*** and ***2***: this provides information on the performance of seventy-seven student participants with regard to the development of their sight-word reading skills and their reported levels of academic self-concept. To do this an analysis of the results of the administration of the

Reading Accuracy Measure (RAM), a standardised word reading test (WIAT II UK) and the Myself as a Learner Scale (MALS) is undertaken.

## 4.1 PT practice observations (PTPOs)

Among other steps taken to promote and monitor the fidelity of PT interventions, observations of each TA conducting a PT session with one student were conducted for eight students in Cohort 1 (September 2007) and eight in Cohort 2 (May 2008). Each session was observed to ensure the key elements of PT practice were being undertaken in line with the project agreements at that particular phase. The findings from all these observations indicated that all TAs conducted the sessions in the agreed format (see Appendix 4.1.1 for PTPOs 1-8 and Appendix 4.1.2 for PTPOs 9-16). As a further point of consistency across both phases, all TAs documented on the record sheets that they began teaching new programmes in the recommended way using the model-lead-test-review (MLTR) teaching procedure (see Table 25 on p. 131 and Appendices 4.2.4 and 4.2.8).

## 4.2 Presentation and analysis of the data (terminology used)

The following sections provide description of the analysis of the data collected under Aspect One using the *Statistical Package for the Social Sciences* (SPSS) version 13 (SPSS Inc., 2004). A glossary of the terminology used within the SPSS computations for the key variables analysed within this section can be found in Appendix 4.1.20.

## 4.3 Participant profile

Data representing the profile of the student participants involved with the study across the four groups is presented in Table 14 (see below).

| | **Group A N=14 (Cohort 1)** | **Group B N=13 (Cohort 1)** | **Group C N=27 (Cohort 2)** | **Group D N=23 (Cohort 2)** | **All participants N=77 (Cohorts 1 and 2)** |
|---|---|---|---|---|---|
| **Mean Age** | 13 years 5 months | 14 years 1 month | 13 years 7 months | 13 years 2 months | 13 years 6 months |
| **Sex** | Male (43%) Female (57%) | Male (77%) Female (23%) | Male (67%) Female (33%) | Male (83%) Female (17%) | Male (69%) Female (31%) |
| **School Type** | Mainstream (50%) Special (50%) | Mainstream (62%) Special (38%) | Mainstream (30%) Special 70%) | Mainstream (35%) Special (65%) | Mainstream (40%) Special (60%) |

**Table 14: Profile of participants across both cohorts**

Seventy-seven students participated in the study: fifty-three were male (69%) and twenty-four were female (31%). With the exception of Group A, inspection of the table reveals a similar balance of male to female students in line with the overall proportions participating in the research. The mean age of all participants as measured as they commenced entry to the project (i.e. September 2007 for Cohort 1 and January 2008 for Cohort 2) was 13 years 6 months. An analysis of the distribution of the data relating to the age of the students within-groups using the *Shapiro-Wilks* (S-W) test revealed the data to not be significantly non-normal ($p > 0.05$; see Appendix 4.1.3 for full test data). A one-way between-subjects *analysis of variance* (ANOVA) test did not find a statistically significant difference between the ages of participants between-groups

($F(3,73) = 1.103$, *ns*, partial $\eta^2 = 0.43$ - see Appendix 4.1.4 for test data). This finding strengthens an assertion that participants' ages between-groups were comparable.

## 4.4 Research Question 1: 'Do secondary students with reading difficulties receiving a PT intervention out-perform those receiving usual teaching arrangements with regard to the development of their word reading skills?'

In response to the above question, the following analysis of the assessment results sampling students' word reading skills is presented. Analysis of the RAM and WIAT II UK data for Cohorts 1 and 2 is presented in turn.

### 4.4.1 Data from the reading accuracy measure (RAM) – Cohort 1

The individual scores achieved by all students on the series of RAM assessments can be found in Appendix 4.1.5. To establish the normality of the RAM data within-groups for Cohort 1 the S-W test was undertaken coupled with inspection of the associated Histograms and Q-Q plots to examine the skewness of the data. It was concluded that the groups of data were broadly non-normal (see Appendix 4.1.6 for test data) and so non-parametric methods of data analysis were employed.

The median scores achieved by each group in Cohort 1 on the RAM assessment at the three different points of measurement are presented in Table 15 (see below). Consistent with previous presentations of the arrangement of the research activities (i.e. Tables 4, 5 and 6 in Chapter 3), the columns in the table below are shaded in the following format corresponding to the timing of each of the respective measures: 'pre-' shaded pink, 'mid-' shaded orange and 'post-' shaded blue. Additionally, between the columns for the pre- and mid-measures and the mid- and post-measures, the treatments received by each group during these periods are indicated using abbreviated terms and coloured cells: 'precision teaching' (PT, shaded purple) or 'usual teaching arrangements' (UTA, shaded red). For those RAMs taken after the pre-measure the difference in RAM scores compared to the previous assessment are presented in brackets alongside:

| | | **Pre-measure** | **Treatment between measures** | **Mid-measure** | **Treatment between measures** | **Post-measure** |
|---|---|---|---|---|---|---|
| **Cohort 1** | Group A (n=14) | 81.5 | **PT** | 106.5 (+25) | **UTA** | 170 (+63.5) |
| | Group B (n=13) | 68 | **UTA** | 96 (+28) | **PT** | 141 (+45) |

**Table 15: Median scores for all groups in Cohort 1 on RAM assessments**

The data highlights that both groups made steady progress in their sight-word reading skills as measured by the RAM across the project. At the beginning of the project, a difference of 13.5 in the median number of words read on the RAM was noted between Groups A and B. However, using the *Kolmogorov-Smirnov Z* (K-SZ) test (see Appendix 4.1.7 for the full test data), preferred to the *Mann-Whitney* test for smaller sample sizes

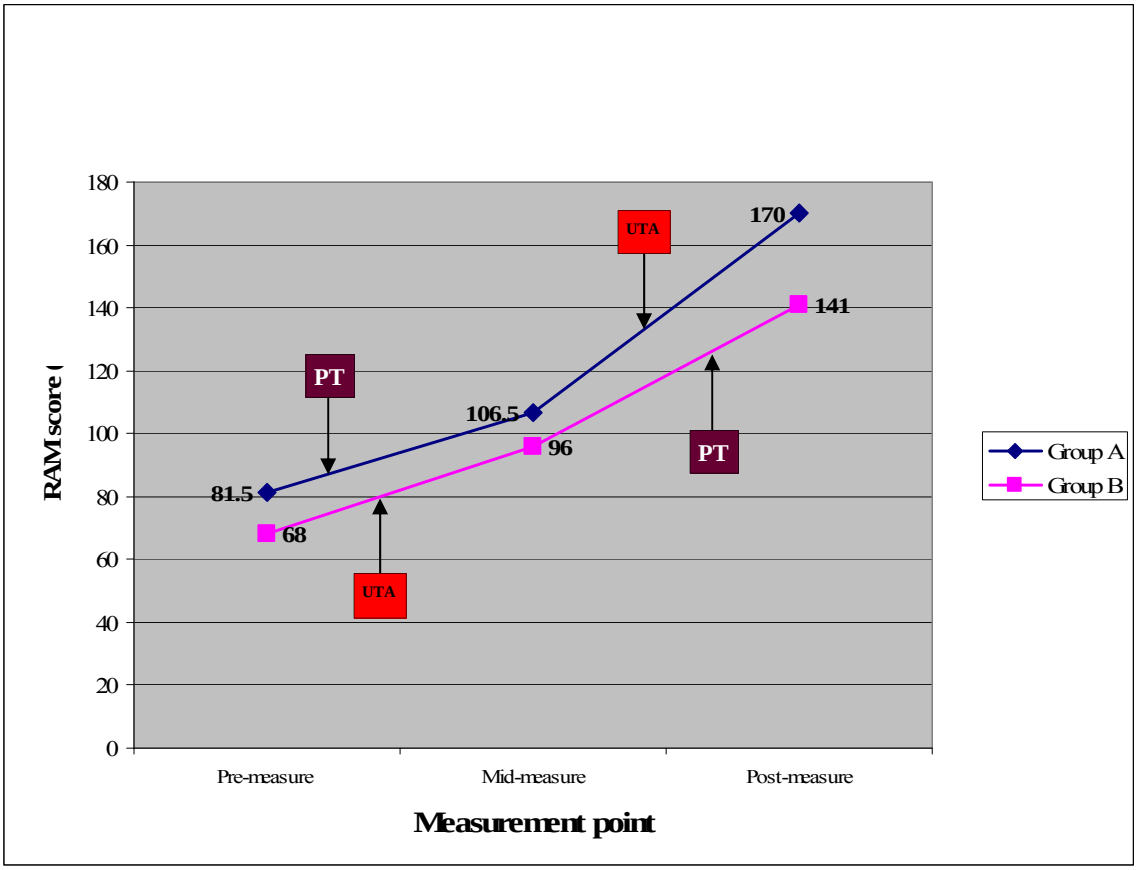
(Field, 2005, p. 529), a statistically significant difference was not found ($Z = 0.742$, *ns*, $r = 0.14$) suggesting that both groups began their involvement at comparable levels.

Following PT intervention for Group A and UTA for Group B, the median mid-measure data outlines an increase in both groups' scores (25 for Group A and 28 for Group B). This result may be considered unexpected given the intervention received by Group A over B. A statistically significant within-group difference between the pre- and mid-measures for Group A was found via analysis using the *Wilcoxon signed-rank* (WS-R) test within Group A ($Z= -3.297$, $p<0.05$, $r = -0.62$): this was not the case within Group B ($Z = -1.099$, *ns*, $r = -0.04$ - see Appendix 4.1.7.1). However, analysis through the K-SZ test indicates that differences in scores between the groups were not statistically significant ($Z = 0.713$, *ns*, $r = 0.14$ - see Appendix 4.1.7).

At the post-measure both groups continued to increase their median score. Group B produced a median gain of 45 words while, following UTA, Group A unexpectedly produced its largest median gain of 63.5. In terms of progression within the groups, analysis highlighted a statistically significant difference for both Group A ($Z = -2.758$, $p<0.05$, $r = -0.52$) and B ($Z = -3.180$, $p<0.05$, $r = -0.62$ - see Appendix 4.1.7.1). However, a result of similar magnitude was not observed between-groups ($Z = 0.542$, *ns*, $r = 0.10$ - see Appendix 4.1.7).

Overall, both groups in Cohort 1 showed broadly parallel gains in their median performance on the RAM at the three points of measurement, and this is highlighted in

the graph below. To illustrate the treatment received by the groups between the measurement points, arrowed markers have been inserted on the graph relating to either PT (shaded purple) or UTA (shaded red).




**Graph 1: Median scores for Groups A and B on all RAM assessments**

### 4.4.2 Data from the reading accuracy measure (RAM) – Cohort 2

As for Cohort 1, the S-W test was used to explore the normality of the distribution of the RAM data within Groups C and D across the different points of measurement (in this case including the 'follow-up' measures - see Appendix 4.1.8 for full test data). It was

concluded that the datasets in question represented distributions that were broadly non-normal and so non-parametric methods of data analysis were employed.

The median scores achieved by each group in Cohort 2 at the four points of measurement are presented in Table 16 (see below) in the same format as for Table 15 (see above) with the addition of the column for the 'follow-up' measures shaded in white.

| | | **Pre-measure** | **Treatment between measures** | **Mid-measure** | **Treatment between measures** | **Post-measure** | **Follow-up measure** |
|---|---|---|---|---|---|---|---|
| **Cohort 2** | Group C (n=27) | 88 | **PT** | 176 (+88) | **UTA** | 191 (+15) | 224 (+33) |
| | Group D (n=23) | 121 | **UTA** | 130 (+9) | **PT** | 258 (+128) | 278 (+20) |

**Table 16: Median scores for Groups C and D on RAM assessments**

The data highlights that both groups made continuing progress in their sight-word reading skills as measured by the RAM across the project. At the beginning of the project, a difference of 33 in the median number of words read on the RAM was found between Groups C and D. However, a statistically significant difference was not found between the two groups ($Z = 1.095$, *ns*, $r = 0.15$) indicating they commenced their involvement at comparable levels (see Appendix 4.1.9).

At the mid-measure point, the data outlines an increase in both groups' median scores (i.e. +88 for Group C and +9 for Group D). These outcomes, emphasising marked improvement for Group C over D, was expected given the PT intervention received by

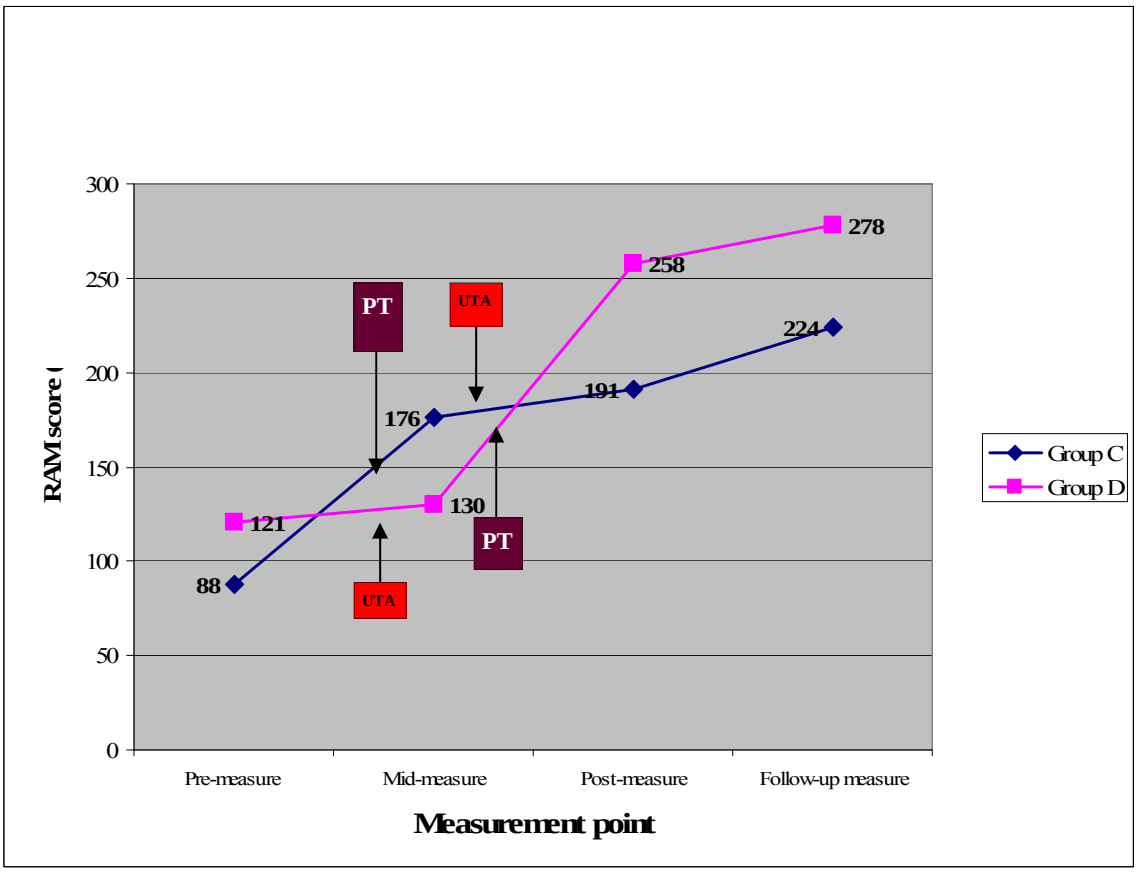
Group C; moreover, analysis indicates that the difference in scores between the groups were statistically significant ($Z = 1.470$, $p<0.05$, $r = 0.21$ - see Appendix 4.1.9). Furthermore, a highly significant difference and notable effect size was found within Group C ($Z = -4.541$, $p<0.05$, $r = -0.62$), while, for Group D, this was not the case ($Z = -1.393$, *ns*, $r = -0.21$ - see Appendix 4.1.9.1).

At the post-measure point both groups continued to increase their RAM score and, as expected, Group D made a marked improvement (a median increase of 128 words) while, following UTA, Group C continued to progress but at a much slower rate than previously attained (a median gain of 15 words). Analysis did not show a significant difference between the groups in terms of the number of words read on the RAM ($Z = 1.039$, *ns*, $r = 0.15$ - see Appendix 4.1.9). However, a highly significant within-group difference was found for Group D ($Z = -4.197$, $p<0.05$, $r = -0.62$), while, within Group C, this was not the case ($Z = -1.931$, *ns*, $r = -0.26$ - see Appendix 4.1.9.1).

Inspection of the follow-up RAMs taken in July 2008 (19 and 13 weeks following the cessation of PT intervention for Groups C and D respectively), indicates that both groups continued to progress. Following the post-measure Group C progressed by a median of 33 words and Group D by 20. Analysis did not highlight a significant difference between the groups ($Z = 0.602$, *ns*, $r = 0.09$), although within-groups comparisons produced significant results (Group C: $Z = -3.622$, $p < 0.05$, $r = -0.49$; Group D: $Z = -2.862$, $p<0.05$, $r = -0.42$ - see Appendix 4.1.9 and 4.1.9.1 for test data). Of note here is that not only does the median RAM data suggest that the progress the students in Cohort 2 made

appear to be maintained, but it also indicates that improvements continues some time after cessation of PT intervention.

In sum, both groups in Cohort 2 showed progressive gains in their performance on the RAM across the study, and this is highlighted in the graph below. Consistent with expectations it shows greater gains during those periods when PT intervention took place.




**Graph 2: Median scores for Groups C and D on all RAM assessments**

### 4.4.3 Data from the WIAT-II UK word reading test (WRT) – Cohort 2

Administration of the WIAT-II UK Word Reading Test (WRT) was undertaken solely with participants in Cohort 2 (Groups C and D). The data collected from the WRT took two forms, a raw score for each participant which was then converted into a reading age. The achievements of all students on both measures from the WRT can be found in Appendix 4.1.10. For the purposes of this analysis the WRT raw scores will be considered first.

#### 4.4.3.1 WIAT-II UK WRT 'raw scores'

As for the RAM, tests of normality were undertaken for both groups. With the exception of the follow-up measure for Group C, the distributions across the four WRTs for both groups were not found to be non-normal ($p > 0.05$): in these instances parametric methods of data analysis were employed (see Appendix 4.1.11 for the full test data). Given that the data for the follow-up measure for Group C did not present as normally distributed, non-parametric methods of data analysis were used for within- and between-group analyses using these data.

The median raw scores achieved by each group in Cohort 2 on the WRT are presented in Table 17 (below).

| | **Pre-measure** | **Treatment between measures** | **Mid-measure** | **Treatment between measures** | **Post-measure** | **Follow-up measure** |
|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Cohort 2** | Group C (n=27) | 68 | **PT** | 71 (+3) | **UTA** | 71 (0) | 78 (+7) |
| | Group D (n=23) | 72 | **UTA** | 74 (+2) | **PT** | 76 (+2) | 82 (+6) |

**Table 17: Median raw scores for Groups C and D on WIAT-II UK WRT assessments**

Given the normal distribution of much of this data, the mean raw scores are also presented (Table 18):

| | | **Pre-measure** | **Treatment between measures** | **Mid-measure** | **Treatment between measures** | **Post-measure** | **Follow-up measure** |
|---|---|---|---|---|---|---|---|
| **Cohort 2** | Group C (n=27) | 67.2 | **PT** | 69.3 (+2.1) | **UTA** | 69.7 (+0.4) | 76 (+6.3) |
| | Group D (n=23) | 71.4 | **UTA** | 73 (+1.6) | **PT** | 75.1 (+1.9) | 79.3 (+4.2) |

**Table 18: Mean raw scores for Groups C and D on WIAT-II UK WRT assessments**

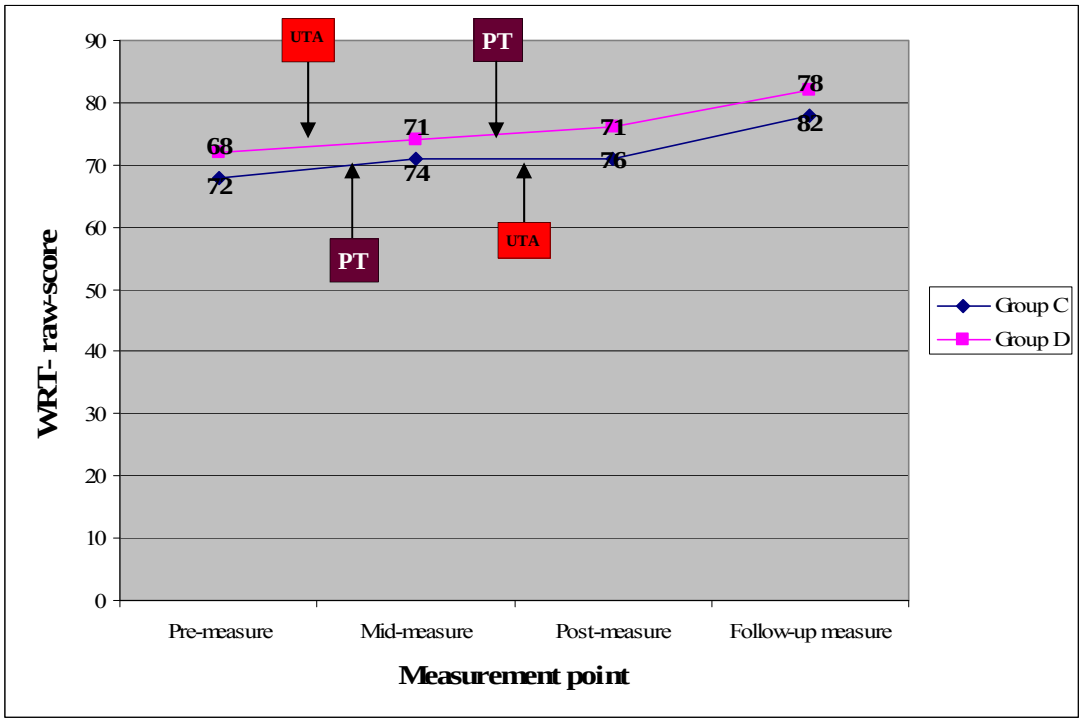
The data highlights that both groups increased their median and mean WRT raw scores across the project. At the beginning of the project, a difference of 4 in the median and 4.2 in the mean raw scores were found between the groups. However, using an *independent groups t-test* (see Appendix 4.1.12 for the full test data), a statistically significant difference was not found between the two groups on the WRT pre-measure ($t(48) = 1.261$, *ns*, $r = 0.03$) indicating that the groups began their involvement with the project at comparable levels.

Unexpectedly the data outlines a similarly small increase in both groups' raw scores at the mid-measure point, with analyses confirming the lack of a statistically significant difference between the two groups ($t(48) = 1.080$, *ns*, $r = 0.23$ - see Appendix 4.1.12). However, within-group analyses using a *dependent groups t-test* provided a statistically significant result for Group C ($t(26) = -2.119$, $p < 0.05$, $r = 0.14$), while this was not the case within Group D ($t(22) = -1.183$, *ns*, $r = 0.05$ - see Appendix 4.1.12.1).

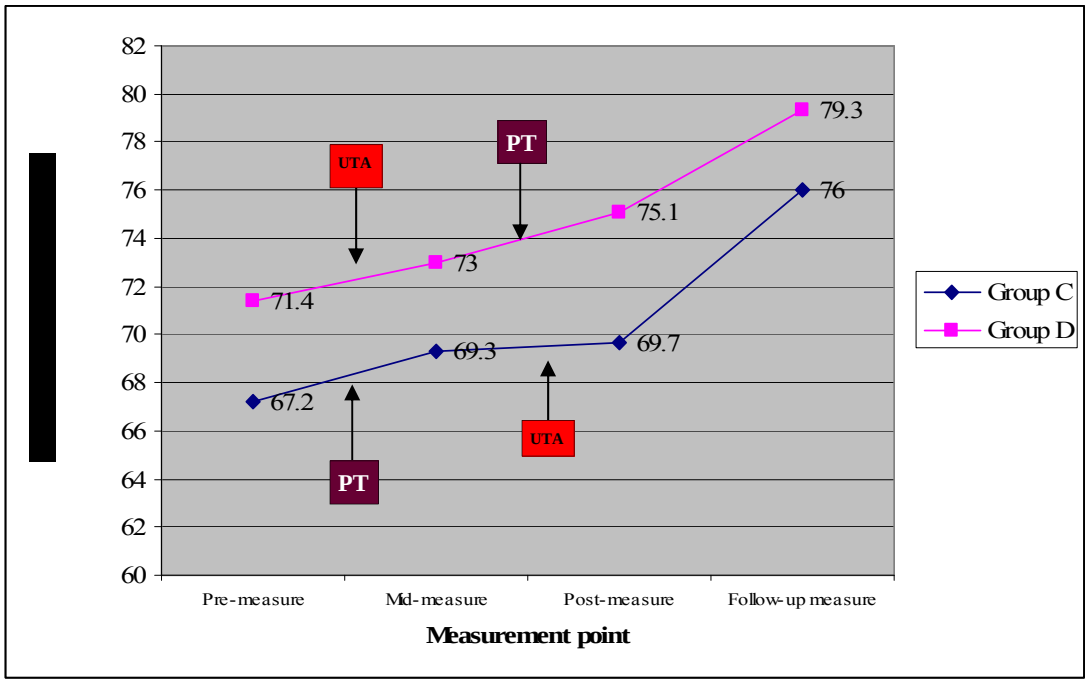
At the post-measure point only Group D showed an increase in the median WRT raw scores, and this pattern was also reflected through the mean measures with only a marginal gain being noted for Group C. At this point a statistically significant difference was not found between the groups ($t(48) = 1.398$, *ns*, $r = 0.03$), and analysis within the two groups comparing the mid- and post-measures also revealed no significant differences (Group C: $t(26) = -0.866$, *ns*, $r = 0.03$ ; Group D: $t(22) = -1.080$, *ns*, $r = 0.05$ - see Appendix 4.1.12 and 4.1.12.1 for test data).

Inspection of the follow-up WRTs in July 2008 indicates that both groups increased their scores by a small amount (+7 and +6 for median measures and 6.3 and 4.2 for the means for Groups C and D respectively). Although analysis between-groups here did not show a significant difference ($Z = 0.630$, *ns*, $r = 0.09$ - see Appendix 4.1.12), within-groups did produce statistically significant results (Group C: $Z = -2.417$, $p < 0.05$, $r = -0.39$; Group D: $Z = -2.715$, $p < 0.05$, $r = -0.40$ - see Appendix 4.1.12.1).

In sum, progress as measured by the median and mean raw scores achieved through the WRT indicates steady improvements over the project for each group, as shown in the graphs below:




**Graph 3 : Median raw scores for Groups C and D on WIAT-II UK WRT raw score assessments**




**Graph 4 : Mean raw scores for Groups C and D on WIAT-II UK WRT raw score assessments**

### 4.4.3.2 WIAT-II UK WRT 'reading ages'

Based on the raw scores achieved, the reading ages (RAs) produced by the WIAT-II UK WRT for each participant can be found in Appendix 4.1.10. Following exploration of the data it was concluded that it represented distributions that were broadly non-normal leading to the use of non-parametric methods analysis (see Appendix 4.1.13 for full test data).

The median RAs achieved by each group in Cohort 2 on the WRT at the four points of measurement are presented in Table 19 (see below):

| | Pre-measure | Treatment between measures | Mid-measure | Treatment between measures | Post-measure | Follow-up measure |
|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Cohort 2** | Group C (n=27) | 6 years 4 months | **PT** | 6 years 8 months (+4 months) | **UTA** | 6 years 8 months (0 months) | 6 years 8 months (0 months) |
| | Group D (n=23) | 6 years 8 months | **UTA** | 6 years 8 months (0 months) | **PT** | 6 years 8 months (0 months) | 7 years (+4 months) |

**Table 19: Median reading ages for Groups C and D on the WIAT-II UK WRT assessments**

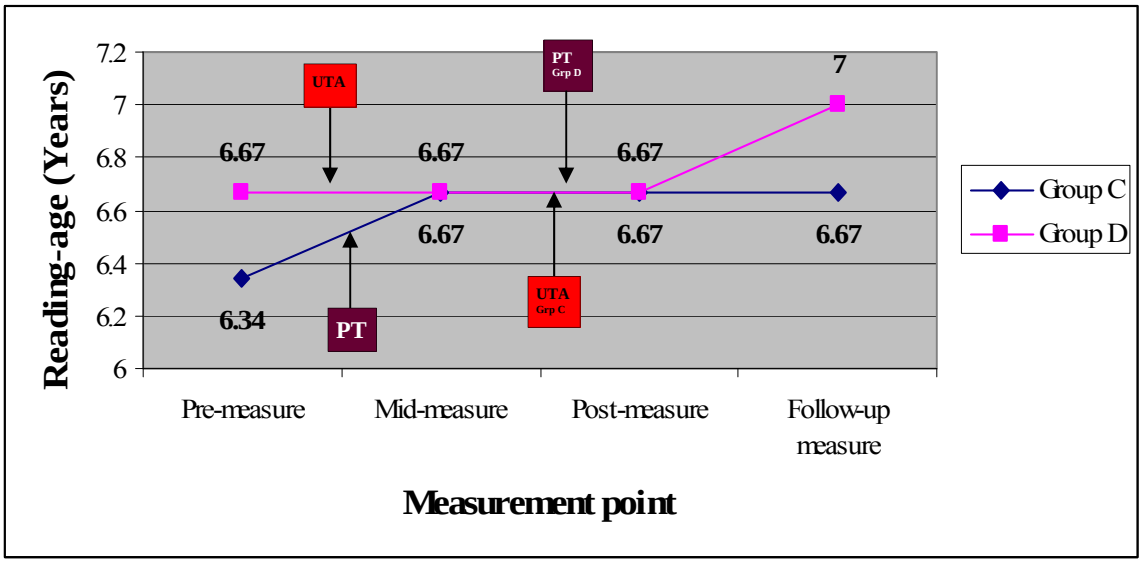
Albeit by 4 months each, the data highlights that both groups increased their median RA across the project. At the beginning of the project, a difference of 4 months in the median RA was found between the groups, although analysis confirmed (see Appendix 4.1.14 ) that a statistically significant difference was not present ($Z = 0.817$, *ns*, $r = 0.12$) indicating that both groups were of comparable levels.

Following PT intervention for Group C and UTA for Group D, the data shows an increase of 4 months for Group C on the WRT. Although this result may have been anticipated given the recent receipt of PT intervention by Group C, analysis (see Appendix 4.1.14) did not find a statistically significant difference between the two groups ($Z = 0.431$, *ns*, $r = 0.06$). However, within-group comparisons at this point did produce a significant result for C ($Z = -2.121$, $p<0.05$, $r = -0.28$): this was not the case for Group D ($Z = -0.512$, *ns*, $r = -0.08$ - see Appendix 4.1.14.1).

At the post-measure point both groups showed no improvement in their RAs. Inspection of the follow-up WRTs, indicates that only Group D increased their median RA by 4 months. Again, analysis did not compute a significant difference between the groups ($Z = 0.630$, *ns*, $r = 0.09$ - see Appendix 4.1.14), while within-groups comparisons produced a

significant difference for Group D ($Z$ = -2.091, $p$<0.05, $r$ = -0.30): this was not the case for Group C ($Z$ = -1.663, *ns*, $r$ = -0.23 - see Appendix 4.1.14.1).

In sum, Graph 5 (below) shows limited improvements in RAs over the project for each group (readers should note this data is presented in decimal form, whereby 6 years 4 months is presented as 6.34 years, and so on).




**Graph 5 : Median reading ages for Groups C and D on WIAT-II UK WRT reading age assessments**

## 4.5 Research Question 2: 'Do secondary school students with reading difficulties receiving a PT intervention out-perform those receiving usual teaching arrangements regarding reported levels of academic self-concept?'

In response to the above question, the following analysis of the assessment results of the MALS sampling students' academic self-concept is presented. Analysis of the MALS data for Cohort 1 and 2 are presented in turn.

### 4.5.1 Data from the 'Myself as a Learner Scale' (MALS) - Cohort 1

The individual scores achieved by all students on the series of MALS assessments can be found in Appendix 4.1.15. Analysis of the distribution of the MALS data within Groups A and B across the different points of measurement indicated the dataset was normally distributed requiring the use of parametric methods of data analysis (see Appendix 4.1.16 for full test data).

The median scores achieved by each group in Cohort 1 on the MALS assessment at the different points of measurement are presented in Table 20. Following the pre-measure the difference in MALS score compared to the previous assessment are presented in brackets alongside.

| | | **Pre-measure** | **Treatment between measures** | **Mid-measure** | **Treatment between measures** | **Post-measure** |
|---|---|---|---|---|---|---|
| **Cohort 1** | Group A (n=14) | 57 | **PT** | 55.5 (-2.5) | **UTA** | 59 (+3.5) |
| | Group B (n=13) | 62 | **UTA** | 66 (+4) | **PT** | 67 (+1) |

**Table 20: Median scores for all Groups in Cohort 1 on MALS assessments**

Given the normal distribution of this data, the mean raw scores are also presented in the same format (Table 21):

| | | **Pre-measure** | **Treatment between measures** | **Mid-measure** | **Treatment between measures** | **Post-measure** |
|---|---|---|---|---|---|---|
| **Cohort 1** | Group A (n=14) | 57.4 | **PT** | 55.3 (-2.1) | **UTA** | 62.5 (+7.2) |
| | Group B (n=13) | 61.1 | **UTA** | 62.5 (+1.4) | **PT** | 66.2 (+3.7) |

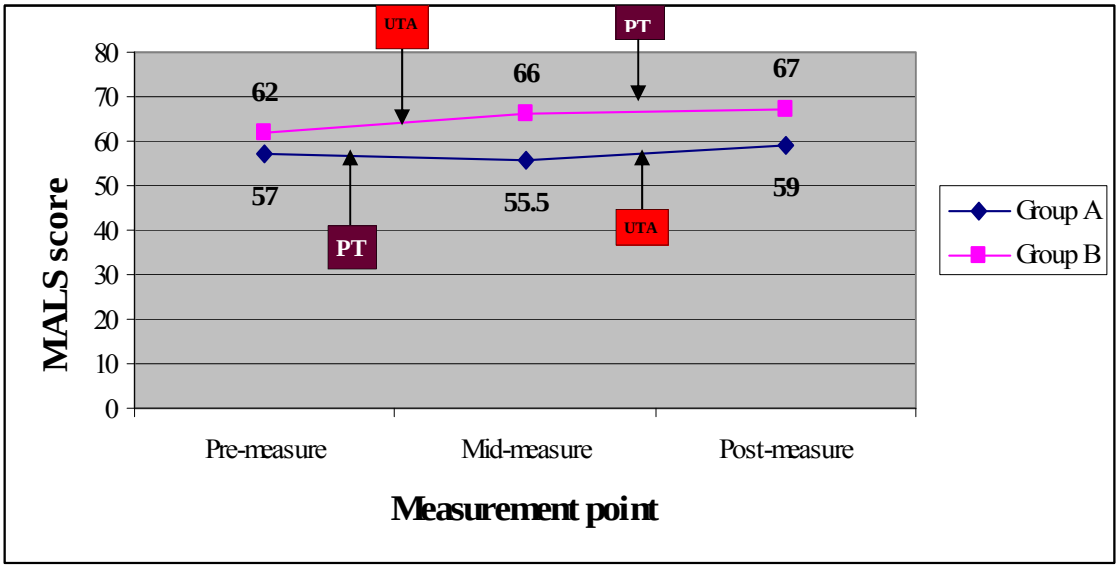
**Table 21: Mean scores for all Groups in Cohort 1 on MALS assessments**

The data highlights that both groups increased their median and mean MALS score across the project. At the beginning of the project, a difference of 4 in the median and 3.7 in the mean MALS scores was found between Groups A and B. However, using an independent groups t-test (see Appendix 4.1.17), a statistically significant difference was not found between the two groups ($t(25) = -0.840$, *ns*, $r = 0.03$) suggesting that participants in each group began their involvement with the project at comparable levels on the MALS.

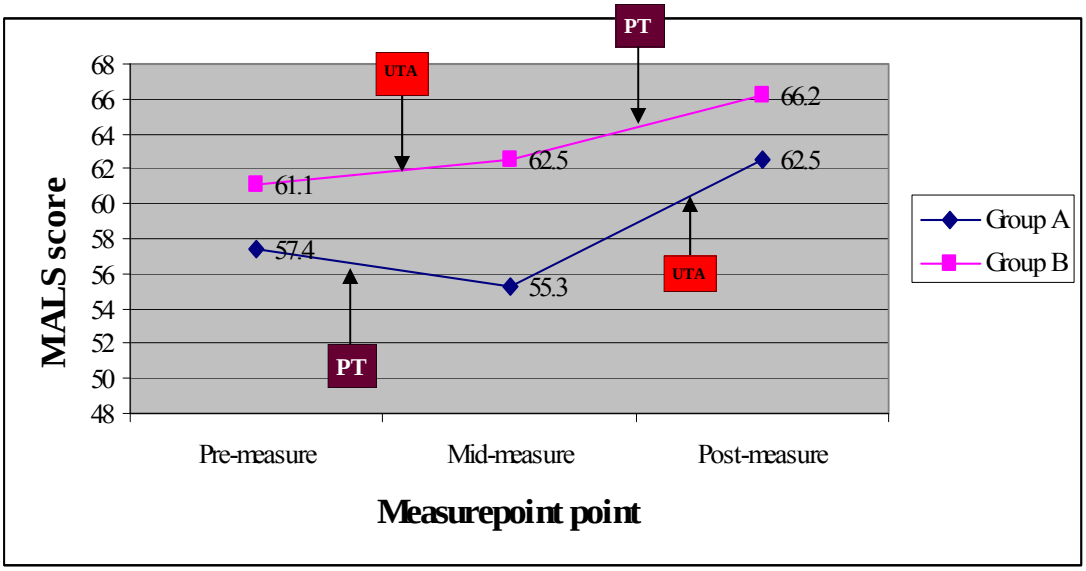
Unexpectedly, the data outlines a small decrease in the median and mean MALS score for Group A and an increase for Group B at the mid-measurement point. Comparisons within-groups between the pre- and mid-measures also produced results that were not statistically significant (Group A: $t(13) = 0.908$, *ns*, $r = 0.06$; Group B: ($t(12) = -0.571$, *ns*, $r = 0.03$) and this was also the case for between-group comparisons ($t(25) = -1.727$, *ns*, $r = 0.11$ - see Appendix 4.1.17 and 4.1.17.1).

At the post-measure point both groups showed an increase in the median and mean MALS score, although a statistically significant difference was not computed within-groups (Group A: $t(13) = -1.779$, *ns*, $r = 0.20$; Group B: ($t(12) = -0.989$, *ns*, $r = 0.08$). Similarly, comparison between-groups at the mid-measure point was also not statistically significant ($t(25) = -0.666$, *ns,* $r = 0.02$ - see Appendix 4.1.17.1 and 4.1.17).

Overall, both groups in Cohort 1 showed some increase in their median and mean MALS scores across the project, and this is highlighted in the graphs below.




**Graph 6: Median scores for Groups A and B on all MALS assessments**




**Graph 7: Mean scores for Groups A and B on all MALS assessments**

In sum, statistical analysis does not indicate any significant difference in MALS scores between or within the two groups across any of the measurement points: this was also the case when within-group comparisons were made using data at the start and the end of the study (Group A: $t(13) = -1.376$, *ns*, $r = 0.13$; Group B: ($t(12) = -1.588$, *ns*, $r = 0.17$ -see Appendix 4.1.17.1).

### 4.5.2 Data from the 'Myself as a Learner Scale' (MALS) - Cohort 2

As noted earlier, the individual scores achieved by all students on the series of MALS assessments can be found in Appendix 4.1.15. Consistent with the findings for Cohort 1 MALS data, analysis of the distribution of the data within Groups C and D indicated the dataset was normally distributed and so parametric methods of data analysis were employed (see Appendix 4.1.18 for full test data).

The median and mean scores achieved by each group in Cohort 2 on the MALS assessment are presented in tables 22 and 23 respectively:

| | | **Pre-measure** | **Treatment between measures** | **Mid-measure** | **Treatment between measures** | **Post-measure** |
|---|---|---|---|---|---|---|
| **Cohort 2** | Group C (n=27) | 62 | **PT** | 66 (+4) | **UTA** | 69 (+3) |
| | Group D (n=23) | 65 | **UTA** | 67 (+2) | **PT** | 70 (+3) |

**Table 22: Median scores for all Groups in Cohort 2 on MALS assessments**

| | **Pre-measure** | **Treatment between measures** | **Mid-measure** | **Treatment between measures** | **Post-measure** |
|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| **Cohort 2** | Group C (n=27) | 60.4 | **PT** | 67.9 (+7.5) | **UTA** | 68.8 (+0.9) |
| | Group D (n=23) | 65.7 | **UTA** | 64.8 (-0.9) | **PT** | 70.9 (+6.1) |

**Table 23: Mean scores for all Groups in Cohort 2 on MALS assessments**

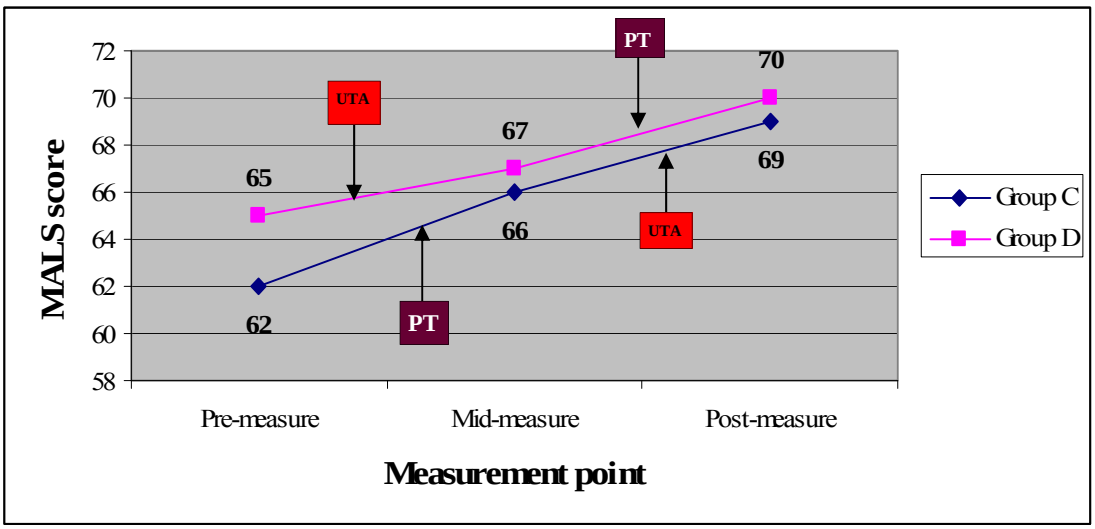
The data highlights that both groups progressively increased their median and mean MALS score across the project. At the beginning of the project, a difference of 3 in the median and 5.3 in the mean MALS score was found between Groups C and D. However, a statistically significant difference was not found between the two groups on the MALS pre-measure ($t(48) = -1.343$, $p > 0.05$, $r = 0.04$) indicating that the groups began their involvement with the project at comparable levels (see Appendix 4.1.19).

As may be expected, following PT intervention for Group C and UTA for Group D (i.e. the mid-measure point), the data outlines a notable increase in the median and mean MALS scores for Group C over Group D. In fact, under the mean measures Group D showed a decline in comparison to their pre-measure. Consistent with this observation, a significant difference was computed within Group C at this point ($t(26) = -3.476$, $p< 0.05$, $r = 0.32$), while this was not the case within Group D ($t(22) = 0.382$, *ns*, $r = 0.01$ - see Appendix 4.1.19.1). However, analysis between the two groups at the mid-measure point was not significant ($t(48) = 0.763$, *ns*, $r = 0.01$ - see Appendix 4.1.19).

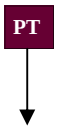
At the post-measure point both groups showed an increase in the median and mean MALS score, with Group D showing a notable mean gain of 6.1. Although a statistically significant difference was not computed between-groups ($t(48) = 0.445$, *ns*, $r = 0.00$),

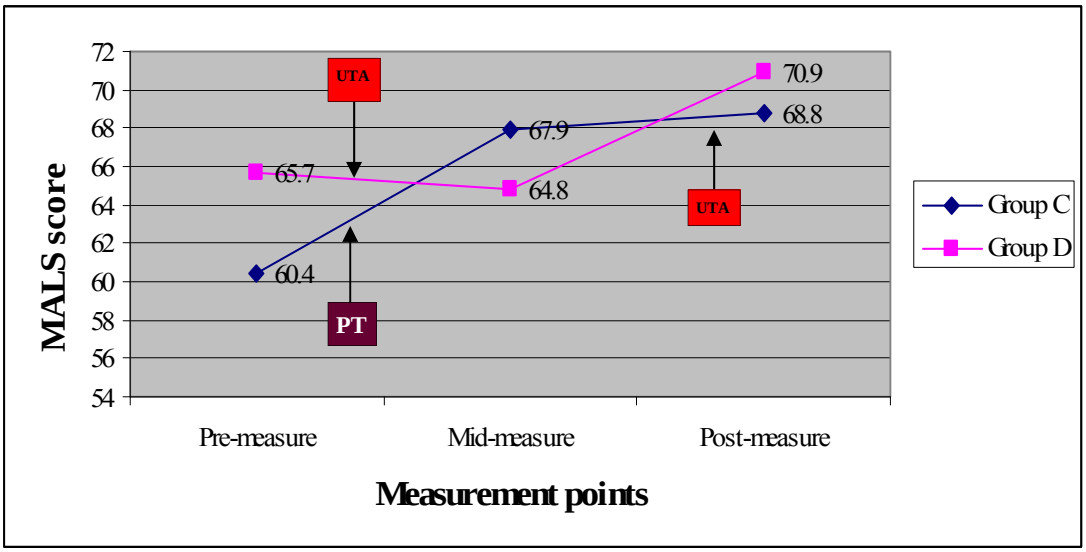
within-group comparisons produced a significant result for Group D ($t(22) = -2.193$, $p < 0.05$, $r = 0.18$), but not C ($t(26) = -0.563$, *ns*, $r = 0.01$ - see Appendix 4.1.19 and 4.1.19.1).

Overall, both groups in Cohort 2 showed a steady increase in their average MALS scores across the project, and this is highlighted in graphs 8 and 9 (see below).




**Graph 8: Median scores for Groups C and D on all MALS assessments**






**Graph 9: Mean scores for Groups C and D on all MALS assessments**

Although analysis highlights some significant gains within the groups, statistical analysis does not indicate any significant difference in MALS scores between Groups C and D at any of the measurement points. However, unlike Cohort 1, significant differences were noted within both groups when further comparisons were made at the start and the end of the study (Group C: $t(26) = -2.876$, $p < 0.05$, $r = 0.24$; Group D: ($t(22) = -2.853$, $p < 0.05$, $r = 0.27$ - see Appendix 4.1.19.1).

# CHAPTER 5

## Aspect Two: Outcomes & Findings

### 5.0 Introduction

This chapter outlines the outcomes of Aspect Two of the study and this is split into two parts relating to Phase 1 and Phase 2 of this portion of the research. Phase 1 focussed on the development of a framework for PT intervention based on initial findings from work with students in Group A. The framework was developed by the researcher over term 2 and implemented through Phase 2 via PT programmes for Groups C and D in terms 3 and 4 respectively. The chapter concludes with presentation of a reviewed framework as a product of the analysis of TA records of individual PT sessions and semi-structured interviews carried out in term 5 from their work with Cohort 2.

Both phases link directly to ***Research Questions 3, 4*** and ***5***.

***Research Question 3***. *'What are the precise teaching adaptations made by staff to improve student performance toward defined success criteria within PT programmes?*'

***Research Question 4***. *'Is there an order in which these adaptations are made that is more efficacious?'*

***Research Question 5***. *'What will be included in a structured framework for teaching adaptations, and how useful is it in practice?'*

The foci on these questions served as a route to developing a framework for delivering PT interventions (i.e. the *Framework for the systematic adaptation to teaching interventions*, FSATI) to be developed, trialled and reviewed across the two phases. Phase 1 refers to the findings connected with PT intervention with students across term 1 (Group A) used to develop the framework, while Phase 2 covered practice using the framework during terms 3 and 4 (groups C and D). Information derived from work with students in Group B was not directly utilised in this aspect given the time required to produce the initial framework.

The two phases of Aspect Two highlight the developmental nature of this element of the project where the initial (Phase 1) and revised frameworks (Phase 2) are formulated and presented. Information regarding the development of the framework at each phase is presented in turn, with both phases drawing on the analysis of two similar sources of information:

- the records of the kinds of adaptations made to daily PT programmes by each teaching assistant (TA)
- semi-structured interviews with regard to the utility and type of adaptations made to PT programmes during the initiative

Reference is also made in this chapter to the findings from the Reliability of Recording Measure (RRM) undertaken for twenty-five PT sessions during term 4. This was employed to establish a measure of consistency between a sample the written records

made by TAs regarding adaptations made to PT programmes under the FSATI and those apparent within 'live' audio-recordings of the sessions themselves.

## 5.1 Aspect Two - Phase 1

The first phase aspect drew on information derived from work with students in Group A relevant to ***Research Questions 3, 4*** and ***5*** to produce an initial framework to be trialled through PT programmes with Groups C and D (Cohort 2). In response to the three research questions, the two key sources of information considered at Phase 1 were:

1. Inspection and analysis of completed PT Record Sheets providing coded data on changes made to the fifty-five successful PT programmes for Group A (see Table 25 on p. 131). TAs were required to record any changes they made to the programmes they undertook on a prepared record sheet (see Appendix 4.2.1 for an example of an uncompleted PT record sheet) using these codes to represent the following changes or interventions:

| **Changes to…** | **the sequence of tasks or skills** | **the task or skill slice** | **the instructional approach** | **increase motivation** |
|---|---|---|---|---|
| Recorded as code: | 1 | 2 | 3 | 4 |

**Table 24: Changes implemented by TAs and their corresponding codes in Phase 1**

2. A 'thematic analysis' of the recordings of eight semi-structured interviews conducted with each TA regarding their use of the record sheet, and the processes

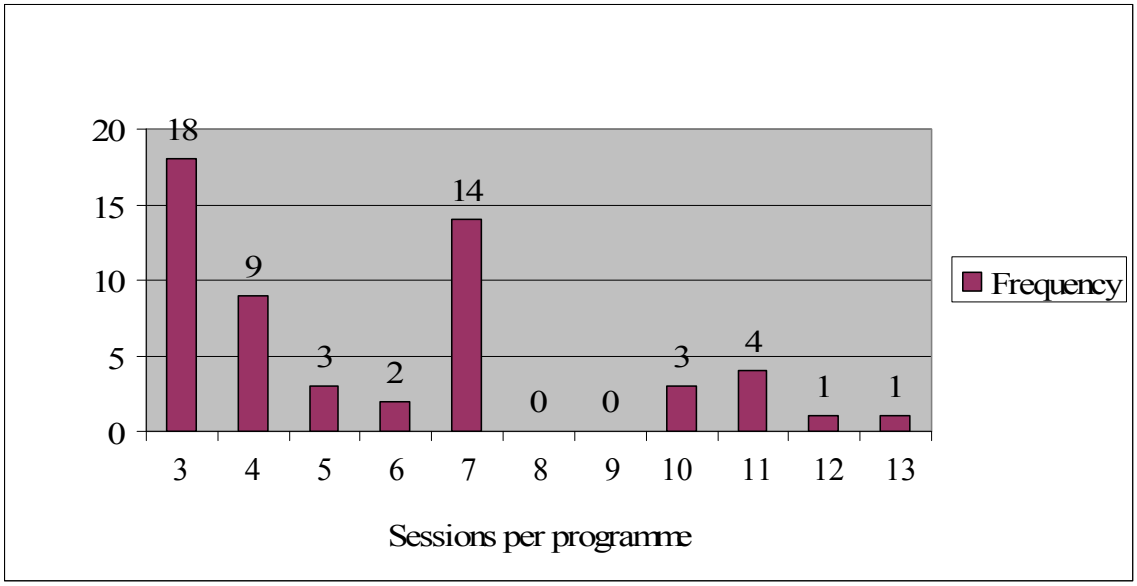
underpinning the teaching adaptations made by them during PT programmes for Group A held in schools during November 2007 (see section 5.2 - see Appendix 4.2.2 for the interview procedure and Appendix 4.2.3 for an example of a transcribed interview with references made for the thematic analysis).

### 5.1.1 Findings from the PT record sheets for Group A

At first, the information on the record sheets supplied by the TAs were collated (see Appendix 4.2.4) and analysed with reference to the number of sessions taken for each programme to reach the success criteria* (see below) and the range and level of different changes made within each programme. This analysis related directly to ***Research Questions 3*** and ***4*** noted earlier.

#### 5.1.1.1 Programme duration

Fifty-five individual PT programmes were successfully completed for Group A (the *success criteria** were defined as the pupil achieving at least fifty correct responses per minute with three or less errors over three consecutive sessions on their current list of words as measured via a daily 'probe' or test). The number of daily sessions taken to meet these criteria varied from three to thirteen daily sessions, with the most frequent being three sessions (this accounted for 33% of all programmes). By the end of the seventh session forty-six (or 84%) of all programmes were completed. The number of programmes lasting from three to thirteen daily sessions is presented in Graph 10 (see below):




**Graph 10: The number of programmes lasting from 3 to 13 sessions for Group A**

### 5.1.1.2 Recorded 'changes'

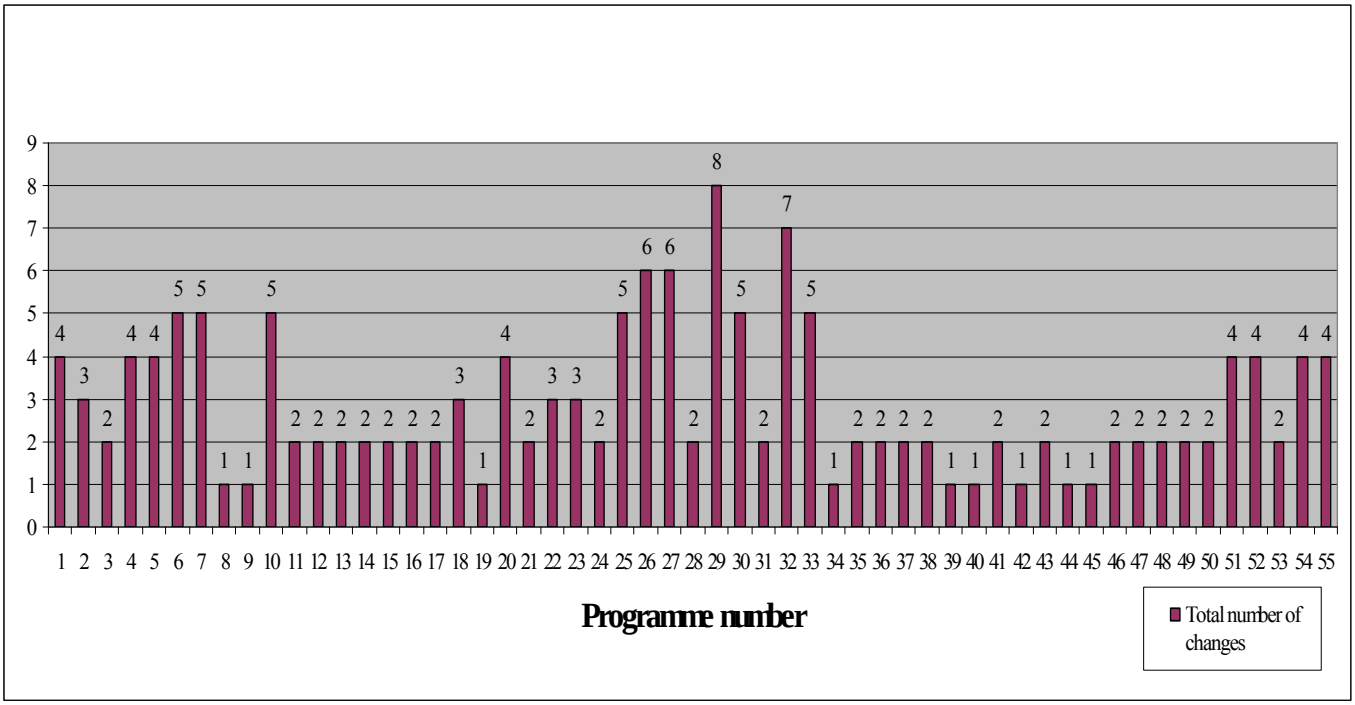
The individual changes (raw data) for each programme across all daily sessions for each student are located in Appendix 4.2.4. A summative presentation of the frequency and timing of changes made, grouped by number of sessions per programme, can be found in Table 25 (see below):

| No. of sessions to meet criteria* | Recorded 'change' codes | Daily Session (DS) | | | | | | | | | | | | | Total number of recorded changes | *Modal code (by sessions per programme)* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DS 1 | DS 2 | DS 3 | DS 4 | DS 5 | DS 6 | DS 7 | DS 8 | DS 9 | DS 10 | DS 11 | DS 12 | DS 13 | | |
| **3 (n=18)** | **1** | 0 | 0 | 0 | | | | | | | | | | | 0 | ***4*** |
| | **2**** | 0 | 0 | 0 | | | | | | | | | | | 0 | |
| | **3** | 0 | **11** | **1** | | | | | | | | | | | 12 | |
| | **4** | **5** | **3** | **10** | | | | | | | | | | | 18 | |
| **4 (n=9)** | **1** | 0 | 0 | 0 | 0 | | | | | | | | | | 0 | ***4*** |
| | **2**** | 0 | 0 | 0 | 0 | | | | | | | | | | 0 | |
| | **3** | **1** | **4** | **4** | 0 | | | | | | | | | | 9 | |
| | **4** | **3** | **1** | **3** | **7** | | | | | | | | | | 14 | |
| **5 (n=3)** | **1** | 0 | 0 | 0 | 0 | 0 | | | | | | | | | 0 | ***3*** |
| | **2**** | 0 | 0 | 0 | 0 | 0 | | | | | | | | | 0 | |
| | **3** | 0 | **3** | **1** | 0 | 0 | | | | | | | | | 4 | |
| | **4** | 0 | 0 | 0 | 0 | **3** | | | | | | | | | 3 | |
| **6 (n=2)** | **1** | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | 0 | ***3*** |
| | **2**** | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | 0 | |
| | **3** | 0 | **1** | 0 | **2** | **1** | 0 | | | | | | | | 4 | |
| | **4** | 0 | 0 | 0 | 0 | 0 | **1** | | | | | | | | 1 | |
| **7 (n=14)** | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | 0 | ***3*** |
| | **2**** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | 0 | |
| | **3** | **1** | **8** | **2** | **14** | **5** | **2** | 0 | | | | | | | 32 | |
| | **4** | 0 | **1** | **5** | 0 | 0 | **1** | **7** | | | | | | | 14 | |
| **10 (n=3)** | **1** | 0 | 0 | 0 | 0 | 0 | 0 | **3** | 0 | 0 | 0 | | | | 3 | ***3*** |
| | **2**** | 0 | 0 | 0 | **2** | 0 | 0 | 0 | 0 | 0 | 0 | | | | 2 | |
| | **3** | 0 | **2** | **1** | 0 | 0 | **2** | 0 | 0 | 0 | 0 | | | | 5 | |
| | **4** | 0 | 0 | **1** | **1** | 0 | 0 | 0 | 0 | 0 | **2** | | | | 4 | |
| **11 (n=4)** | **1** | 0 | 0 | 0 | 0 | 0 | 0 | **4** | 0 | 0 | 0 | 0 | | | 4 | ***3*** |
| | **2**** | 0 | 0 | 0 | **3** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 3 | |
| | **3** | 0 | **2** | **1** | 0 | **1** | **2** | 0 | **1** | 0 | 0 | 0 | | | 7 | |
| | **4** | 0 | 0 | 0 | **1** | 0 | 0 | 0 | 0 | **1** | **1** | **2** | | | 5 | |
| **12 (n=1)** | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | ***3*** |
| | **2**** | 0 | 0 | 0 | **1** | 0 | 0 | **1** | 0 | 0 | 0 | 0 | 0 | | 2 | |
| | **3** | 0 | **1** | 0 | 0 | 0 | **1** | 0 | 0 | 0 | **1** | 0 | 0 | | 3 | |
| | **4** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1** | 0 | | 1 | |
| **13 (n=1)** | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | ***3*** |
| | **2**** | 0 | 0 | 0 | **1** | 0 | 0 | **1** | 0 | 0 | **1** | 0 | 0 | 0 | 3 | |
| | **3** | 0 | 0 | **1** | 0 | 0 | **1** | 0 | **1** | 0 | 0 | 0 | **1** | 0 | 4 | |
| | **4** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1** | 1 | |
| ***Daily session total*** | | ***10*** | ***37*** | ***30*** | ***32*** | ***10*** | ***10*** | ***16*** | ***2*** | ***1*** | ***5*** | ***3*** | ***1*** | ***1*** | **158** | |
| **Daily session totals by coded 'changes' recorded** | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | **2**** | 0 | 0 | 0 | 21 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | | |
| | **3** | 2 | 32 | 11 | 2 | 7 | 8 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | | |
| | **4** | 8 | 5 | 19 | 9 | 3 | 2 | 7 | 0 | 1 | 3 | 3 | 0 | 1 | | |
| ***Modal code ( by daily session)*** | | ***4*** | ***3*** | ***4*** | ***2*** | ***3*** | ***3*** | ***1 & 4*** | ***3*** | ***4*** | ***4*** | ***4*** | ***3*** | ***4*** | | |

**Table 25: The frequency and timing of changes made for programmes completed to criteria* (grouped by number of sessions per programme)**

**Note 1.** '2**' refers to 'change to task size' (not 'slice') employed as noted on PT record sheets. **Note 2.** All TAs recorded that they began teaching new programmes using the model-lead-test-review (MLTR) teaching procedure.

Inspection of the table above (Table 25) reveals that the total number of different coded changes made across the fifty-five programmes was 158 for students in Group A. The most frequent total number of changes to a programme was 2, ranging from 1 to 8 across the group of fifty-five programmes sampled. The distribution of total recorded changes across all programmes included in the analysis is shown Graph 11:




**Graph 11: Total number of changes per programme (1-55) for Group A**

When considering the type of changes made across all the programmes considered, the recorded levels of different codes can be seen to vary:

| | Recorded codes (1, 2, 3 and 4) | | | |
|---|---|---|---|---|
| | **1 (changes to the sequence of tasks or skills)** | **2 (changes to the task or skill slice)** | **3 (changes to the instructional approach)** | **4 (changes to increase motivation)** |
| **Total Frequency** | 7 | 24 | 66 | 61 |

**Table 26: Total number of each of the recorded codes for Group A**

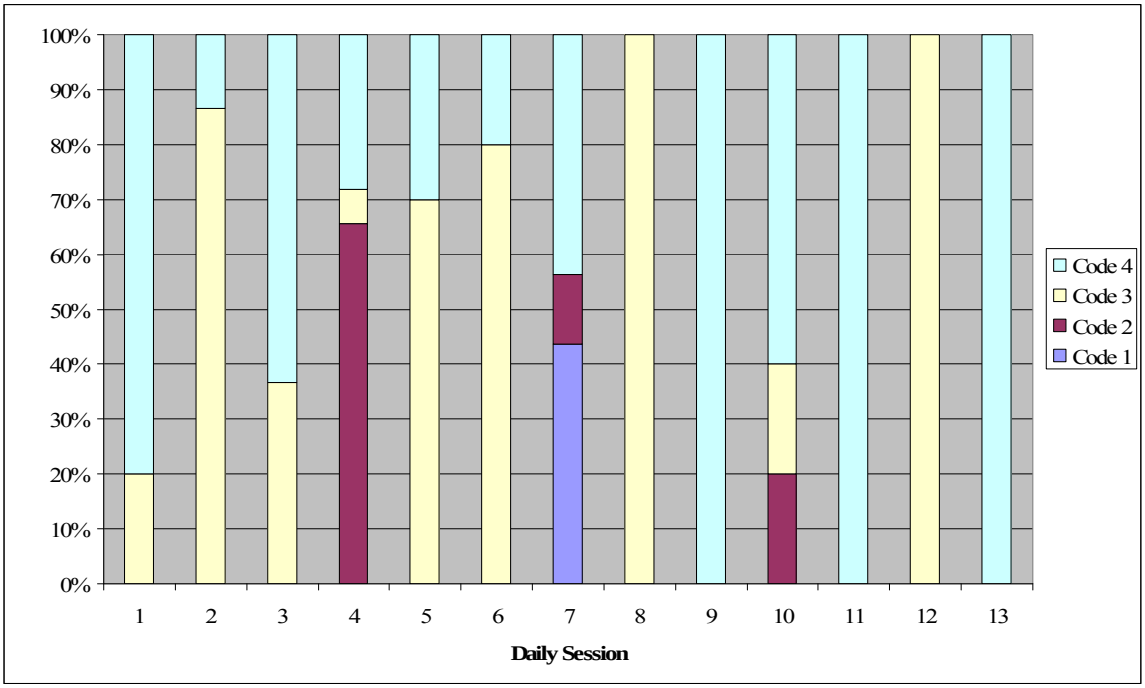
The data above highlights marked differences in the use of the codes, with changes to the instructional approach (code 3) or to increase motivation (code 4) most frequently implemented. This pattern was also noted across individual school practice. Table 27 shows the number of the different types of changes implemented across all daily sessions. The cells shaded in grey with text emboldened highlight the most frequently occurring change during that daily session.

| Change Codes | Daily Session | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **Total** |
| **1** | 0 | 0 | 0 | 0 | 0 | 0 | **7** | 0 | 0 | 0 | 0 | 0 | 0 | **7** |
| **2** | 0 | 0 | 0 | **21** | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | **24** |
| **3** | 2 | **32** | 11 | 2 | **7** | **8** | 0 | **2** | 0 | 1 | 0 | **1** | 0 | **66** |
| **4** | **8** | 5 | **19** | 9 | 3 | 2 | **7** | 0 | **1** | **3** | **3** | 0 | **1** | **61** |
| **Totals** | **10** | **37** | **30** | **32** | **10** | **10** | **16** | **2** | **1** | **5** | **3** | **1** | **1** | **158** |

**Table 27: The number of different recorded codes across all daily sessions for Group A**

So, for daily sessions 1, 2 and 3 the most commonly occurring changes were those represented by codes 4, 3 and 4 respectively. The data highlights higher levels of changes to most PT programmes during the first seven sessions of implementation: activity here

accounts for over ninety percent (91.7%) of all changes made within the current sample. This profile of 'change activity' is also presented in Graph 12 in a percentage format: the proportional level of different changes implemented across all daily sessions:




**Graph 12: Percentage of different code use across all daily sessions for Group A**

Table 27 (see above) and Graph 12 show some patterns in the data collected. Firstly, changes to the instructional approach (code 3) were the most commonly occurring, and this kind of adaptation was distributed across all but four daily sessions. Secondly, strategies used for increasing student motivation (code 4) were also notably frequent, 61 occurrences in all, and were recorded to have been implemented across all but one daily session. Aside from these more 'dispersed' changes, the data also suggests the specific importance of the two remaining changes represented by codes 1 and 2.

With regard to code 2, the data points to an emphasis on the implementation of this kind of change during session 4. In fact, 21 out of the 24 (87.5%) recorded changes to the 'task or skill slice' (code 2) occurred on this daily session. Inspection of Table 25 (p. 131) also highlights the consistently preferred use of changes to the 'task size' (i.e. increasing or decreasing the number of words taught) as noted by '2**' in the table and in Appendix 4.2.4, over adjusting difficulty through 'task slicing' as stated by all TAs on their record sheets when code 2 was recorded. Furthermore, changes recorded under code 1, all occurred on daily session 7. Inspection of the raw data indicates that both of these types of changes were always implemented as an adaptation to continuing programmes (see Appendix 4.2.4) and so appeared to contribute in a directly formative manner to all programmes in which they were employed. This function is contrasted with the more dispersed change represented by code 4, where inspection of the raw data reveals its frequent use (57.3%) on final daily sessions of programme delivery.

#### 5.1.1.3 Summary of 'record sheet' data

Consideration of all data presented (programme duration and changes made) indicates an apparent pattern to the interventions made by staff, whereby certain adaptations were frequently made across clusters of three daily sessions. That is to say the data appeared to suggest key points across most programmes where greater consideration appears to be given to alterations to *what* is being taught (changes under codes 1 and 2) over strategies affecting *how* a programme is taught (changes under codes 3 and 4). For instance, the first three sessions to any programme, where instructional changes (represented by code 3) were most commonly employed overall, appear to be punctuated by a key 'change

point' following daily session three. At this point a change to the task itself (under code 2) was often employed during session 4 for continuing programmes as a possible revision to address programme difficulty. Furthermore, while the analysis highlights how the next three daily sessions (4 to 6) continue to offer an emphasis on adaptations to instructional and motivational aspects (codes 3 and 4), session 7 indicates a notable level of activity involving a change to the 'sequence of tasks or skills' (code 1) and, to a lesser degree 'task size' (reflected by use of code 2). Following the next three daily sessions (7 to 9), use was made again to changes involving the task size (code 2) at session 10, indicating the need for the availability for a further (third) significant revision opportunity to what is being taught to a student. This pattern to programme interventions, the use of changes to what is taught (under codes 1 and 2) following successive groups of three sessions (1 to 3, 4 to 6 and 7 to 9), appears to cease for the few remaining programmes. Of the six remaining programmes requiring intervention after session 10 to meet the success criteria*, only use of changes represented by codes 3 and 4 were recorded.

In sum, the recorded data highlights the following key elements of practice within the fifty-five sampled programmes to be accommodated within a framework. In relation to ***Research Questions 3*** and ***4*** (below), they are as follows:

**5.1.1.3.1 Research Question 3. 'What are the precise teaching adaptations made by staff to improve student performance toward defined success criteria within PT programmes?'**

Firstly, staff recorded that they employed all four types of change represented by codes 1, 2, 3, and 4. However, the frequency of these four types of changes differed notably between those affecting *how* the words in each programme were taught (codes 3 and 4), and those reflecting *what* words were taught during the daily sessions (codes 1 and 2). This marked discrepancy was illuminated further by examining when these changes were undertaken within the context of a series of daily PT sessions. This point is considered further in response to the fourth research question (see below).

**5.1.1.3.2 Research Question 4. 'Is there an order in which these adaptations are made that is more efficacious?'**

The data does appear to suggest an order to the timing and type of changes implemented. For example, although changes to the instructional approach (code 3) and those used to increase motivation (code 4) were the most commonly employed, these appeared to be distributed across most sessions of programme delivery. Conversely, changes reflected in codes 1 and 2 usually followed a review of progress undertaken at the end of sessions 3, 6 and 9 for implementation on sessions 4, 7 and 10. This structure to intervention around strategies to adapt *what* is taught in daily sessions can be seen to co-exist with the more broadly applied changes to *how* the content is taught.

In response to the first element of ***Research Question 5*** ('***What will be included in a structured framework for teaching adaptations…?')*** it was important that the features outlined above were represented in the new framework. Moreover, the following findings

from TA interviews also sought to expose further key areas of practice with PT sessions that may be combined within a framework for evaluation.

## 5.2 Findings from TA Interviews in November 2007

In order to illuminate further the coded 'change' data provided by the TAs involved, a series of interviews were undertaken (Interviews 1-8. See Appendix 4.2.5 for full transcripts). A thematic analysis of responses to each question is outlined below (see Appendix 4.2.3 for a transcription of Interview 2 with references made for the thematic analysis), and a summary of the findings, the key, primary themes emerging from each interview question across the 8 interviewees are also outlined in Appendix 4.2.5.1.

### 5.2.1 Thematic analysis of interviews 1-8

These interviews provided an opportunity for staff to respond to questioning surrounding 4 key topics (see Appendix 4.2.2), pertinent to research interests and their experiences at that point. Twelve questions (grouped in line with the topics to be discussed) were presented, with an additional question (7) also offered for any further comments. The table below summarises the questions posed and the topic to which each relates:

| Question number | Question | Topic |
|---|---|---|
| 1a) | *First, looking at the Record sheets you used, how helpful were they in recording your changes?* | **Utility of record sheet and codes** |
| 1b) | *Have you looked back at the sheets and thought about what they might show / mean?* | **Utility of record sheet and codes** |
| 2a) | *Were the codes (1, 2, 3, 4) suitable for recording the changes you made?* | **Utility of record sheet and codes** |
| 2b) | *Are there any changes you can suggest?* | **Utility of record sheet and codes** |
| 3a) | *How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?* | **Deciding on making a change** |
| 3b) | *What kinds of changes did you consider?* | **Deciding on making a change** |
| 3c) | *And where did these options come from?(experience, talking to others, reading etc.)* | **Deciding on making a change** |

| | | |
|---|---|---|
| 4a) | *Looking at your record sheets you appeared to (insert type of change/s most frequently implemented) most of the time. Why was this?* | **Types and order of changes** |
| 4b) | *Ok, so can you remember a particular example of this change ? – how did you think about what was going on?* | **Types and order of changes** |
| 5. | *When you implemented more than one change within a single programme you tended to try (insert type of change most frequently implemented first), then (insert type of change/s most frequently implemented latterly). Why was this?* | **Types and order of changes** |
| 6a) | *Overall what do you feel is the single most effective change you could make to improve student performance on a PT programme?* | **Most efficacious change** |
| 6b) | *Can you please explain why you said this.* | **Most efficacious change** |
| 7. | *Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?* | **Other comments** |

**Table 28: Topics and questions presented within Interviews 1-8**

#### 5.2.1.1 Utility of record sheet and codes

Most TAs indicated that the record sheets provided were suitable in recording programme changes. Elaborative comments directly referred to their contribution as a tool for highlighting previously successful changes that they could look back on to integrate into future programmes; for example:

*'I was able to look back and review what I had done previously and build on strengths'* (Interview 2).

However, one TA commented on the size of the boxes for recording changes as there was sometimes not enough space for detailing the nature of the changes within each code.

Another pointed out that noting down changes were problematic within their busy schedule, and described them as *'another thing to do'* (Interview 4).

When asked to consider the sheets and reflect on what they might show or mean, all but one of the TAs highlighted how the sheet was a helpful record of successful changes. Beyond the 'hard data' generated from the student's performance on the probe, most also noted that the record helped them reflect on the variety of changes and how they linked to the student's progress in learning. However, one TA outlined a limitation of the record sheet in recording student's motivation and engagement clearly:

*'Thinking about it now it shows you how the kids have done but we need more in the teaching column to help make sense of it. It doesn't show you about their motivation for getting on'* (Interview 7).

When given the opportunity to discuss the suitability of the codes (i.e. codes 1, 2, 3 and 4) for recording the changes made, most of the TAs responded positively to the system provided. However, two interviewees pointed out that, in addition to the need to increase the size of the recording spaces on the sheet, the code for changes to some areas of intervention (i.e. instructional and motivational interventions - codes 3 and 4) were too broad and did not allow enough specificity. TA6 stated:

*'I think mainly have smaller spaces for the codes in a more defined area – like tick boxes. I think that we could be more specific about the changes too by having a greater change especially around instruction changes'* (Interview 6).

In this section another pointed out how precisely recording changes to ephemeral aspects of code 4 intervention (i.e. use of praise to increase motivation) can be problematic. This suggested the need to verify the reliability of the data recorded:

*'…recording the praise you give as a matter of course. But you can't record everything, you wouldn't do the programmes! Maybe a video recorder would help, it depends on what detail you want I suppose !'* (Interview 7).

Lastly, seven of the TAs interviewed highlighted some possible amendments to the code system for changes implemented: the most frequent theme related to general issue of recording specifically the changes employed. As noted previously, the physical size of the boxes for recording codes and details about them was described to need to be enlarged by two TAs, and two more highlighted the need for greater specification about changes to instruction as they were often varied and the code appeared to be too broad to act as a helpful reminder for future changes. Further, comments regarding the need for specificity within the code for increasing motivation precisely also emerged:

*'Perhaps a motivation code not for the task, but for actually coming and turning up, being there'* (Interview 7).

#### 5.2.1.2 Deciding on making a change

When asked about how decisions regarding changes to the teaching carried out during PT programmes were made, two TAs highlighted the importance of the student's responses to more 'technical' elements of the PT process (i.e. the task, teaching and probe elements). One noted:

*'I looked at previous day's results and discussed it with him'* (Interview 2).

While another four focussed solely on the social and emotional elements of the sessions. For example:

*'A lot of it wasn't so much about the numbers or the data. It was about what N was saying, doing or responding to the task or just meeting with her'* (Interview 8).

In fact, this 'emotional' theme was stressed by six TAs, two of which also made reference to student's performance on the task-driven or technical elements of the intervention too. For example,

*'He was getting reluctant. It is a combination between the data, the scores and how he is'* (Interview 6).

On exploring further the types of changes considered the TAs responses reflected a balance between more technical adaptations to the task or teaching arrangements and 'softer' support strategies. For example, TA6 stated:

*'L always had a choice about what to do for teaching. Actually once he had gone through accuracy we then used flashcards which he liked a lot. I instinctively use praise'* (Interview 6).

TA8 also reported:

*'I always thought about her feelings a lot. But the codes didn't allow for interventions for emotional support, if you know what I mean'* (Interview 8).

Interestingly most TAs reported that the inspiration for such changes came from experience. However, it was the nature of their experience, working with adolescents, that seemed to be most important for a number of the interviewees. For example,

*'My experience of working with children with learning and behavioural needs - you need to be flexible and keep it positive or you might lose them'* (Interview 6).

Talking to colleagues and the students themselves provided sources of options for changes for two TAs in particular. An example of this was:

*'Talking to myself and to other colleagues like yourself and other teaching assistants. But the most important was CL himself, he helped a lot'* (Interview 5).

#### 5.2.1.3 Types and order of changes

Outside the impressions staff had on their use of the codes and how and when they undertook changes to programmes, the interview also explored the actual records provided by the TAs of their PT sessions with students. Analysis of their records beforehand found that most TAs implemented changes to instruction most frequently. In these instances most interviewees reasoned that this seemed to be the most effective change in terms of student performance and/or engagement in the programme. For instance:

*'I have needed to be flexible about things and use a variety of teaching approaches, and that is important for success. Changes here were about stopping boredom and stimulating them as part of this'* (Interview 8).

Interestingly, one TA pointed out that although they could make this their most frequently implemented change as a way of improving student performance, they explained that it also represented something more fundamental about what they were doing:

*'I changed the teaching the most because this is the first port of call. I wanted to see if it was me causing the problem'* (Interview 4).

In this way the TA indicated that making changes was driven by an underpinning sense of responsibility about their actions. Furthermore, when asked to recall an example of their most frequently implemented change, TAs' responses reflected greater specificity to the two themes emerging from the previous question. On the one hand, two TAs detailed how they changed the teaching to enhance student performance; for example:

*'The example of a word she was fixed on. The word 'Tuesday' was an example. I had to emphasise the use of it and generalise it in different ways'* (Interview 8).

However, five made reference to the importance of motivating the child and maintaining their relationship with them. One example was:

*'I was always thinking about the relationship with CL. Change to the programme were always agreed with him, and this was important as much as the change itself'* (Interview 5).

Lastly, the interview also explored occasions when more than one change was implemented during a programme as noted on each PT record sheet. The most frequently occurring sequence of changes was change to instruction, then adaptations focussed on increasing motivation. All TAs related such sequences of changes to improved student performance through a combination of outcomes relating to increasing task-specific behaviours, and increased concentration or confidence. Although most reported that

changes to the teaching approach were the most important changes impacting positively on student performance, it was noted that increasing student motivation further supported these adaptations. For instance one TA pointed out:

*'I was always looking at the action of teaching first. So she was increasingly clear about the task aspect, but we would change this if we needed to. The motivation was a 'safety net' to be increased when needed to boost her up to higher levels of fluency'* (Interview 8).

#### 5.2.1.4 Most efficacious change

On considering the single most effective change to improve student performance, the responses by TAs varied. For example, one TA stated:

*'Honestly I don't think you can focus on one thing and that it is a number of things that you would pick up and choose in line with each student. Structure is critical, but the motivation is usually the flesh to the bones of this programme process'* (Interview 8).

Nonetheless, the following specific changes were highlighted through the interviews: changes to instruction (noted by four TAs), feedback within motivational strategies (noted by two TAs), and involvement of the student:

*'Keeping the student fully participating is paramount - I didn't do it to him, we did the PT programme together. That's what makes this different I think'* (Interview 5).

With the exception of one interviewee, justifications for these views on the most effective types of changes emphasised the value of social or emotional support. These included the importance of a personal understanding of the student and their situation or disposition, the need to maintain motivation, build relationships and to involve the student in discussions about the programme. In this way, one TA commented:

*'They have all had difficulties in their lives, and find it hard to trust people, so being sincere is key. There is a culture about doing 'grown-up things', and the words themselves may be seen as a bit babyish, and so doing this privately is important'* (Interview 3).

This final extract, taken from Interview 8, also highlights the particular emphasis on emotional aspects of the PT process in practice:

*'Well I think the process and procedures are the backdrop to what is really going on about how you get on with the student and how responsive you are to them. N has always found reading hard, but she believed I believed in her and that made the biggest difference I think.'*

#### 5.2.1.5 Other comments

The final interview question allowed opportunity for all of the TAs to offer any other comments in relation to the topics previously discussed. Six TAs responded to this

question, with one TA noting how staff had noticed improvements in class (Interview 1), while others stressed the importance of social and emotional aspects of PT programmes. As a recurring theme from previous questions, one TA noted the importance of student performance and their general demeanour:

*'My decisions were based on two things: performance on the previous day's probe, and most importantly their mood and disposition'* (Interview 3).

Moreover, a number of the interviewees highlighted the emotional and social aspects of the PT intervention in terms of their relationship with the student. One example of this was:

*'The relationship is the most important factor, without it PT programmes are non-starters'* (Interview 5).

## 5.3 Phase 1 - summary of findings and formulation of the framework

Driven by ***Research Questions 3, 4*** and ***5***, findings from both key areas of data collection (PT record sheets and Interviews 1-8) indicated the need to incorporate a number of key structural and practice elements into the framework. Prior to discussion of these key features it is worthy of note that the Precision Teaching Practice Observations (PTPOs) noted in Chapter 4 relating to Aspect One (p. 104) demonstrated that PT sessions for Group A were being undertaken in the agreed format. Given these findings it is posited that the framework, as a key outcome from this element of the study, is grounded in

records and experiences of PT interventions carried out in comparable ways. However, attention was drawn by one participant (TA7) to the reliability of the recorded codes (i.e. Interview 7) in response to Question 2a; this provided further justification for the planned 'reliability of recording measure' (RRM) to be employed for staff using the framework to be implemented in the second phase for Cohort 2. Findings from the RRM are reported in the next section of this chapter (5.4) under Phase 2 of Aspect Two.

### 5.3.1 Framework structure and general practice

As a starting point, the development of the framework was based on a structure derived from an analysis of the timing and type of changes recorded from the initial sample of fifty-five programmes. In this way, the framework aimed to reflect the use of all types of changes, while acknowledging particular interventions, appeared to be employed more frequently at certain points across sequences of daily sessions. Consistent with the recorded changes provided by the TAs, implementation of changes influencing *what is taught* (via codes 1 and 2) frequently employed on sessions 4, 7 and 10 were to be prompted through structured review or 'decision points' following sessions 3, 6 and 9 within the new framework for PT sessions. This structured format to the framework focussing on possible revision to what words are taught following the first three groups of three daily sessions (i.e. 1-3, 4-6 and 7-9) offered a heightened emphasis on reviewing student progress and the fundamental shape to the framework. Although reviewing student performance is core to the formative practice of PT promoted within the project (as in the *'teach-test-chart-review'* procedure), the data indicated that implementation of

these kinds of programme revisions were helpful in meeting programme criteria, and the developed framework aimed to emphasise this effective practice.

Under the new framework, the introduction of a first prompt to review progress following the third daily session would allow time for those programmes completed within the minimum time scale (i.e. three sessions) to be concluded, and also offer adults leading continuing programmes a reasonable dataset on which to base their decisions on whether the task itself was appropriate. In line with the pattern of recorded changes in programmes with Group A, further decision points following sessions 6 and 9 were offered to enhance the continuing level of structured focus on student performance at particular sessions. The second key 'decision point' following session 6, allows a review of task suitability with the provision of a further three daily sessions to 'fine-tune' programmes to ensure success for most students. This would then lead to another review stage, the third decision point, following session 9. In sum, the framework offered a nine-session structure within which to complete a programme without revision to the task itself. Inspection of the sample of programmes on which the framework was based indicates that this would allow 84% successful completions. It was hypothesised that with increased structure and the provision of a more planned approach to decision-making most programmes would be completed within this timeframe. If not, appropriate support to facilitate programme revisions were presented within the framework, following session 9, in order to avoid programmes being extended unnecessarily and any possible costs to motivation for the students and adults involved.

The use of changes represented by codes 3 and 4, referring broadly to how the word lists in each programme are taught, needed to be promoted for use throughout all daily programme sessions. Not only were both of these codes employed from the outset of most programmes, and were the most frequently employed overall, information from the interviews highlights the value of their dispersed use. Interestingly, verbal examples of interventions represented by code 4 (e.g. 'praise') were reported by two TAs in their interviews to be *'instinctively'* or *'naturally'* used in a variety of ways during most programme sessions and so not always recorded (e.g. Question 3b, Interview 4 or 6). This highlighted the need for greater rigour around the examination of the reliability of the records made by the TAs: the RRM noted earlier was planned with this purpose in mind during the implementation of the framework for Groups C and D.

Consideration of the interview data highlighted a broadly positive response to the coded structure used for recording changes within PT programmes by TAs, and it was planned that to evaluate the new framework a recording element would continue. However, discussion over this component of practice served to illuminate the recorded data, with the need for development of the coding specification and record sheet being important. In the interests of consistency the four areas of 'change' or intervention within PT programmes (i.e. four codes) were to continue under the new framework, though interview data suggested that developments to them were required. Particular amendments related to the need for greater specificity within the four broad codes to allow for reflection on effective previous changes and, as part of this, consideration of the need to rename some of them more appropriately.

#### 5.3.1.1 Use of codes 1 and 2 – what is taught

Firstly, analysis of the use of code 1 adaptations (changes to the sequence of the task) through the use of reordering the presentation of words from the PT programme plan, or code 2 (changes to task or skill slices) through changing the task size (i.e. presentation of fewer or more words), indicates that, although these were used less frequently, they were implemented in a more concentrated manner at certain points. These remained largely unchanged within the FSATI, with the following minor amendments being made:

Under the new framework, code 1 was renamed **'Change to the sequence of tasks'** as a point of refinement from the initial descriptor of 'change to the sequence of tasks or skills'. Additionally, given the nature of the task at hand within PPTP (i.e. improving sight-word reading skills) code 2 was recorded consistently by TAs as changes to 'task size', rather than 'task slice'. Unlike other skill areas where 'task slicing' may be more readily used (e.g. phonically regular CVC words may be taught in five key slices by holding the medial vowel constant: CaC, then CeC, CiC and so on), under the framework for sight-word reading, code 2 changes referred to an increase or, more often, decrease in the size of the task, as in the number of words taught at one time. As such 'slicing' methods were not employed by the TAs, within the new framework to be used for sight-word reading code 2 changes were to be referred to as a **'Change to task size'**.

#### 5.3.1.2 Use of codes 3 and 4 – how programmes are taught

Code 3 (changes to the instructional approach) and code 4 (increasing motivation) required marked modification in their titling and specification. With regard to code 3 it was proposed that this could be broadened in name and specified further to encompass a range of changes. Given the comments from TAs regarding the range of possible changes made within this code, it was more appropriately named **'Change to teaching arrangements'**. This code included changes to:

- instructional procedures (i.e. moving from accuracy to fluency building activities) – code 3a
- organisational arrangements (i.e. timing of sessions, duration of daily intervention) – code 3b
- teaching materials (e.g. size and type of materials) – code 3c
- teaching activities (e.g. variety of 'games' utilised) – code 3d

Code 4 (increasing motivation), in light of feedback, also required development. This related to a variety of practices that may lead to maintaining and developing student motivation in PT programmes. References within the framework to this aspect related to:

a) recognition of positive task-related behaviours (e.g. improvements in accuracy and/or fluency, observed effort during PT sessions or programme completion)
b) recognition of personal commitment to the intervention (e.g. regular attendance and punctuality, additional practice at home)

Furthermore, clarifications were required regarding ‘motivational’ interventions that serve to either:

c) develop relationships with student using more personalised approaches (such as discussions in response to mood or disposition) and/or,
d) consultation about other aspects of the PT intervention (such as teaching approach, task expectations, task objectives and task sequence) .

Discussions about personal presentation (i.e. ‘c’ above) can be seen to fit into a range of ‘changes’ in PT practice that serve to foster involvement and motivation through emotionally sensitive interventions that were seen by TAs to be removed from the more ‘technical’ aspects of teaching. However, inclusion of consultation with students about such technical elements (as in ‘d’) within this code may have appeared more suited to a ‘code 3’ adaptation. Inspection of TA interview responses appears to indicate that this change in practice, as emphasised in ‘d’ above, is bound up more in relationship-building as part of the student feeling recognised and listened to, and so remained within this area of change for the development of the FSATI. Given this, code 4 was renamed more broadly to ‘**Increase student engagement’**, and included all four elements above (labelled code 4a, 4b, 4c, 4d respectively). Moreover, this theme of engaging the student is one that recurred throughout many aspects of the interviews conducted and the coded data: the newly developed framework required opportunity to implement this kind of intervention throughout the entire process. As an additional, specific amendment to support these kinds of supportive interventions was the inclusion of a ‘warm-up’ or familiarisation session at the beginning of each new PT programme. This was highlighted

by one TA (TA1) as a way of building student confidence and understanding of task expectations from the outset, and so formed a 'hard-wired' aspect of the new PT process within the framework.

#### 5.3.1.3 Key findings for the formulation of the framework

As a product of the findings from sections 5.3.1, 5.3.1.1 and 5.3.1.2 Table 29 (see below) is presented. This is arranged over three columns detailing key elements of the framework, a summary of the related findings and implications for the framework's formulation (i.e. FSATI):

| Framework element | Key finding | Implication for framework formulation |
|---|---|---|
| **Framework 'limits' – duration of programmes** | 84% of programmes were completed to success criteria by session 9. | Framework to offer 9 daily sessions to reach criteria with provision of further peer support or external advice if necessary following the final ninth session. |
| **Structure and implementation of specified changes** | Use of changes to *what* is taught (code 1 and 2) noted frequently after sessions 3, 6 and 9. | Provision of prompts through for code 1 and 2 changes at 'decision points' (1, 2 and 3) following daily sessions 3, 6, and 9. |
| | Use of review and changes to *how* content (code 3 and 4) is taught across most sessions. | Provision of use of changes under codes 3 and 4 across all sessions. |
| **Structure and implementation of an introductory session** | Staff report (TA1) use of 'warm-up' session to build student confidence and understanding of task expectation prior to formal *teach-test-chart-review* procedure. | Insertion of 'Familiarisation session' to be used to discuss programme objectives, outline process for next session, introduce new words and begin to build accuracy through brief teaching. A probe may be implemented on this occasion. |
| **Development and specification of codes** | Requirement to retitle code 1 from 'change to the sequence of tasks or skills'. | To be known as **'Change to the sequence of tasks'** as a point of refinement from the initial descriptor. |
| | Requirement to retitle code 2 from 'changes to task size or slice'. | To be known as **'Change to task size'** as a point of refinement from the initial descriptor. |
| | Requirement to retitle code 3 from 'changes to the instructional approach' and specify four sub-codes within. | To be known as **'Change to teaching arrangements'** comprising changes to:<br>- instructional procedures – **code 3a**<br>- organisational arrangements – **code 3b**<br>- teaching materials –**code 3c**, and<br>- teaching activities – **code 3d** |
| | Requirement to retitle code 4 from 'increasing motivation' and specify four sub-codes within | To be known as changes to '**Increase student engagement'** comprising intervention that allows<br>- recognition of positive task-related behaviours - **code 4a**<br>- recognition of personal commitment to the intervention - **code 4b**<br>- development of relationships with student using more personalised approaches - **code 4c**, and<br>- consultation about other aspects of the PT intervention – **code 4d** |

**Table 29: A summary of the findings from Aspect Two (Phase 1) and the implications for the formulation of FSATI**

### 5.3.1.4 Presentation of the framework at Phase 1

As in a 'grounded' approach, following this analysis of the 'raw' coded data and interview transcripts (summarised in Table 29 above), the framework was formulated for implementation within PT programmes for Groups C and D. The framework (*Framework for the systematic adaptation to teaching interventions*, FSATI) is presented as the key outcome from the first phase of Aspect Two of the PPTP research to be trialled and reviewed through Phase 2. The initial FSATI is presented in the Appendices (within Appendix 4.2.6) comprising of three inter-related parts:

1. a **guidance document** offering an overview of the principles, practice aspects and recording procedures to be considered when utilising the framework (Appendix 4.2.6.1)
2. a **FSATI record sheet** to be utilised within daily practice for the recording of interventions used against the revised 'change' codes noted above (Appendix 4.2.6.2)
3. a **flowchart** (also presented below) as a visual *aide-memoire* outlining the FSATI 'practice pathway' to inform decision making during programmes (Appendix 4.2.6.3).

## 5.4 Aspect Two - Phase 2

Following the use of the newly developed *Framework for the systematic adaptation to teaching interventions* (FSATI) with PT programmes with Groups C and D (Cohort 2), two key sources of information were considered to respond further to ***Research Questions 3, 4*** and ***5*** as a way of developing the framework.

Firstly**,** inspection and analysis of completed FSATI record sheets providing coded data on changes made to the successful PT programmes for Groups C and D was undertaken. TAs were required to record any changes they made to the programmes they undertook using the new framework on a prepared FSATI record sheet (see Appendix 4.2.6.2 for an example of an uncompleted sheet). Consistent with the framework they used these codes to represent the following changes or interventions:

| **Changes to/for…** | Recorded as code: |
|---|---|
| 'the sequence of tasks' | 1 |
| 'task size' | 2 |
| 'teaching arrangements' by changing instructional procedures | 3a |
| 'teaching arrangements' by changing organisational arrangements | 3b |
| 'teaching arrangements' by changing teaching materials | 3c |
| 'teaching arrangements' by changing teaching activities | 3d |
| 'increasing student engagement' by recognition of positive task-related behaviours | 4a |
| 'increasing student engagement' by recognition of personal commitment to the intervention | 4b |
| 'increasing student engagement' through interventions to develop relationships with student using more personalised approaches | 4c |
| 'increasing student engagement' through consultation about other aspects of the PT intervention to encourage student engagement | 4d |

**Table 30: Changes implemented by TAs and their corresponding codes in Phase 2**

Secondly, semi-structured interviews were conducted with each TA regarding their use of the framework (see Appendix 4.2.6) and the processes underpinning the teaching adaptations made by them during its implementation in PT sessions for Cohort 2 (see Appendix 4.2.10 for the interview procedure). As for the previous round of interviews in Phase 1 a 'thematic analysis' of interview responses were undertaken.

## 5.5 Reliability of recording measure (RRM)

Prior to an outline of the findings and outcomes relating to this aspect of the study, data regarding the consistency of the records kept by the TAs during their work with a sample of students in Cohort 2 is presented. Using the FSATI structure twenty-five audio-taped PT sessions were compared against the handwritten records from the same sessions made by each TA (i.e. on FSATI record sheets) to provide a percentage figure of 'inter-record agreement' or an RRM (see Appendix 4.2.7 for the raw data and a sample transcript). The reliability of the written code records was very high (Aspland & Gardner, 2003) with a mean inter-record agreement of 95% between the two sources. Inspection of the audio recorded data also provided inspiration for development to the coded changes to be included in the revision of the framework. These are reported later in this chapter.

## 5.6 Findings from the FSATI record sheets

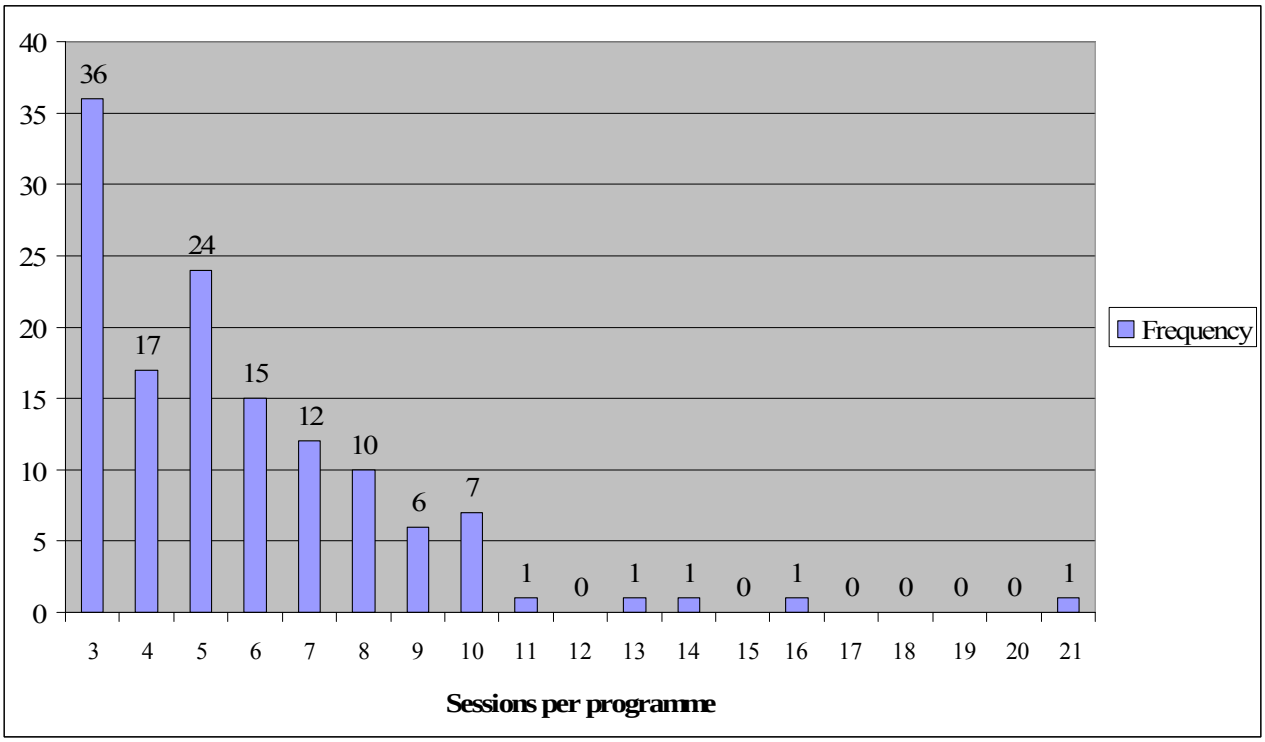
As for Phase 1 of Aspect Two of the study the information on the record sheets supplied by the TAs were collated (see Appendix 4.2.8) and analysed with reference to the number of sessions taken for each programme to reach the success criteria* (see below) and the range and level of different changes made within each programme using the FSATI. This analysis related directly to ***Research Questions 3*** and ***4*** noted earlier.

### 5.6.1 Programme duration

The total number of PT programmes successfully completed* (to the same criteria as for students in Cohort 1) for Cohort 2 was one hundred and thirty two as represented by

programmes numbered 56 to 187. Under the FSATI, programmes may be significantly revised at 'decision points' following sessions 3, 6 and 9, by making changes to what is taught by adjusting either the task size or sequence (represented by codes 2 or 1 respectively), and under the framework these were continued as 'revised' programmes (see Appendix 4.2.6.1). Within the framework revision of this kind did not constitute a 'new programme', and so when such strategies were employed the same programme number was maintained. For example, programme number 178 took three revisions prior to meeting the success criteria, totalling twenty-one sessions in all. This is an atypical example, but is consistent with the framework in allowing for adaptation what is taught within a programme through a formative approach rather than seemingly starting afresh each time. Accordant with the framework, thirty-eight (22.4%) programmes were revised at some point at 'decision points' 1, 2 or 3, contributing to the one hundred and thirty-two PT programmes completed to criteria*. The raw data for all programmes undertaken in this phase (programmes 56-187 inclusive), including details of when and what specific changes were implemented, can be found in Appendix 4.2.8.

A summary of the number of sessions taken for each programme to reach the success criteria can be found in Appendix 4.2.9. This data highlights how programmes varied from three to twenty-one daily sessions to reach the agreed success criteria using the FSATI. This is illustrated in Graph 13 (see below):




**Graph 13: The number of programmes lasting from 3 to 21 sessions**

As for Phase 1 (based on work with Group A), most programmes lasted for three sessions, representing 27% of all programmes undertaken for Groups C and D. By the end of session 6, 70% were completed and by the conclusion of session 9, 91% of all PT programmes ended successfully. This pattern of programme completion across these three broad 'stages' of programme delivery with Groups C and D (n=132) is compared in a percentage format with programmes conducted to the same success criteria* (without use of the FSATI) for Group A (n=55) in Table 31 (see below):

| **Stage of programme delivery** | **Percentage of programmes completed to success criteria*** | |
|---|---|---|
| | **Phase 1 (Group A)** | **Phase 2 (Groups C and D)** |

| | | |
|---|---|---|
| **By end of session 3** | 33% | 27% |
| **By end of session 6** | 58% | 70% |
| **By end of session 9** | 84% | 91% |

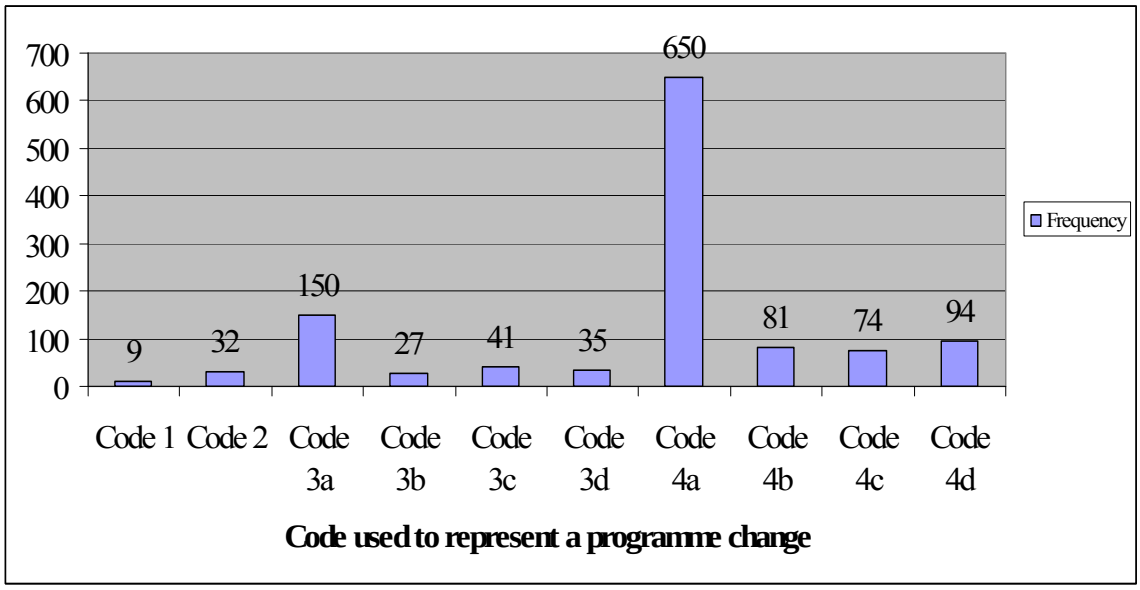
**Table 31: Comparison between the percentage of sessions for programmes completed to criteria* in Phases 1 and 2 by the end of sessions 3, 6 and 9.**

Although, on a proportional basis, 6% more programmes were successfully concluded for students in Group A by the end of the third daily session, the data above shows an increase in the percentage of successful programmes completed under the FSATI by the conclusion of the sixth and ninth daily sessions. Furthermore, the comparative increase in the level of successful programme completion under the FSATI appears promising given the data collected, and this may suggest that greater structure to the delivery of PT sessions may have supported the more efficient delivery of programmes.

### 5.6.2 Research Question 3. 'What are the precise teaching adaptations made by staff to improve student performance toward defined success criteria within PT programmes?'

A presentation of the changes made to all PT programmes across the five participating schools can be found in Appendix 4.2.8. This data represents all one hundred and thirty-two successful PT programmes involving all fifty students in Cohort 2 (Groups C and D). As a summary, the total number of the different coded changes made across these programmes was one thousand one hundred and ninety-three. The distribution of these

changes across the ten codes under the FSATI (i.e. codes 1, 2, 3a, 3b, 3c, 3d, 4a, 4b, 4c, 4d) is shown in Graph 14 (see below):




**Graph 14: The total number of all recorded changes across completed* programmes for Groups C and D**

Consistent with the data collected in the first phase of this aspect of the study, the information above highlights use of all coded changes *and* marked differences in the use of the codes. The most frequent implementation of changes to programmes involved 'recognition of positive task-related behaviours' (4a) and changes to 'instructional procedures' (3a).

Of further interest here is the interaction of recorded changes across daily sessions. The frequency of implementation of all types of changes across daily sessions, including those undertaken at the three 'decision points', is presented in Table 32 (see below):

| Daily Session (DS) or Decision | Number of changes made |
|---|---|

| Point (DP) | |
|---|---|
| DS 1 | 238 |
| DS 2 | 275 |
| DS 3 | 262 |
| DP 1 | 20 |
| DS 4 | 157 |
| DS 5 | 121 |
| DS 6 | 59 |
| DP 2 | 14 |
| DS 7 | 23 |
| DS 8 | 12 |
| DS 9 | 5 |
| DP 3 | 7 |

**Table 32: The frequency of implementation of all types of changes across all daily sessions and the three 'decision points'**

This decreasing level of 'change activity' as programmes move through successive sessions is consistent with the reducing number of continuing PT programmes as daily sessions advance (see Graph 14 above).

### 5.6.3 Research Question 4. 'Is there an order in which these adaptations are made that is more efficacious?'

In order to explore the precise type and frequency of changes implemented across all daily sessions Table 33 is presented (see below). The cells shaded in grey with text emboldened highlight the most frequently occurring change during that daily session or

decision point. This table represents a summary of the raw data presented in Appendix 4.2.8.

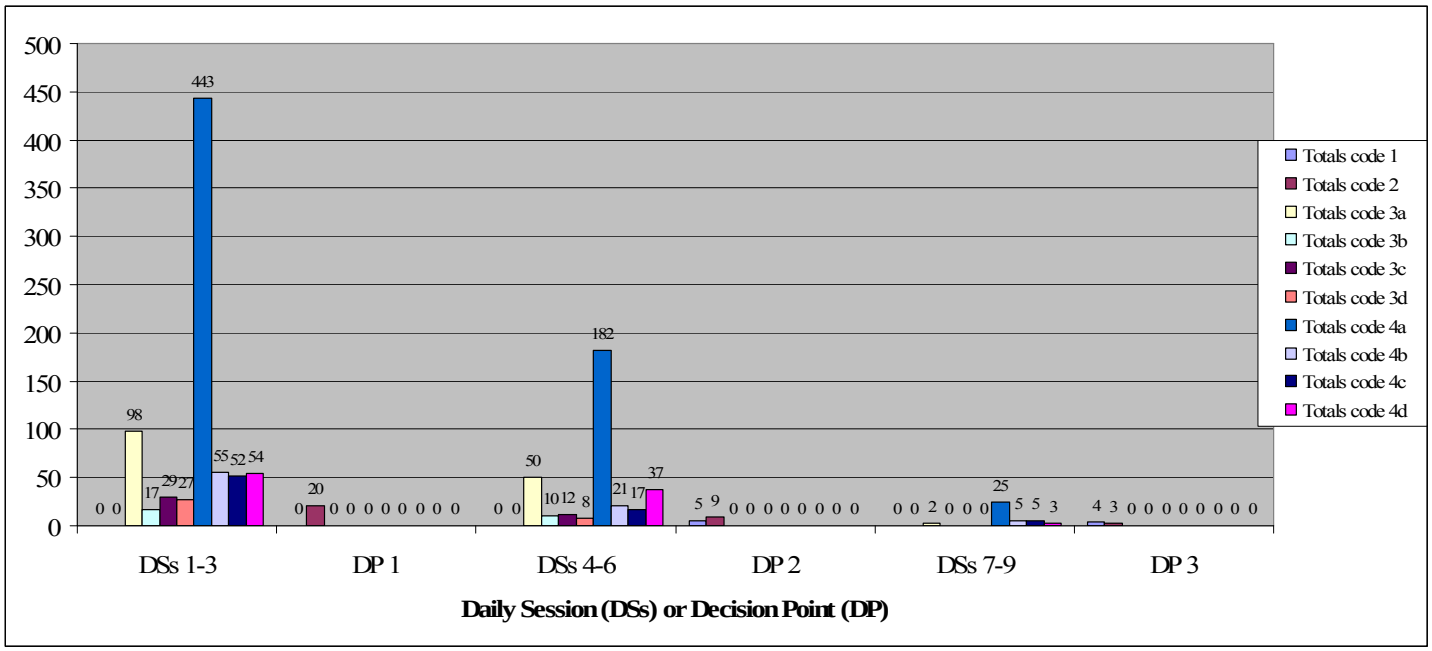
| **Codes** | **DS1** | **DS2** | **DS3** | **DP1** | **DS4** | **DS5** | **DS6** | **DP2** | **DS7** | **DS8** | **DS9** | **DP3** | ***Totals*** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Code 1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | **4** | ***9*** |
| **Code 2** | 0 | 0 | 0 | **20** | 0 | 0 | 0 | **9** | 0 | 0 | 0 | 3 | ***32*** |
| **Code 3a** | 21 | 58 | 19 | 0 | 20 | 23 | 7 | 0 | 2 | 0 | 0 | 0 | ***150*** |
| **Code 3b** | 1 | 4 | 12 | 0 | 3 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | ***27*** |
| **Code 3c** | 6 | 7 | 16 | 0 | 4 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | ***41*** |
| **Code 3d** | 2 | 13 | 12 | 0 | 5 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | ***35*** |
| **Code 4a** | **142** | **146** | **155** | 0 | **92** | **56** | **34** | 0 | **15** | **7** | **3** | 0 | ***650*** |
| **Code 4b** | 16 | 20 | 19 | 0 | 7 | 11 | 3 | 0 | 3 | 2 | 0 | 0 | ***81*** |
| **Code 4c** | 23 | 12 | 17 | 0 | 7 | 5 | 5 | 0 | 2 | 2 | 1 | 0 | ***74*** |
| **Code 4d** | 27 | 15 | 12 | 0 | 19 | 11 | 7 | 0 | 1 | 1 | 1 | 0 | ***94*** |
| ***Totals*** | ***238*** | ***275*** | ***262*** | ***20*** | ***157*** | ***121*** | ***59*** | ***14*** | ***23*** | ***12*** | ***5*** | ***7*** | ***1193*** |

**Table 33: The total number of recorded codes across all daily sessions (DS) and decision points (DP) for Groups C and D**

In considering the efficacy of changes made, it should be stressed that the data above represents changes made within all successfully completed programmes for Cohort 2. The timings or order of the changes were consistent with the FSATI structure and, by a notable margin, the most commonly occurring intervention within these successful programmes was that represented by code 4a (i.e. 'recognition of positive task-related behaviours'). In fact, all four of the changes under the heading of 'code 4' ('increasing student engagement') were the most frequently used out of the four broad types of change and, with the exception of code 4b for daily session 9, all code 4 changes were used at some point across all daily sessions. Those codes reflecting 'changes to teaching arrangements' (i.e. codes 3a, b, c and d) were also frequently employed, with all but code

3b being used during daily sessions 1 to 6. In line with the FSATI, codes 1 and 2 were implemented at the decision points leading to revision of what was being taught within the current programme, with no records supplied by the TAs suggesting the need to implement these at any other point across the sequence of daily PT sessions. The most frequently applied were code 2 (representing a change to the 'task size') at decision points 1 and 2, and code 1 (representing a change to the 'sequence of tasks') at the final decision point.

When the above data (Table 33) showing the types and levels of changes employed is grouped in line with the staged approach to programme delivery promoted by the FSATI, a profile of change activity consistent with the framework is emphasised once again across the 132 completed programmes (Graph 15):




**Graph 15: The distribution of different recorded codes across stages of the FSATI for Groups C and D**

## 5.7 Findings from TA interviews in April and May 2008

As a further opportunity to respond to ***Research Question 5***, '***What will be included in a structured framework for teaching adaptations, and how useful is it in practice?'*** a second series of interviews was held with all participating TAs. In the same way as the interviews held in term 2 (Interviews 1-8), those conducted at this point also sought to illuminate key aspects of practice that might be used as inspiration for developments. To do this Part 1 (Questions 1-7) of Interviews 9-16 were administered to all eight TAs (see Appendix 4.2.10 for interview procedure and 4.2.11 for full transcripts). However, on this occasion (given the opportunity for TAs to utilise the framework), further to adding to a revision of the initial FSATI an emphasis was also placed on the utility of the framework as focussed on in the second element of ***Research Question 5***: '…***how useful is it in practice?'***

For reference, the initial version FSATI flowchart is presented (see Figure 7 below), and this can be located in Appendix 4.2.6.3 alongside the guidance document and record sheet:

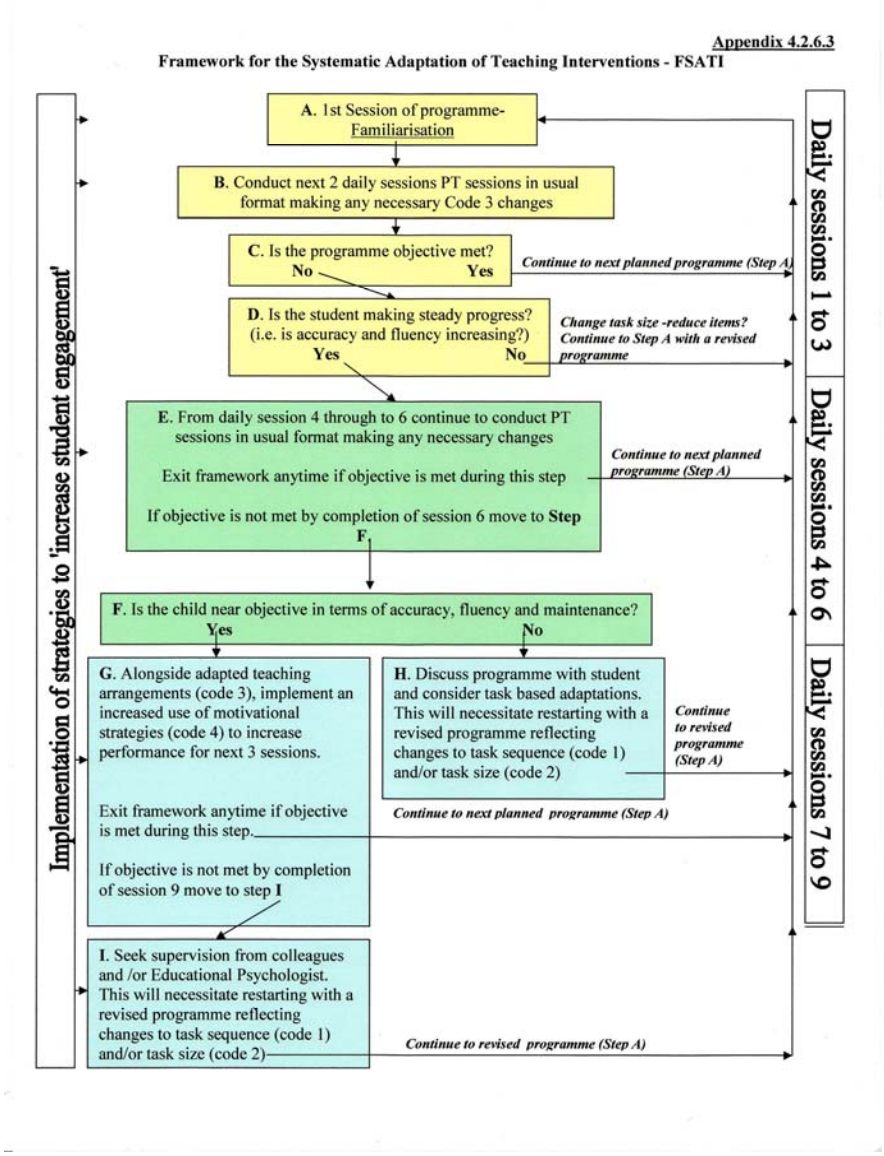



**Figure 7: Reduced version of the FSATI 'flowchart' from Appendix 4.2.6.3**

## 5.7.1 Thematic analysis of interviews 9-16 (questions 1-7)

A thematic analysis of responses to each question was undertaken in the same manner as for Interviews 1-8 (see Appendix 4.2.3 for an example), and the key themes emerging from each question in this second set of interviews are outlined below. As a summary the primary and elaborative themes emerging from each interview question relating to Part 1

(and Part 2, discussed later in section 6.2) across the eight interviewees are also outlined in a table in Appendix 4.2.11.1.

These interviews provided an opportunity for staff to respond to questioning surrounding four key topics (see Appendix 4.2.10). Thirteen questions (grouped in line with the topics to be discussed) were presented, with an additional one also offered for any further comments. Table 34 summarises the questions posed and the topic to which each relates:

| Question number | Question | Topic |
|---|---|---|
| 1a) | *First, looking at the framework and guidance, was it clear how you needed to use it?* | **Understanding and use of the FSATI** |
| 1b) | *Can you give examples of this?* | **Understanding and use of the FSATI** |
| 1c) | *What were the most helpful aspects of FSATI materials I produced?* | **Understanding and use of the FSATI** |
| 1d) | *Were there any aspects that were less helpful, or is there anything I could improve on?* | **Understanding and use of the FSATI** |
| 2a) | *Was the FSATI helpful during actual programme delivery?* | **Understanding and use of the FSATI** |
| 2b) | *Were they any drawbacks, such as being overly restrictive, or maybe too open ended?* | **Understanding and use of the FSATI** |
| 3) | *Now looking at the new Record sheets you used, how helpful were they in recording your changes?* | **Utility of Record sheet and codes** |
| 4a) | *Were the codes 1,2,3,4, and the sub-codes suitable for recording the changes you made?* | **Utility of Record sheet and codes** |
| 4b) | *Are there any changes you can suggest? Were there any other kinds of changes not covered within the FSATI?* | **Utility of Record sheet and codes** |
| 5a) | *Were the key 'decision points' helpful in making changes to support student progress? If so, in what way?* | **Deciding on making a change** |
| 5b) | *How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?* | **Deciding on making a change** |
| 6a) | *Overall, and thinking back across the project, what do you feel is the single most effective change you could make to improve student performance on a PT programme?* | **Most efficacious change** |
| 6b) | *Can you explain why you said this?* | **Most efficacious change** |
| 7) | *As I pointed out at the beginning, I am planning to revise the framework at the end of this project. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?* | **Other comments** |

**Table 34: Topics and questions presented within interviews 9-16 (Part 1)**

#### 5.7.1.1 Understanding and use of the FSATI

All TAs reported that the materials were clear for them to use, and continued to elaborate on why this was. Interviewees noted how the framework 'provided structure' (Interviews 9 and 16), found 'use of guidance document' helpful (Interviews 10 and 15), and how the FSATI as a whole represented a form of 'cumulative learning' (Interviews 13 and 14). When prompted to add more about the clarity of the FSATI materials, the guidance document was highlighted by four TAs as a particularly useful element. One TA noted,

*'Well the reference to staff aims and student outcomes in the document walkthrough bit*[1] *was a way of making the specific aspects clearer'* (Interview 12).

This point surrounding clarity of the materials was also emphasised by two more of the TAs, with one other highlighting the 'coherence' of the materials:

*'It all tied in well with the flowchart and the record sheet we completed'* (Interview 14).

Two others made specific reference to the utility of the FSATI flowchart, emphasising the clarity that it brought to the sessions and how it supported collaborative learning with the student. While the remaining two TAs noted the value of the materials for prompting greater reflection on the programmes undertaken, one of these pointed out:

[1] The 'walkthrough' section of the FSATI document, a step- by-step guide to the use of the framework, is located within the guidance document (see Appendix 4.2.6.1).

*'It helped me question it, is what I am doing right and reflect back on how the kid is doing each day'* (Interview 9).

This TA elaborated by pointing out how the materials would be helpful in sharing PT practice with others.

Most of the staff interviewed stated the most helpful element of the FSATI materials provided was the flowchart. Reasons for this were twofold: it provided a summary of the FSATI and was also useful for the students they were working with. For example, TA4 stated:

*'It was visual, tidy and brought it all together, ideal for the students as a learning map I think'* (Interview 12).

Two TAs also noted the value of the guidance document to this question. One explained this in terms of their personal preference for *'words than pictures'* (Interview 15), while the other noted the importance of the document in reminding them how to record coding details correctly. TA2, who reported the utility of the record sheets, explained their positivity towards the guidance document in terms of its physical presentation and use as a reminder to follow the FSATI structure:

*'The layout was good, though I was pushed for time, it reminded me to check the programme regularly after three and six days'* (Interview 10).

When asked about any possible developments to the FSATI materials most of the TAs suggested no significant improvements. However, four of them noted their limited use of the familiarisation session built into daily session 1. For example, one said:

*'The only thing was that I didn't use the familiarisation session so specifically as that happened as part of routine sessions. I just used to get on with it seeing accuracy as a crucial starting point'* (Interview 12).

Other TAs elaborated their response in noting the strength of the materials in terms of some of the themes noted in response to earlier questions. Specifically comments included the utility of the materials in sharing practice with colleagues and being 'student-friendly'. One other TA pointed to the need for the materials to be long enough in order to accommodate the necessary details to ensure clarity in practice was conveyed. Interestingly, one TA commented that the flowchart element of the materials was least helpful for her, although recognised that others may find it of use:

*'I can see why people want a flowchart, but for me the guidance document and the record sheet was enough'* (Interview 15).

Importantly, all TAs reported that the framework was helpful in practice. A number of TAs explained this by commenting on how it provided them with a sense of clarity, while others explained their positive response in terms of the framework's value in explaining

the process to the students they were working with. Conversely, TA4 highlighted its value in terms of  in making them feel secure about their practice:

*'It made me feel I was doing the right thing I guess'* (Interview 12).

While another drew on the themes of clarity and security in explaining their positive experience of the flowchart:

*'It was my guiding light as well and made me feel safe I suppose. Sure I was doing the right thing'* (Interview 13).

In response to the last question on the first topic, most of the interviewees reported no significant drawbacks with the FSATI materials. Three interviewees justified this response in relation to how the materials offered security and freedom in their PT practice. One said:

*'It was a safe framework to be flexible in.  I liked that and it gave me confidence'* (Interview 10).

Two others also noted this aspect and coupled it with reference to how they thought the materials could be used to explain the approach to others:

*'It worked for me and let me choose a range of changes within a safe model. I have shared it with my colleague and it seemed to make sense to them too, and they haven't heard of this before'* (Interview 14).

The other two TAs explained their answers in connection with reference to sharing PT approaches to uninitiated colleagues, with one of these (TA7) adding a further comment surrounding the intuitive, simplified approach the framework offered. Lastly, one TA (5) highlighted a minor drawback relating to the length of the guidance document, though explained that they could see the need for these kinds of materials:

*'…I can see why you need the detail and I used it quite a lot for specific problems.'* (Interview 13).

#### 5.7.1.2 Utility of the FSATI record sheet and codes

All TAs reported that they found the record sheets helpful. Three commented on how they emphasised the FSATI structure and that it tied in well with the other documents. Two others pointed out how they promoted reflection on previous successes; for example:

*'They were very helpful to look at what I had done before that had worked with the current or previous pupil. They were a good source of inspiration for me really.'* (Interview 10).

The three remaining TAs all commented on a possible adaptation to the sheets allowing for equivalent space for noting the details of all changes across the four codes. For example:

'*Having said that I think you could have just one column for the changes 'cos it does emphasise the teaching a bit more, and often there are other things that are even more important'* (Interview 16).

In terms of the codes provided for monitoring the programme changes implemented, all eight interviewees agreed that the codes were all suitable. TAs 4, 6 and 7 expanded on their responses in pointing out that their presence acted as helpful reminders as to the range of changes available. Furthermore, not one TA offered any amendments to the codes within the FSATI. Some elaboration was offered by the interviewees to this question with TA1 pointing out the need to keep the coded changes as they are for reasons of practicality:

*'You don't want to make it too detailed as people won't use it, it won't be practical'* (Interview 9).

TAs 4 and 8 offered additional remarks, with the former relating their positive response to the breadth of changes already present within the current FSATI arrangements. In a different vein, TA8 noted:

*'…it will be ideal for newcomers - the model overall is a safety net for them I think and will boost confidence 'cos it's so clear.'* (Interview 16).

On a different note, reference was also made to an issue relating to the recording of codes within the FSATI guidance:

*'…when I praise the kids, I do it all the time, but could only note it down once so you don't get an idea of how much you need to do that thing. But that's recording problems'* (Interview 14).

**5.7.1.3 Deciding on making a change**

All TAs were in agreement that the decision points were of help. Explanation of this response related to the promotion of greater structure to evaluation following specific daily sessions. For example, TA2 stated:

*'…it reminded me to be more focussed about analysing the data at certain times. Sometimes it is easy to forget, though there were clear 'lines-in-the-sand' and the record sheet reinforced that well'* (Interview 10).

When the interviewees were questioned about deciding to make a change to their programmes, all highlighted the importance of the student's presentation in response to this question. This was related to their performance on the teaching or testing elements of daily sessions or their general mood or disposition. Moreover, all but one TA extended

their answers by noting the way in which they would discuss any changes with the students too. For example, TA1 said:

*'…you have to see how the students are feeling about the work; it is easy to rush on even though you think they are feeling good about it all, so talking about the programme and the teaching bit with the student really helps.'* (Interview 9).

#### 5.7.1.4 Most efficacious change

All but one TA pointed to the value of 'praise' in supporting student progress. Conversely, TA2 made reference to a connected factor: opportunities to build relationships. Reasoning behind the use of praise in particular tended to link to the positive contributions it is seen to bring to student confidence and/or the adult-learner relationship. For instance, TA1 stressed both aspects:

*'…To some extent getting the teaching right is the easy bit, making the kids believe they can do it and building a good relationship with them through recognising their achievements is the real key.'* (Interview 9).

Linked to an answer given by TA6 to Question 4b (section 5.7.1.2 above, p. 172), reference was also made again to an issue relating to the recording of codes within the FSATI guidance. TA7 stated:

*'The positive, task praise. I did it 14 times on the record sheets. I had a look yesterday, but probably more in reality. It is hard to record everything from memory'*
(Interview 15).

The point relating to the recording of a single change code despite possible repeated use of that intervention requires consideration in the formulation of the revision of the framework. This issue was also highlighted through inspection of the raw data (see Appendix 4.2.7) from the comparisons between written records and audio recordings that were made to form the RRM noted earlier (section 5.5 above, p. 156).

#### 5.7.1.5 Other comments

None of the TAs was able to point out any other amendments to the framework, although most of the interviewees made a number of positive comments relating to the FSATI: all of which had been raised at earlier stages of the interview. These comments related to the framework being simple to use, structured, clear, allowing freedom and flexibility and potentially helpful in explaining the approach to others.

## 5.8 Phase 2 - Summary of findings and revision of the framework

Findings from both the FSATI record sheets and the second round of interviews indicated the need for some further development of the initial framework. The areas for possible consideration or revision detailed below relate to four aspects of the FSATI: the structure of the framework, adaptation of the record sheet, limitations of recording protocols and an addition to the coded changes. Prior to discussion of these items, it is important to point out that the findings from the PTPOs in May 2008 (noted earlier in Chapter 4) and

the measure of inter-record agreement undertaken (RRM) for this phase demonstrated that, within the samples taken, sessions continued to be undertaken in the agreed format and the records of the changes implemented were being reliably documented. On this basis, the conclusions drawn from these findings are considered to hold acceptable levels of validity in that they represent reflections on PT interventions undertaken in comparable ways.

### 5.8.1 Use of the FSATI

Inspection of the large dataset of coded changes provided by the record sheets suggests that TAs were carrying out the practice determined by the FSATI in the appropriate manner. Programmes were being revised in response to reviews at the 'decision points' (see Appendix 4.2.8), and the range of codes available at the different stages of the framework were being applied in line with the guidance (see Table 33 and Graph 15). Furthermore, data on the number of sessions to complete programmes to the agreed success criteria (see Table 31) indicates that, on a proportional basis, more programmes were completed within nine daily sessions under the FSATI compared to those undertaken under the less structured arrangements for Group A (Phase 1 of this Aspect).

### 5.8.2 Response to the initial FSATI and revisions

In response to ***Research Questions 3, 4*** and ***5***, the information gathered allows some adjustments to the initial framework. Overall, responses obtained from the interviews suggested a broadly positive response to the use of the FSATI. Most TAs reported that the framework and materials provided were clear and useful, and the involvement of the

same staff into Phase 2 also demonstrated a continuing emphasis in the TAs' thinking regarding the impact of the emotional aspects of teacher-learner interactions. This is a theme that is explored in more depth in the next chapter relating to Aspect Three.

With regard to specific revisions, the findings suggested the need to consider the following:

1. **Structural changes** – to consider the removal of the optional 'familiarisation' element as part of the first session on a new or revised programme. In response to Question 1d four TAs stated that they did not use this feature alone, while the remaining TAs did not mention its utility in any way. The new version of the FSATI reflects the 'introductory' function of this first session, while ensuring the full *'teach-test-chart-review'* format is also completed.

2. **FSATI record sheet** – to review the physical layout of the FSATI record sheet. In response to Question 3a three TAs commented on the sizing of the column relating to changes to teaching arrangements. Within the revised version this is restructured to provide one broader column for all types of change to be recorded in.

3. **Recording 'changes'** – to be cautionary about the level of changes or interventions employed as reflected in the record sheets. Reservations were made by two TAs (6 and 7) regarding the accuracy of the recorded changes under the

FSATI guidance whereby TAs, for reasons of practicality, were advised to note a single change code despite possible repeated use of that intervention within a session. This issue was also highlighted through inspection of the raw data as part of the RRM (see Appendix 4.2.7) whereby code 4a, for example, was always used more than once in the sampled sessions. Despite this discrepancy, and future researchers would be wise to consider this aspect, revision of this element is not to be recommended for daily use in schools and is not incorporated in the second version. Should TAs be required to record the exact frequency of all changes employed within a session, it is possible that the focus of adult energies may stray more toward the detail of recording codes and away from more pressing issues at hand within the teacher-learner situation that may yield greater impact on student progress.

4. **Development of the 'codes'** – to develop a new sub-code under strategies for 'increasing student engagement' (code 4). Inspection of the data provided by the audio-recordings for the RRM (Appendix 4.2.7) highlighted the use of a more subtle intervention regularly employed by staff to support student engagement. Use of brief phrases such as, *'Are you sure this is okay?', 'Happy with that?'* and *'Carry on?'* highlighted the use of a confirmatory strategy to verify student engagement in PT sessions. Code 4e is now provided in the revised version (termed as 'confirmation'), whereby (often brief) verbal interventions are made to maintain or verify the student's involvement in the session.

### 5.8.3 Presentation of the revised framework at Phase 2

In light of these findings a revised version of the FSATI (FSATI version 2) is presented in Appendix 4.2.12 as the key outcome of this element of the research. As for the initial version of the framework (Appendix 4.2.6), the revised one is presented in the Appendices in three inter-related parts:

1. a **guidance document** offering an overview of the principles, practice aspects and recording procedures to be considered when utilising the FSATI (version 2) (Appendix 4.2.12.1)
2. a **FSATI (version 2) record sheet** to be utilised within daily practice for the recording of interventions (Appendix 4.2.12.2)
3. a **flowchart** (also presented below) as a visual *aide-memoire* outlining the FSATI (version 2) 'practice pathway' to inform decision-making during programmes (Appendix 4.2.12.3)

# CHAPTER 6

## Aspect Three: Outcomes & Findings

### 6.0 Introduction

This chapter refers to the information gained for Aspect Three of the study. It focusses on ***Research Question 6*** which aimed to explore how participating in the initiative may have served as a continuing professional development opportunity for the TAs. A thematic analysis of responses to individual semi-structured interviews with each TA held in term 5 is undertaken which focussed on illuminating any personal developments in their understanding of teaching and learning. This information is supplemented by an analysis of the notes taken by the researcher during each of the twelve support sessions held for staff across the project. The chapter begins with an overview of the profile of those staff who took part in the project.

### 6.1 Summary of participant profile

As a way of offering some context to this aspect, information on the 'profile' (e.g. sex, work experiences, qualifications and career aspirations) of TAs is presented in Table 35 (see below). This information was collected through the Participant Information Record (PIR) completed by each TA during Interviews 9-16. Responses to the nine items on the PIR are summarised in the lower row of the table with the frequency of participants stating a particular response noted alongside in brackets where appropriate.

| Sex | Current position | Length of service (in current position) | Previous position/s | Length of service (in previous position/s) | Present qualifications | Any current courses? | Any planned courses? | Career aspirations? |
|---|---|---|---|---|---|---|---|---|
| **Female** (8) | **TA** (8) | **From 1 year to 11 years** (Mode: 7 years; Mean: 5.75 years) | **Primary TA** (4)<br>**HLTA** (1)<br>**School Dinner Assistant** (1)<br>**None** (2) | **From 1 year to 4 years** (Mode: 4 years; Mean: 3.15 years) | **Secondary** (8)<br>**Tertiary** (7)<br>**Higher** (1) | **No** (6)<br>**Yes** (2)<br>-First degree (1); GCSE(1) | **No** (4)<br>**Yes** (4)<br>-First degree(3); 'Dyslexia' course (1) | **None** (4)<br>**'To be a teacher'** (4) |

**Table 35: Summary of TA 'profile'**

The summary above suggests the TAs involved in PPTP were a broadly homogeneous group across a number of the nine PIR items. All TAs were female and most had been in their current post for seven years. Half had been Primary school TAs previously, and nearly all had qualifications associated with secondary and tertiary education. Only two of the participants expressed that they were currently completing a course or qualification, though half planned to engage in further courses in the future. Furthermore, although half of the group had no further career aspirations, the other four expressed that they wanted to become a teacher at some point in time.

## 6.2 Research Question 6. 'In what ways have TAs involved in the project improved their understanding of the processes and practices surrounding teaching and learning?'

### 6.2.1 Findings from TA interviews in April and May 2008

Part 2 of Interviews 9-16, Questions 8-10, (see Appendix 4.2.11) are focussed upon here. A thematic analysis of responses to each question is outlined below. As for previous interviews a summary of the key, primary themes emerging from each interview question above are summarised in a table (see Appendix 4.2.11.1).

### 6.2.2 Thematic analysis of interviews 9-16 (Questions 8-10)

These interviews provided an opportunity for staff to respond to questioning surrounding two key topics (see Appendix 4.2.10) relating to ***Research Question 6***. Six questions (grouped in line with the topics to be discussed) were presented, with an additional question also offered for any further comments. Table 36 (see below) summarises the questions posed and the topic to which each relates.

As indicated in the table, Questions 8 and 9 were supplemented with a series of two optional prompts. The first prompt (Questions 8b and 9b) afforded the opportunity to stimulate elaboration on any initial comments made by the interviewee. The second

prompt (Questions 8c and 9c) presented the option to directly guide the interviewee to comment on a specific area if they had not mentioned it in some way at an earlier stage.

#### 6.2.2.1 Developments in understandings of teaching and learning

All interviewees responded positively to the first question, with half of the interviewees relating their learning to how they are more aware of the need to reflect on the student's progress to support their interventions. One interviewee pointed out:

*'It has made me think more about what I do. How I review things to get the next step right. It has made me think more in class about all the changes you can make to help children with their learning, so it has opened doors for me I think. I need to look over what kids have done and be sure where they are at'* (Interview 12).

| Question number | Question | Topic |
|---|---|---|
| 8a) | *I am interested in any broad learning outcomes for you as a professional through being part of this project from the very beginning; such as any changes in your professional thinking. So, where you see there has been a change, could you tell me what you feel you have learnt about effective teaching and learning throughout the project?* | **Developments in understandings of teaching and learning** |
| 8b) | (1st Prompt, if necessary) – '*I am interested in any broad areas of change in your thinking about effective teaching and learning. Are there any aspects of how you think about your work with students that are different now?* | **Developments in understandings of teaching and learning** |
| 8c) | (2nd Prompt, if necessary) – '*How about* (present in turn, and give time for response, if not mentioned beforehand),<br>• *reviewing and reflecting on student's progress?*<br>• *the importance of relationships?*<br>• *how tasks or learning opportunities are presented?*<br>• *organisational arrangements in school?*<br>• *student's social or emotional presentation?* | **Developments in understandings of teaching and learning** |
| 9a) | *So, on a more practical level, are there any features of PT that you feel have been of particular relevance to other areas of your practice, such as in class or other individual work you do?* | **Developments in personal practice** |
| 9b) | (1st Prompt, if necessary) – '*Could you give examples of this and how you use them?* | **Developments in** |

| | | |
|---|---|---|
| | | **personal practice** |
| 9c) | (2nd Prompt, if necessary) – '*Have you thought about things like* (present in turn, and give time for response, if not mentioned beforehand),<br>• *dialogue with students and use of questioning (e.g. asking the pupil how they feel they are progressing)?*<br>• *giving appropriate, specific feedback?*<br>• *sharing targets, goals or objectives with pupils?*<br>• *formative use of information from student's previous work?*<br>• *noticing and acting on the social or emotional context in school or lessons?* | **Developments in personal practice** |
| 10. | *As a last question, are there any other important things you feel you have learnt during the project that we haven't covered so far?'*<br><br>If required, *'Why do you feel this is important?'* | **Other comments** |

**Table 36: Topics and questions presented within interviews 9-16 (Part 2)**

As part of this general theme, one of the TAs emphasised the need to review the teaching input given to the child, another TA the task and the teaching, while one other focussed on considering their relationship with the student:

*'I think far more about the value of the relationships – sometimes you need to sit and listen. I used to go around always telling the kids off – it's a waste of time'* (Interview 15).

The remaining four TAs all gave different responses. Two related their learning to the importance of more personal elements of adult-student interactions, such as the importance of relationships (TA1), and supporting students emotionally (TA5). While others focussed more on task-related aspects, such as encouraging the development of 'fluency' in learning new skills and ensuring that tasks are clearly presented.

When asked to highlight any specific aspects of how they think about their work with students that is different now, seven of the TAs expanded on the most frequent theme from 8a: reviewing and reflecting on student progress. All of these gave at least three examples of what they were now reflecting on more, covering those aspects of 'formative assessment' practice planned to be prompted within 8c. The one other TA referred to being more focussed in their work with students, and elaborated on their response using two recurrent themes building relationships and task presentation.

Under 8c, four of the TAs (2, 6, 7 and 8) were offered opportunity to provide some additional commentary in response to a number of prompts. The following prompts were presented, as their responses to Questions 8a and 8b did not allude or clearly refer to some of these key areas:

1. ***reviewing and reflecting on student's progress?***
2. ***the importance of relationships?***
3. ***how tasks or learning opportunities are presented?***
4. ***organisational arrangements in school?***
5. ***student's social or emotional presentation?***

TA2 required prompting over three of the items above (1, 4 and 5), with the three others requiring only one. Consideration of item 4 (i.e. 'organisational arrangements in school?') was the most frequently prompted theme across these four interviewees, with the others only guided-toward once each during the discussions. When prompted most

TAs agreed with the value of these areas of practice, and on occasions gave examples. For instance, TA8 made the following comments given this prompt:

***'How about organisational arrangements in school?***

*'Yeah, I think this is important for sure as some students need smaller groups or more individual work to give them a boost. I don't think secondary school setups work for all kids as they aren't flexible enough really'* (Interview 16).

#### 6.2.2.2 Developments in personal practice

Further to any developments in thinking surrounding aspects teaching and learning, all TAs indicated that they had been able to generalise aspects of PT practice to other areas of their work. The most commonly occurring practice theme linked to sharing objectives with pupils, and this was highlighted by five different interviewees. For example, one interviewee said:

*'Explaining the task objectives clearly is critical to help children work more effectively. Often things are just put on the board and the kids don't pay attention to the lesson objectives – It's like the target rates, if you make it clear you are on the right track'* (Interview 9).

Out of the other four aspects of PT practice commented on the two most frequently cited linked to giving feedback to students and using information from students' previous work in a formative manner, and these were both mentioned four times across the eight

interviews. Additionally, when, (under Question 9b), asked to give further examples of how practice has spread to other areas of their work, all TAs added to their initial responses with six of them placing emphasis on their use of dialogue with students. One TA (5) stated:

*'I talk to them and ask questions about what they know and try to notice their feelings more now. I can remember only today in Science when I did all of that and I know it made a huge difference to the lesson, especially when I told them about positive things, gave time for talking things through and gave feedback about last time and how well they worked'* (Interview 13).

The interviewees also made reference to using information from students' previous work and noticing the social and emotional context in learning situations. These were each noted five times each at this stage of the interview. A further two key practice themes were also noted three and four times respectively at this point (see Appendix 4.2.11.1.).

Lastly, three of the interviewees were offered additional opportunity to provide some commentary on developments in their practice in response to one of the following five prompts. This was afforded to selected interviewees when their responses to Questions 9a and 9b did not allude or clearly refer to them:

1. ***dialogue with students and use of questioning (e.g. asking the pupil how they feel they are progressing)?***

2. ***giving appropriate, specific feedback?***
3. ***sharing targets, goals or objectives with pupils?***
4. ***formative use of information from student's previous work?***
5. ***noticing and acting on the social or emotional context in school or lessons?'***

Two TAs required prompting on item 5 (above), with the remaining interviewee being presented a prompt focussing on item 2. As for Question 8c, when prompted the three TAs agreed with the value of these areas of practice. For example, TA1 made the these comments given this prompt to item 5:

***Have you thought about things like the social or emotional context in school or lessons?***

*'I do try and track how children have done in previous sessions more. I always kept a notebook but that was more about work rather than their mood or how they respond to praise and stuff, but now I think I am more detailed in my record keeping. This makes the kids think you are noticing them and care more too'* (Interview 9).

#### 6.2.2.3 Other comments

***10. 'As a last question, are there any other important things you feel you have learnt during the project that we haven't covered so far?'***

Only one TA (4) responded positively to this question at the outset and remarked on how it had reinforced the importance of reviewing the student's progress for them, and added

how the project had been a professional development opportunity for her. All others initially replied 'no', and then added a range of upbeat remarks about the project. A number of TAs made reference to how the PT reading skills sessions had generalised and impacted positively on the children's performance in class. One interviewee pointed out:

***'****It has been really helpful to be involved, so many of the teachers have said they have noticed the difference in kids in class'* (Interview 13).

Of further interest was how two other TAs also commented specifically on the project's value to them as a professional development opportunity. For example, one stated:

*'…it has been really helpful for my development. I have used the data for my degree course module personal study module. My question was how does Precision Teaching help with reading for students? That made me read the references more and more: it has helped me a lot. I have been quite inspired by this you know'* (Interview 11).

### 6.2.3 Summary

The findings from Part 2 of Interviews 9-16 offer some support to the notion that involvement in the project had been influential in developing the thinking and practice of the TAs involved. With regard to the broader area of developing their thinking in terms of the relationship between teaching and learning, all TAs were able to highlight changes or developments focussing on three key areas. Moreover, when asked to specify any further areas of development in their thinking, most TAs were able to do so and only half of

them required additional prompting to cover all five broad areas of formative assessment practice monitored for during the interviews.

In terms of relating specific aspects of PT practice to their work in schools, all TAs provided examples of specific elements of PT and how they went about implementing them. These findings suggested a generalisation of some of the key elements of PT into their regular working practice. Additionally, only three TAs needed further prompting to cover all five key areas of assessment practice monitored for during the interviews.

## 6.3 Findings from school and centre-based support sessions

Twelve support sessions (1-12) were held for TAs involved at specified times throughout the project. The sessions were held twice in each school with their respective TAs and twice centrally for all eight TAs to attend on the dates displayed in Table 37 (see below).

Hence, each TA had the opportunity to attend up to four support sessions across the duration of the project. All TAs attended their respective school sessions as planned, and all but one (TA5, School 3) attended the centrally held sessions on both occasions. The key points of discussion covered in all support sessions were recorded using a structured 'support session' pro-forma (see Appendix 4.3.1), and completed versions of this document (brief, summative records of the discussions held during each session) presented in chronological order can be found in Appendix 4.3.2. The findings below are presented through grouping the support sessions across the schools at the different stages of the project (i.e. during PT intervention with Cohort 1 and then with Cohort 2) using the

same 'thematic analysis' as for Interviews 1-16. Inspection of the summative written records made for the sessions highlights a range of key, primary themes of discussion across the two broad stages of the project. A table summarising these themes can be found in Appendix 4.3.3.

| ***School*** | **Dates of school support sessions** | **Attendees (TA codes)** | **Dates of central-base support session** | **Attendees (TA codes)** | **Dates of school support sessions** | **Attendees (TA codes)** | **Dates of central-base support session** | **Attendees (TA codes)** |
|---|---|---|---|---|---|---|---|---|
| ***1*** | 17th Sept 2007 **(Support Session 1)** | 1, 2 | 5th Nov 2007 **(Support Session 6)** | 1, 2 | 19th Feb 2008 **(Support Session 7)** | 1, 2 | 19th Mar 2008 **(Support Session 12)** | 1, 2 |
| ***2*** | 17th Sept 2007 **(Support Session 2)** | 3 | | 3 | 18th Feb 2008 **(Support Session 8)** | 3 | | 3 |
| ***3*** | 17th Sept 2007 **(Support Session 3)** | 4, 5, 6 | | 4, 5, 6 | 18th Feb 2008 **(Support Session 9)** | 4, 5, 6 | | 4, 6 |
| ***4*** | 18th Sept 2007 **(Support Session 4)** | 7 | | 7 | 18th Feb 2008 **(Support Session 10)** | 7 | | 7 |
| ***5*** | 18th Sept 2007 **(Support Session 5)** | 8 | | 8 | 19th Feb 2008 **(Support Session 11)** | 8 | | 8 |

**Table 37: Dates and attendees for support sessions 1-12**

## 6.3.1 Support sessions 1-6

Records from the sessions held during intervention for Groups A and B illustrate an emphasis on discussions relating to five broad themes. As an apparent priority across all

groups, discussion relating to ‘PT practice’ was recorded across all six sessions. Specifically this theme involved discussion relating to a range of practical aspects such as the use of the record sheet and codes (i.e. support sessions 1, 2, 3, 4 and 5), teaching approaches employed (i.e. session 1 and 6), adjusting task difficulty (i.e. session 3) and motivational interventions (i.e. session 6).

In addition to such pragmatic points, reference was made within two sessions (4 and 6) to an observed ‘change in reading skills’ for the students as relayed to them by class teachers. For example, in support session 6 this was noted:

*Schools 1, 2, 4 and 5 highlighted really positive feedback (anecdotally from across subject teachers) about students’ confidence in class in reading to them.*

Interestingly, during two other support sessions (2 and 3), the TAs present expressed an ‘interest in gaining more information’ about the PT approach as a continuing professional development opportunity. For instance, in session 2, the record of the meeting highlights this question from TA3:

‘*Is there more research I could read so I can use this for my foundation degree?’*

Furthermore, records kept about one of the sessions also suggest some development in terms of TAs’ thinking about PT practice and how it could be generalised more broadly

to other areas of teaching and learning. This fourth theme of 'thinking about teaching and learning' was recorded in session 1:

*Both TAs commented that the approaches to teaching that PT offers could be used with all students in all classes. TA2 highlighted, 'giving them clear targets to work toward, carefully looking at progress and by using feedback to help them appreciate their successes'.*

The final theme emerging from the first group of support sessions related to the 'student's emotional presentation'. In session 4, the following record was made involving discussion with TA7:

*'…out of all the classes I am in, the students getting PT all seem more willing to participate in reading and are asking more questions, which is a big change for them.'*

### 6.3.2 Support sessions 7-12

Inspection of the second round of support sessions held during the involvement of students in Groups C and D highlighted three dominant themes. These themes, 'PT practice', 'student's emotional presentation' and 'thinking about teaching and learning', had all emerged on at least one occasion across the previous six support session discussions (1-6).

Firstly, a continuing emphasis on discussion relating to the broad theme of 'PT practice' was recorded across all sessions during this latter stage of the project. Examples relating to this theme included discussions around the FSATI decision points (i.e. sessions 7, 8 and 12), recording of codes under the new framework (i.e. sessions 7, 9, 10, 11 and 12) and emphasising the value of organisational changes on students' performance (session 12). For instance, in the final session (12), these notes were made:

*'We shared records between the groups in turn, and talked over practice using the FSATI. The records and practice were observed to be consistent across all eight TAs.'*

*'Ideas for adjusting organisational factors were stressed as very helpful by two TAs such as time of session/place or location/access to distractions!'*

Discussion regarding 'student's emotional presentation' was recorded in all but one support session. Consistent with the comments made by TA7 in an earlier support session (4), discussions in three of these meetings reflected an observed increase in the willingness of students involved in the project to participate in literacy tasks in lessons (i.e. sessions 9, 11 and 12), while others focussed on the same kind of development in student presentation during the PT sessions themselves (i.e. sessions 7 and 10). For example, TA2 pointed out at the end of session 7:

*'All is going very well – Students are really enjoying this, they are more willing to join in the PT sessions as they continue*.'

While in session 9, this was recorded:

*'The staff team have applauded the progress the children in groups A and B have made. They are noticing a sense of willingness for some of the children to read out loud which is unheard of.'*

The third and final theme emerging from support sessions 7-12 was of particular interest given the focus of this aspect of the study (see ***Research Question 6***, stated earlier). Inspection of the records kept for these meetings suggested an apparent increase in the level of discussions with TAs relating to their consideration over issues connected with teaching and learning: this theme also arose during one of the earlier support sessions (1). More specifically this topic related to examples of how staff considering some of the general principles and practice aspects incorporated within daily PT interventions may offer routes to supporting effective teaching and learning in other contexts. With the exception of support session 11, a range of discussion points related to this theme were recorded. One of these included:

*TA4 pointed out the emphasis this has brought to their thinking about reflecting on work in class that the students have been undertaking. 'I am looking at things a bit more now and seeing where they are at, and trying to make sure the work is right for them. TAs 5 and 6 agreed with this too'* (Session 9).

### 6.3.3 Summary

Analysis of the records made during the twelve support sessions highlights a range of emerging themes. Across the two groups of sessions (1-6 and 7-12) a key theme related to sharing and resolving issues surrounding the more practical aspects of delivering PT intervention. Although not specifically related to the Research Question targeted within this aspect of the study, this need for continuing support in delivering PT interventions across the project forms a notable finding that requires discussion in the following chapter. In a similar vein, the anecdotal evidence stated by TAs in relation to comments from other staff regarding the generalisation of student reading skills and confidence in class also requires exploration as part of the project's outcomes. With regard to the focus on developments in TAs' understanding around the *'processes and practices surrounding teaching and learning'*, an important trend was located through the analysis. Although only one support session recorded discussion around this theme within the first group of support sessions, a marked rise was found across sessions 7-12. This finding offers support to the findings obtained from Part 2 of Interviews 9-16 in suggesting a growth in TAs' thinking and practice in this key area across the project.

# CHAPTER 7

# Discussion

## 7.0 Research overview and summary of outcomes

This research represents an evaluation of a developmental project known as Plymouth Precision Teaching Project (PPTP), involving students and staff from five secondary schools in Plymouth, Devon, UK. The project spanned across five school terms (September 2007 – May 2008) encompassing three interconnected strands of research referred to as Aspects One, Two and Three.

### 7.0.1 Aspect One

Focussing on the improvement of sight-word reading skills, a key competency for independent reading (Ehri, 1998), research under Aspect One highlighted the success of PT in raising skills through the 'Reading Accuracy Measure' (RAM) for those students involved in the second cohort (2). Moreover, the data also pointed to the presence of a 'carry-over' effect, as both groups of students in the second cohort continued to show progress in their sight-word reading skills following periods of UTA, having received earlier intervention. However, measures of word reading skills taken through standardised measures did not detect marked improvements in students' skills. Investigation into the impact on students' perceptions of themselves as independent, capable learners (i.e. 'academic self-concept') did not highlight improvements that could be directly inferred to be a result of PT intervention, though students in Cohort 2

appeared to show significant within-group gains on this measure following intervention and through comparisons made between the start and end of their involvement in the project.

### 7.0.2 Aspect Two

This focussed on the development of a framework to optimise PT practice. Collaboration between the researcher and the school staff enabled a framework to be devised through two phases of research. The resulting framework presented in Appendix 4.2.12 represents a further refinement to an initial version trailed with Cohort 2 based on PT interventions with students in Group A during term 1 of the project. When considering the finding of a significant impact of the PT intervention for Cohort 2, where there is evidence of PT having been related to word reading improvements, it is possible that the enhanced level of structure offered to staff and students through the refined framework may go some way to offering an explanation of the results observed.

### 7.0.3 Aspect Three

Aspect Three considered developments in personal thinking and practice for staff around aspects of effective teaching and learning. Evidence from interviews and regular group meetings (i.e. support sessions) aimed to illuminate progression around these aspects. Analysis of the qualitative information collected appears to indicate a growth in staff understanding over the course of the project which, in addition to these benefits, may also contribute to an understanding of the differences in results between the two cohorts.

## 7.1 Discussion of outcomes and findings from Aspect One (Chapter 4)

This focussed on Research Questions 1 and 2 which aimed to explore the effects of PT intervention on students' sight-word reading skills and reported levels of academic self-concept. The following sections discuss the findings reported in Chapter 4.

### 7.1.1 Research Question 1

This research was grounded in the view that using PT as a route to developing student sight-word reading skills would be a helpful intervention over conditions where no other additional intervention was made available. Research stemming from the UK and USA has a long and established history promoting a notable emphasis on the value of PT as a formative model of intervention that provides a route to improving accuracy and fluency in learning new skills: these being critical steps to ensure skills are retained and also applied to new situations (Fabrizio & Moors, 2003; Hughes et al., 2007).

One important general finding based on observations of the TAs in this study was the high level of consistency in the delivery of PT interventions. PT sessions were expected to be key to improving student performances and so consistency in practice was viewed as critical to research integrity. However, such an important finding not only offers greater security to the results presented for Aspect One, but also impacts on Aspects Two and Three, as all three elements of this research drew on the outcomes and experiences of

participants based on regular PT sessions. Other planned steps taken to promote and monitor 'treatment fidelity' (Moncher & Prinz, 1991) can be found in Chapter 3 (pp. 74-75) and, where required, are also discussed in this chapter.

#### 7.1.1.1 Findings from the reading accuracy measure (RAM)

Given the above, the results from the RAM for Groups A and B highlighted unexpected results following PT and UTA, as both made steady progress following either condition across the study (see Graph 1, p. 109). Although it is important to point out how the within-group comparisons for Group A and B following PT were significant on both occasions, differences of a similar magnitude were not observed between the groups at any of the measurement points. Given this scenario, it was not possible to attribute any changes in the RAMs in response to UTA or, as expected, PT.

Perhaps most striking out of the above findings was the lack of a significant difference in RAM scores within and between groups at the mid-measurement point where Group A had just received PT and Group B the UTA. Both groups started the study at comparable levels on the RAM, and so marked gains for Group A over B at this point were predicted. One possible explanation for this lies in concerns regarding the *validity* of the study, in that the data may be expressing some form of the '*Hawthorne effect*' (Roethlisberger & Dickson, 1939). Fife-Schaw (2002) describes this phenomenon in simply stating:

*Somebody showing interest in your behaviour may change it* (p. 86).

It is possible that merely being part of the initiative may have improved student performance. One remedy may have been to use a less complex pre-test and post-test experimental design, where only one group receives intervention and the outcomes are compared to the performance of another group with a similar profile. However, such a design has ethical considerations in educational interventions such as these: if the groups were selected on the basis of a comparable level of need and only a sub-group receives the intervention, this would not have been equitable. Furthermore, it was not possible to use a 'double-blind' trial (where neither the researcher nor the participant know which condition they are experiencing), given the interactive nature of the intervention.

'Hawthorne effects' aside, it is possible that the influence of repeated testing may also offer insight into what the data shows. The method used for sampling student sight-word reading skills (i.e. the RAM assessment – involving the presentation of a list of up to 332 words to be read out loud) was conducted three times six weeks apart in the case of Cohort 1. Although the duration between the measurement points may be considered an adequate period to limit the effects of repeated testing, this may not have been the case. Indeed, the same explanation may also be levelled at the unanticipated results emerging at the post-measurement point. Following PT intervention for Group B and UTA for A, both groups made gains producing a significant difference through within-group tests. Given this unexpected result for Group A, accompanied by the lack of a significant difference between the two groups, the data offers little credence to the notion that either

of the two distinct treatments had influenced the results in a notable manner. In fact, for all of the results for Cohort 1, the increase in RAM scores could be seen as a function of students' repeated exposure to the same testing instrument, or even their participation in the project itself.

The impact of testing effects within datasets is commonly noted within the literature on repeated-measures designs such as these (Fife-Schaw, 2002, p. 76; Robson, 2005, p. 130). Attempts to reduce the effects of test exposure were taken by allowing a reasonable duration between RAM administrations (by six weeks in the case of Cohort 1). It may be the case that sampling intervals may have needed to be longer, yet within the context of working with a group of schools with limited resources to commit to such a project, extending test intervals and, in turn, PT intervention (and concurrent UTA) for several more weeks or months would have been difficult to achieve. In any case, the results from this first cohort suggest that this may not have been sufficient if exposure to the RAM or involvement in the initiative were indeed the only significant factors at play: a finding that would present a marked detour from the established literature base that promotes PT as an effective intervention for skill development.

Conversely, the results for Cohort 2 on the RAM demonstrated an expected pattern of higher and lower gains following the first phase of treatment (i.e. PT for Group C and UTA for Group D: see Graph 2, p. 112). Of note were the significant differences between and within groups at the mid-measure point following intervention for Group C: Group C vs. Group D ($r$=0.21) and Group C (pre-measure) vs. Group C (mid-measure) ($r$= -0.62).

Moreover, as a significant difference for the within-group comparison for Group D following UTA was not found, these results offer support to the notion that PT treatment was influential in achieving the gains for Group C over D. Further, these results also leave the potential threats to the validity of the study through testing effects far less credible as exposure was the same for both groups. Moreover, it is noteworthy regarding testing intervals that students in Cohort 2 had the RAM administered on a five-weekly basis; that is, more frequently than those in Cohort 1.

At the post-measurement point, the group performances were largely consistent with expectations: Group D made marked improvement, and this was the largest improvement for any group following PT intervention (a gain of 128 words). Analysis within groups at this point indicated that only Group D made statistically significant gains, while Group C continued to improve, albeit at a much slower rate (a gain of 15 words). However, despite an apparent and expected 'tailing-off' of Group C's rate of progress after their period of UTA, the data shows that their scores increased; hence, between-group comparisons did not reveal a significant difference. This lack of a statistically significant difference between the two groups at this point was expected and justified the use of a counter-balanced 'cross-over' trial, as both groups had now received comparable 'treatment' experiences albeit in a different order.

Furthermore, as Group C appeared to have responded well to prior PT intervention, it was expected that a marked decline in their performance would have been quite unlikely. PT is an approach that is grounded in a theory of learning which promotes the retention or

maintenance of skills through developing accurate and fluent performance (Hughes et al., 2007). Within some research projects, say drug trials, this kind of 'carry-over' effect may be concerning, as any lasting effects of such treatments may be of concern to participants' health. However, within educational interventions such as these the reverse is generally the case. Although it may be of some technical interest to monitor for these findings from an experimentalist viewpoint, on a more practical level it is my view that time spent teaching these skills intensively without any longer-term 'pay-offs' could be spent more fruitfully elsewhere.

Given the above, analysis of the RAM data at the follow-up measure in July 2008 (19 and 13 weeks following the end of PT intervention for Groups C and D respectively) made interesting reading. Data here did not just show maintenance in RAM scores but marked improvements despite extended periods without PT intervention; that is, a further period of UTA for all students in Cohort 2. Neither group performed on the RAM with median scores less than at the post-measure, in fact both groups' scores continued to rise: an increase of 33 words for Group C and 20 for D. Moreover, within-group analysis comparing post- and follow-up measures produced statistically significant results and notable effect sizes for both groups (Group C: $r$= -0.49; Group D: $r$= - 0.42). It is also important to note the marked gain for Group C at this point given their relatively, albeit expected, limited gain of 15 words following UTA at the post-measurement point. Indeed, it is with the above findings in mind that research may wish to explore further, longer-term evaluations of such effects given the potential of these unanticipated, continuing gains.

Before claiming significant impact of PT for some of the groups of students in this study, one point of discussion relating to the function of the RAM requires airing. Although this instrument provided summative measures of student progress at regular intervals across the project, it also had a formative purpose. Unlike the standardised reading test, words read incorrectly from the RAM just prior to intervention formed the basis of the words taught to each student using PT. Following any PT intervention (or UTA for that matter) the same RAM was administered; in this way some may suggest that, in using the instrument in such a way, the students were being 'taught to the test'.

Although the use of authentic curricula materials and content on which to base assessment and interventions are a common feature of curriculum-based strategies (e.g. Downer, 2007; Hughes et al., 2007; Solity & Bull, 1987; Roberts & Hampton, 2008), given the level of progress some students had made previously, it could be argued unlikely that they would have benefitted from practice on those specific words through the RAM or even the PT intervention alone. Data on the precise number of words each student 'mastered' (i.e. meeting the specified 'success criteria') during PT intervention was not collected as part of this research (although future work may wish to consider this); all students were given a PT programme plan based on the RAM of thirty-six new words (six lists of six words) for teaching during the five- or six-week intervention period. Although schools were encouraged to contact the researcher should more be required, at no point did this occur. Given the progress made by Groups C (median: 136 words) and D (median: 159 words) across the study, it is possible that an additional factor

was in operation here outside the previously discussed ‘testing effect’ or even the PT intervention itself.

Much of the discussion so far has related to possible effects of the PT treatment as an expected outcome of the study. At this juncture it is worth outlining the possible contribution of the UTA (‘usual teaching arrangements’) condition that aimed to provide a comparison treatment for each group during the study. As noted in Chapter 3 the UTA condition was experienced in parallel with PT interventions and it was expected that it would represent the usual school experiences for each student. In the case of the first phase of treatments for Cohort 1 (between the pre- and mid-measures) it was stated in Chapter 3 that:

…*students from each school were randomly allocated to either an intervention group (Group A) receiving PT, or a comparison group (Group B) receiving their usual teaching arrangements (UTA). Throughout the research PT was an additional intervention to UTA for all participants as it was conducted during registration, break or lunchtime periods* (p. 71).

However, in contrast to the tightly monitored PT interventions UTA was not nearly as closely scrutinised during the study. With this in mind it is indeed possible that the activities and interventions offered to students’ within their usual classes and the TAs supporting them (some of which *could* have been those participating in the study itself) *may* have effected the progress of some of the students involved. In this vein, it is possible that this uncontrolled treatment may provide some explanation of the surprising

improvements for Group C at the follow-up measure following a relatively lower 'carry-over' effect directly after UTA at the post-measurement point. Indeed, it is when we draw in the findings from Aspect 3 of the investigation, namely the reported progressive improvements in TA's understandings and generalisation around effective formative assessment practices, that the possibility of all students benefitting in some way at the class level is conceivable. This is not to say such class practice was so tightly focussed on the achievement of such specific objectives as in the PT treatment, however the spirit of formative assessment approaches that particularly emphasise the social and emotional elements of learning may have impacted at some level on the students willingness to engage in class and beyond. Such a scenario leaves the possibility, albeit limited, of a 'contamination' of intervention across the two conditions.

Notwithstanding the discussion above, the results for Cohort 2 were not only unexpected and welcome, but also of significant interest in terms of some further, emerging questions. These questions (below) are addressed later in this chapter:

- *Why was there such a marked difference in RAM scores between Cohorts 1 and 2?*
- *What is it about PT in this study that brought about valuable 'carry-over' effects, where student performance is not only maintained, but continues to improve without additional intervention?*

#### 7.1.1.2 Findings from the WIAT II UK standardised word reading test (WRT)

Word reading skill data were also obtained through administration of the word reading test (WRT) from the WIAT II UK (Wechsler, 2005). This test was used for students in Cohort 2 (time restrictions did not allow this for Cohort 1) producing a series of raw scores and reading-ages. Although some significant within-group gains were observed for the WRT raw score and reading-age data, analyses did not produce any significant differences between the groups. Given the lack of any concurrent, significant within- and between-group results, it was not possible to infer any changes in these measurements to the different conditions experienced by either group.

One possible account for this lies in the content and standardised approach of the WRT employed. Unlike the RAM which was able to identify specific gains, the WRT may have been too general to detect any differences in the sight-word reading skills of the students involved. Although robustly standardised and relatively quick to administer, the WRT contains fewer words (131 in comparison to the 332 under the RAM) and also requires implementation of a 'discontinue rule' should the child obtain seven consecutive incorrect responses. The limited range of words that could be presented through the WRT, combined with the constrictions around administration, would have allowed the students far less opportunity to demonstrate gains.

### 7.1.2 Research Question 2

In addition to improvements in reading skills it was also expected that some gains in the students' views of themselves as effective, capable learners (i.e. their 'academic self-

concept') may have resulted from involvement in PT intervention. This expectation stemmed from research connecting formative assessment approaches to more 'emotional' outcomes such as self-esteem (e.g. Miller & Lavin, 2007) and other studies linking academic achievement with the more specific notion of academic self-concept focussed upon here (e.g. Burden, 1998a; Polychroni et al., 2006; Topping et al., 2003).

#### 7.1.2.1 Findings from the Myself as a Learner Scale (MALS)

For both cohorts the MALS (Myself as a Learner Scale; Burden, 1998a) was administered on three occasions, each producing a single measure of each student's academic self-concept. Analysis of the MALS scores for both cohorts did not indicate any significant difference in the scores between the groups at any of the measurement points. However, some evidence of notable, statistically significant gains were observed within groups for Cohort 2 directly following intervention, whereby Groups C and D made marked mean gains (7.5 and 6.1 respectively). A further point of comparison between the cohorts was shown through analysis of MALS scores from the pre- and post-measures within each group. Unlike Cohort 1, both groups in the second cohort were found to show a significant rise in their MALS scores across the study (between the pre- and post-measures), producing reasonable effect sizes (Group C, $r$=0.24; Group D, $r$=0.27). These findings suggest that, in Cohort 2, the students' overall involvement in the project may have brought about development in their reported levels of academic self-concept while, given the lack of any significant between-group findings, it was not possible to infer with any strong conviction changes in these scores directly to the different conditions experienced by either group.

In a similar vein to discussions surrounding the standardised WRT employed, it is possible that the MALS instrument also may not have been sensitive enough to notice any developments in students' academic self-concept following PT input. Based on factorial analysis, the following five broad areas are sampled through completion of the MALS checklist (Burden, 1998a):

- Confidence in one's ability to do well in a variety of academic learning situations
- Enjoyment in problem-solving
- A reflective learning style
- Lack of anxiety
- Access to and use of a wide vocabulary

Given the areas probed within the checklist, one has to ask whether improvements in student literacy skills through PT as a formative assessment experience would also produce gains in academic self-concept. Based on previous research the expectation was that it could, and it is possible to see how the process and products of successful PT intervention may have some positive impact on the five areas above. Indeed, as a general finding for Cohort 2, where PT appeared to be most successfully employed, significant gains were found between the pre- and post- MALS measures within both groups. Furthermore, within-group gains were observed in a parallel fashion following intervention for Groups C and D on both the RAM and MALS assessments. Although analysis of this kind does not go much further than *suggest* some kind of connection

between improvements in literacy through PT and students' reported academic self-concept, these observations are worthy of note and may require a more responsive approach to assessment within further research. Indeed, work by Marsh points to the 'subject specific' nature of academic self-concept (Marsh, 1990, 1993) so future work may wish to explore the use of a method that can track reported levels of 'reading self-concept' in response to PT interventions for reading as opposed to the more generic construct sampled through the MALS.

Although overall the MALS findings may provoke some surprise, and previously discussed threats to the validity of the data through 'testing' or 'Hawthorne' effects may offer routes for accounting for any gains observed, it is notable that all significant within-group gains were only found for students in Cohort 2. It is not possible to proffer substantive claims that the intervention stimulated such gains, but this different pattern of improvements between cohorts begs the same question as posed from the RAM data earlier:

- *Why was there a notable difference in MALS scores between Cohorts 1 and 2?*

This is discussed later.

## 7.2 Discussion of outcomes and findings from Aspect Two (Chapter 5)

Aspect Two of the study focussed on *Research Questions 3, 4* and *5* as a route to developing a structured framework for optimising the delivery of PT interventions across

two phases. Phase 1 focussed on developing a framework (known as the FSATI) to be implemented with students in Cohort 2, while Phase 2 aimed to develop the model further through initial implementation.

### 7.2.1 Outcomes and findings from Phase 1: Research Questions 3, 4 and 5

Driven by *Research Questions 3, 4* and *5,* an analysis of written records and interview responses following intervention with Group A was undertaken to develop an initial framework. Inspection of this information revealed that the four broad areas of change (from Solity & Bull, 1987) promoted through the pre-initiative training were used readily by the Teaching Assistants (TAs), though these required development for the initial version of the framework. Furthermore, inspection of written records indicated that certain interventions or changes appeared to occur more at specific times during PT sessions; this also required inclusion in a framework for trailing. In sum, the key elements of practice to be considered in the formulation of the first version of the FSATI were:

- the number of daily sessions taken for most programmes to reach the success criteria – to provide a sessional limit to the framework
- the timing and availability of two broad types of changes to PT programmes (i.e. *what* and *how* the curriculum content is taught)
- the availability of a specific session to familiarise the student with task expectations and curricular content prior to formal PT intervention (i.e. *teach-test-chart-review*)
- the development and specification of coded changes for use within PT sessions

In considering the development of the first framework, it should be noted that this did not include records and experiences of PT intervention with both groups in Cohort 1. This was a practical step taken to provide time for the researcher to collect, collate and analyse the written records and interview transcripts to develop the former version of the framework. Although it would have been useful to include data from PT sessions with Group B in terms of the depth of information available, time did not allow. Future researchers using similar methods, under comparable timescales, could consider only using the written records of PT sessions on which to base a model (as this was reasonably quick to manage and interpret). However, the interview data collected served to not only confirm and explore the routine PT records, but also unearth other key information that may not have been available otherwise.

### 7.2.2 Outcomes and findings from Phase 2: Research Questions 3, 4 and 5

The FSATI was then utilised during PT intervention for all students in Cohort 2. As guided by *Research Questions 3, 4* and *5*, an investigation into the use and utility of the FSATI was undertaken through collation and analysis of TAs' written records and further interviews.

The interview responses indicated a generally positive response to the use of the new framework. Most TAs reported that the FSATI was clearly presented and supportive to practice. Adding to support for the fidelity of PT intervention at this stage, observations of some of the TAs using the FSATI indicated that they were following the proposed

framework consistently (i.e. PTPOs, p. 104), and that the records of sessions were being kept in an extremely reliable manner (i.e. the RRM, pp. 156-157). This also supported the position that interventions delivered under the FSATI across the five schools were being delivered in comparable ways; this may also contribute to any further replications of this study.

With regard to specific revisions, the findings suggested the need to consider four key areas of revision to the initial framework. These related to revisions of structural elements of the framework, the layout of FSATI record sheet, specification of changes under Code 4 and consideration of how to record frequently implemented interventions (i.e. Code 4a).

Perhaps the most striking aspect of the development of the framework across the two stages was the depth of TAs' responses to the questions posed. In many ways PT has been, and could continue to be, considered a largely technical endeavour whereby students receive a finely tuned intervention that maintains a strong emphasis on the development of accurate and fluent behavioural performance. Although TAs clearly recognised this point, the routes undertaken to achieve such goals were often broader than can be accommodated within the more traditional, mechanistic descriptions of PT (e.g. Boys & Lyndon, 2008; Chiesa & Robertson, 2000; Downer, 2007; Hughes et al., 2007; Solity & Bull, 1987).

On reflecting on some of the research into formative assessment covered in Chapter 2, it is apparent that PT, in its more traditional sense, takes the form of a broadly *planned*

approach to formative assessment (Cowie & Bell, 1999). Planned approaches are largely procedural, and although attention is given to 'softer', motivational elements of teacher-learner activity, they generally lack a defined flexibility and weight to such factors. Solity & Bull (1987; p. 136) in one of the most accessible and thorough guides on PT written in this country, describe how changes to 'increase motivation' may be made to a PT programme. Although practical examples of such strategies are not included by the authors, consistent with the behavioural model (Solity & Bull, 1987) such changes relate to adjusting following 'consequences' to improve performance:

*When teaching a skill it is to be hoped that pupil motivation will remain high. Unfortunately this will not always be the case and there will be times, most frequently during fluency-building, when changes need to be made to help improve motivation. Consequences which were originally found to be reinforcing by a pupil may no longer be effective, so the teacher will have to search for alternatives to increase motivation* (p. 136).

However valuable this may be, and the present research points to the frequent use of consequential verbal feedback to recognise pro-task responses, this perspective tends to limit PT to the confines of a largely reactive procedural intervention focussed exclusively on improvements to clear behavioural objectives (e.g. '*achieving at least fifty correct responses per minute with three or less errors over three consecutive sessions'*). However, analyses of PT session records and interviews with TAs across the study indicate that more work is undertaken to address other social and emotional prerequisites

than appears to be the case within traditional views of PT. Indeed, it is no coincidence that changes to 'increase motivation' under the original Solity & Bull model were broadened under the title of 'strategies to increase student engagement' and then specified in five different ways by the end of the project; this research indicated something deeper, more empathic about the work TAs were routinely engaged in.

The need for more flexible, sensitive and timely interventions within formative assessment practice was pointed to in Chapter 2. Torrance and Pryor (1998) state:

*… formative classroom assessment can never be reduced to a set of procedures or practices that will 'work', but rather should be conceptualized as an open, interactive process that might 'get somewhere'; we are invoking an 'intelligent systems' metaphor rather than Newtonian cause and effect* (Torrance & Pryor, 1998, p.159).

For example, in response to a question posed toward the end of their first interview, TA8 stated:

*'Well I think the process and procedures are the backdrop to what is really going on about how you get on with the student and how responsive you are to them. N has always found reading hard, but she believed I believed in her and that made the biggest difference I think.'* (Interview 8)

Furthermore, in the second round of interviews, held in May 2008, TA1 said:

*'… you have to see how the students are feeling about the work, it is easy to rush on even though you think they are feeling good about it all, so talking about the programme and the teaching bit with the student really helps.'* (Interview 9)

In line with Cowie & Bell's (1999) final model of formative assessment that links 'planned' and 'interactive' approaches (see p. 48), it would appear that TAs were indeed needing to work more flexibly within a planned model as a way of meeting more fundamental social and emotional goals. Cowie & Bell point out how staff often begin with the planned, and then move to interactive approaches in order to respond to developments during sessions:

*They may have suspected that things may not have been alright and wanted to check things out; they may have noticed a student's or a group of student's misconceptions; they may have wished to follow up a hunch, or monitor the learning occurring* (Cowie & Bell, 1999, p. 113).

In this way, PT can be seen to link well across these models in order to employ the range of specified interventions to promote student engagement: those arrived at by the second version of the framework are presented in Table 38 below. The intent of some of these interventions were not always focussed on the direct pursuit of the behavioural objective *per se*, instead they offered a supportive role in meeting social and emotional needs as an initial step to promoting access to the pedagogical arrangements (e.g. code 4b and 4c).

| **Changes for…** | Recorded as code: |
|---|---|
| ‘increasing student engagement’ by recognition of positive task-related behaviours | 4a |
| ‘increasing student engagement’ by recognition of personal commitment to the intervention | 4b |
| ‘increasing student engagement’ through interventions to develop relationships with student using more personalised approaches | 4c |
| ‘increasing student engagement’ through consultation about other aspects of the PT intervention to encourage student engagement | 4d |
| ‘increasing student engagement’ through verbal confirmation | 4e |

**Table 38: Range of changes for ‘increasing student engagement’ available under FSATI version 2**

It is with this flexibility and breadth in mind, Torrance and Pryor (2001) suggest two approaches to formative assessment: convergent and divergent. These are shown in the figure below as extracted from their article:

| CONVERGENT ASSESSMENT | DIVERGENT ASSESSMENT |
|---|---|
| Assessment which aims to discover ***if*** the learner knows, understands or can do a predetermined thing. This is characterised by: | Assessment which aims to discover ***what*** the learner knows, understands or can do. This is characterised by: |
| **Practical Implications**<br>a. precise planning and an intention to stick to it;<br>b. tick lists and can-do statements;<br>c. an analysis of the interaction of the learner and the curriculum from the point of view of the curriculum;<br>d. closed or pseudo-open questioning and tasks;<br>e. a focus on contrasting errors with correct responses;<br>f. judgmental or quantitative evaluation;<br>g. involvement of the student as recipient of assessments. | **Practical Implications**<br>a. flexible planning or complex planning which incorporates alternatives;<br>b. open forms of recording (narrative, quotations etc.);<br>c. an analysis of the interaction of the learner and the curriculum from the point of view both of the learner and of the curriculum;<br>d. open questioning and tasks;<br>e. a focus on miscues - aspects of learner's work which yield insights into their current understanding, and on prompting metacognition.<br>f. descriptive rather than purely judgmental evaluation;<br>g. involvement of the student as initiator of assessments as well as recipient. |
| **Theoretical Implications**<br>h . a behaviourist view of learning;<br>i. an intention to teach or assess the next predetermined thing in a linear progression;<br>j. a view of assessment as accomplished by the teacher. | **Theoretical Implications**<br>h a social constructivist view of learning<br>i. an intention to teach in the zone of proximal development;<br>j. a view of assessment as accomplished jointly by the teacher and the student. |
| This view of assessment might be seen less as formative assessment, rather as repeated summative assessment or continuous assessment. | This view of assessment could be said to attend more closely to contemporary theories of learning and accept the complexity of formative assessment. |

**Figure 8: 'Convergent and divergent classroom assessment' (Torrance & Pryor, 2001, p. 617)**

The authors state that these approaches are not *'mutually exclusive'*, and *'…might be said to represent a continuum of possibilities for classroom teachers'* (p. 616). *Prima facie*, PT may be seen to fit most comfortably with convergent approaches to formative assessment. However, it is conceivable that most, if not all, of the 'practical implications' in both columns above may well be observed during PT sessions at one time or another. Not unlike Cowie & Bell's conjoined model (see p. 48), it is possible to see how PT practice may need to be more convergent at one time (e.g. *'a focus on contrasting errors with correct responses'*) then require more divergent responses (e.g.

use of *'open questioning'*) at others. This is not to say that PT can kick away the shackles of its behavioural roots, as much relies on these principles. However, a modernised view of PT needs to stress the more empathic features and efforts toward viewing learning as an event that is construed by students not only in terms of their views on the task at hand, but also the social and emotional histories teaching and learning draws upon. Evidence from teaching staff and records of the sessions themselves point to a broader conceptualisation of PT that can draw on more recent constructions of formative assessment practice. Borne from a broader view on the teaching and learning process, the above offers a case for a contemporary concept of PT, as Precision Assessment (PA); one that embraces a range of assessment information and perspectives, inclusive of the more established foci on instructional factors, behavioural performance and consequences (Sulzer-Azaroff & Mayor, 1977; Haring et al., 1981).

## 7.3 Discussion of outcomes and findings from Aspect Three (Chapter 6)

Aspect Three of the study focussed on *Research Question 6* which aimed to explore how participating in the initiative may have served as a continuing professional development opportunity for the TAs. This aspect drew on information collected through interviews held in May 2008 and records from the support sessions conducted throughout the project.

### 7.3.1 Research Question 6

The findings from Interviews 9-16 offered support to the notion that involvement in the project had been influential in developing the thinking and practice of the TAs involved.

With regard to the broader area of developing thinking and personal understandings of the relationship between teaching and learning, all TAs were able to immediately identify specific areas relating to three key themes of formative assessment practice (i.e. 'review/reflecting on student progress', 'personal factors' and 'task-related factors'). Furthermore, all TAs were able to articulate the application of formative aspects of PT practice to their general classwork in schools. Analysis of the records from the support sessions showed a pattern that corroborated the interview responses. A striking increase in discussions relating to the theme of 'processes and practices surrounding teaching and learning' was recorded across support sessions held during intervention for Cohort 2. In combination with the findings from the interviews held at the end of the project, this trend can be seen to offer greater credibility to the notion that TAs' thinking and practice around formative assessment appeared to have developed across the initiative.

Despite largely positive findings, the use of an interview that required staff to reflect on their experiences across the study may be seen to be prone to concerns over validity. Although staff reported an increase in their consideration over aspects of effective teaching and learning and were also able to point to examples of how these have been operationalised, whether such reports actually reflected what was really happening is open to question. Use of self-reporting in this way could have been supplemented through the use of a pre-initiative interview or a rating scale based on the areas of formative assessment focussed upon (e.g. Gardner, 2006) or the use of diaries or observations to triangulate the findings gleaned from the interviews; use of such approaches may also offer inspiration for future research seeking similar information. Nonetheless, it is

important to highlight the value of the information collected on the same topic through the planned support sessions. This information can be seen to offer further support to the findings derived from the interviews and, unlike the retrospective interviews held with staff, the support session records represented a progressive, more reliable method of monitoring such developments over the initiative through the use of 'repeated sampling'.

Further, it should be pointed out that attempts were taken to promote the validity of information obtained through interview at all stages of the project. As for those interviews relating to Aspect Two, all interviews followed the same sequence of questions and were conducted by the same researcher: a step taken to keep the influence of the interviewer-bias (i.e. through demeanour, accent, dress, gender, age and so on) at least constant across each interview session. Moreover, all interviews were audio-taped and then transcribed by the researcher at a later date; this provided a permanent record of the entire interview from which verification of the transcribed responses could be undertaken.

Although it is far from certain that engagement in the project contributed wholly to the suggested developments in TA thinking and practice, as through their general working practice and other CPD opportunities (e.g. professional supervision with line managers at school) such gains may have also emerged. However, from the evidence summarised above it is more than possible that the project will have contributed in some way. Research examining TA contributions to the development of formative assessment practice has been limited in the literature to date, and this contrasts sharply with work

carried out with qualified teachers in the field (e.g. Gardner, 2006; James, 2007; James & Pedder, 2006). When converged with the contributions made to the developmental aspect of the study under Aspect Two, it would appear that not only do TAs appear to gain professionally from such projects, but they can contribute in a significant way too. The commitment of all eight school staff to the project in delivering PT intervention in such a consistent manner requires commending, as does their participation in every aspect of the research allowing their records and practice to be inspected, questioned and, in some cases, directly observed and recorded by audio-tape. It is possible that this level of engagement across the project not only represented a cumulative learning experience for the staff, but may also lead us to some way of understanding the marked differences in achievements between Cohorts 1 and 2.

## 7.4 Drawing the outcomes together

The findings of each of the three aspects of the study discussed above not only provide some support to the notion of PT as a continuing force in promoting basic skill development, but also highlight the value of fully involving participants in any initiative. It is the case that a number of key steps were taken in the planning stage of the research to ensure the interventions delivered by staff were supported throughout. The underpinning aim here was to ensure PT interventions were undertaken in a consistent manner as, fundamentally, the experiences of students and staff within these sessions underpinned every aspect of the study. Despite such efforts, three questions remain unanswered in the discussion so far. These are:

1. *Why was there such a marked difference in RAM scores between Cohorts 1 and 2?*
2. *What is it about PT in this study that brought about valuable 'carry-over' effects, where student performance is not only maintained, but continues to improve without additional intervention?*
3. *Why was there a notable difference in MALS scores between Cohorts 1 and 2?*

These questions arose out of the findings from Aspect One of the research. However, to address them information will be drawn from other areas of the study.

With regard to questions 1 and 3 (above), two connected factors require consideration. Firstly, those students in Cohort 2 received PT intervention through the use of the FSATI. The framework was based on successful practice and aimed to offer TAs greater structure and inspiration in their decision-making throughout each PT programme; the intent was to enhance outcomes for each student. It provided a clear 'pathway' to follow and offered structure around what and when to make changes across each programme. With this in mind, the two cohorts can be seen to have had different quality of learning experiences: one may have even expected a difference between cohorts to arise. Indeed, given the research linking academic achievement and academic self-concept, discrepancies in improvements linked to PT intervention in the RAM and MALS scores between cohorts could well have been anticipated.

Furthermore, it is argued that the TAs themselves were more proficient in delivering the intervention for students in Cohort 2 through ongoing practice and support. The project was planned in a way that it would represent a CPD rather than 'training' experience that could bring about marked developments in professional behaviour. This built on previous work by the author (Roberts & Hampton, 2008) and a host of other research (e.g. Fullan, 1991; Georgiades & Phillimore, 1975; Lacey & Porter, 1998; Lally et al., 1992; NCCSDO, 2001) where it is emphasised that initial training, however helpful as a driver for new initiatives, is often merely a 'starting point' to broader efforts in the pursuit of sustained developments in professional practice. Indeed, it is interesting to point out how some researchers working with staff have suggested that it takes up to thirty hours of training and support to thoroughly embed new techniques (Adey, 2004). Hence, accompanying the initial training (July 2007) strategies to bolster and monitor the fidelity of PT intervention (Schinke et al., 1991) were employed (see pp. 74-75). These were also supplemented by ongoing conversations during support visits (focussing on problems arising and the sharing of ideas) and planned interviews exploring practice. Together with the use of the FSATI and increasing use of PT, such provisions are seen to have offered a deeper, cumulative approach to developing staff skills; these may well have contributed in a marked way to the quality of PT interventions and, in turn, the RAM and MALS scores achieved across the two cohorts.

Finally, we turn to question 2. This related to the unexpected outcomes on the RAM scores following PT intervention for students in Cohort 2:

*What is it about PT in this study that brought about valuable 'carry-over' effects, where student performance is not only maintained, but continues to improve without additional intervention?*

Maintenance of gains following withdrawal of intervention for literacy skills are noted in the literature (e.g. Solity & Shapiro, 2008; MacKay, 2006, 2008). In the 'whole-class' Early Reading Research (ERR) Solity & Shapiro (2008) reported such a maintenance effect *'…for at least one year after the intervention had been removed'* (p. 142). MacKay (2006, 2008), in the extensive multi-faceted West Dunbartonshire Literacy Initiative (WBLI), notes how children receiving a class-based synthetic phonics programme showed *'…a lasting impact at follow-up three years later'* and, for those in receipt of an 'attitudes' intervention, *'…were still reading more than a year ahead of the controls'* (2008, p. 930) six years on. Unlike these large-scale 'universal' projects, the use of intervention in PPTP related to short-term work (five or six weeks) on an individual basis with students identified to require additional support with literacy skill development. More comparable with PPTP in terms of the needs of the students involved and the type of intervention offered was the final element of the WBLI involving 'individual study support' (MacKay, 2006, p. 200; 2008, p. 931). In contrast to the sample of secondary aged students within this study, MacKay and colleagues employed the 'Toe-by-Toe' (TBT) programme (Cowling & Cowling, 1993) for children in primary schools to *'…invest in intensive individual tuition for the small percentage who were still not fully literate'* (2008, p. 931). Following an intensive three-month daily input using TBT, MacKay reported an average reading-age gain of two years, nine months on. Such results

are indeed promising, though no clear indication of skill maintenance is given due to the lack of measures taken directly after TBT intervention. Nonetheless, it should be noted that TBT has some commonality with PT in terms of the focus on 'fluency' and short, daily intervention; and it is more than possible given the emphasis on such factors that any gains made may well have been at least maintained, or even continued to improve, following the three-month input. If that was the case, parallels could be drawn between these interventions, although an explanation for this phenomenon seems far less apparent.

PT is guided by a model of learning that strives to achieve the retention of skills through the development of accurate and fluent behavioural responses (Fabrizio & Moors, 2003; Hughes et al., 2007). However, to reach an understanding of why, in PPTP, students appeared to go 'beyond maintenance' and continued to improve following intervention-withdrawal requires wider discussion.

As a starting point to speculations over this observation, MacKay & Watson (1999) point out:

*…the potential importance of psychological factors such as self-esteem and attitude in relation to reading has been highlighted over a considerable period'* (p. 31).

Work connecting literacy development with emotional outcomes has indeed been noted in the literature (e.g. Lawrence, 1971, 1973; MacKay, 2006, 2008; Wattenberg & Clifford, 1964), with other research also indicating how perceived success in school tasks

in the early years at least appear to have a marked effect on children developing positive conceptions of themselves as learners (Hansford & Hattie, 1982; Burden, 1998b). With this observation in mind, it is important to note how the present study suggests, at least within Cohort 2, broadly parallel within-group gains in word reading skills (WRS) as measured via the RAM and academic self-concept. If, as it appears to be, PT offered opportunity for students to not only develop their WRS through engagement in PT programmes, but also benefitted in developing an increasingly positive view of themselves as learners, this may offer a starting point to account for the 'carry-over effects' ('beyond maintenance') observed within the project.

Although the causal link between academic self-concept and academic achievement is not entirely clear (Burden, 1998a, 1998b), the checklist sampled five key components of academic self-concept (see p. 205) which may offer some direction on an understanding of continuing improvements following intervention-withdrawal. Indeed, it is possible to conceive how developments in personal confidence, an enjoyment in solving problems, a reflective learning style, reduced anxiety and improved vocabulary (all sampled through the MALS), may well have provided a platform for greater expectancy for success and, in turn, engagement in the wider school curriculum for students. These wider effects of successful PT intervention are further supported when the following anecdotal information drawn from some of the TA interviews (e.g. Interviews 10, 13 and 15 – Appendix 4.2.11) and support sessions are considered (e.g. Support Sessions 9, 11 and 12 – Appendix 4.3.1). For example:

*'It has been really helpful to be involved, so many of the teachers have said they have noticed the difference in kids in class.'* (Interview 13)

*'I have been amazed how such a little input has gone a long way. I have said on your visits how the children are reading more in class and wanting to do so. I was shocked really, it made me feel we were really making a bigger difference.'* (Interview 10).

*'TA8 wished to share the positive feedback from staff who teach the students involved. Many have noticed a real boost in confidence in class. TA8 was surprised by this, although pointed out their improvements have been really impressive and they seem more willing to take part.'* (Support Session 11)

Moreover, it is important to note how prior research has also shown how formative assessment approaches involving regular feedback and collaborative goal-setting have also improved general independent learning skills (Nicol & Macfarlane-Dick, 2006) or 'self-regulated learning' abilities (Zimmerman & Schunk, 2001). Hence, it is not inconceivable that the project may have offered students not only the 'skill' to access more text but the 'will' to persevere more in class (Pintrich & DeGroot, 1990).

Perhaps the key to this speculatory discussion lies in the importance of expectations or beliefs derived from motivational psychology (e.g. Bandura, 1997; Dweck, 2000; Harter, 1982; Wigfield & Eccles, 2001). PPTP students were identified to be in need of group or individualised literacy support by their schools and, based on the WRS measures taken,

were markedly delayed in this area in comparison to most other children of their age. From this standpoint, it appears not unreasonable to suggest that many of these students (mean age: 13 years 6 months) may have experienced longstanding difficulty in accessing curricular material in schools. A possible consequence of this is a limited belief that success could be enjoyed in reading-based activities. The construct of 'self-efficacy' (SE - Bandura, 1997) provides one possible way of understanding such expectancy effects, as Bandura himself outlines:

*…self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives* (Bandura, 1994, p. 71).

Self-efficacy, based in social cognitive theory with roots in behavioural learning theory, is preferred to other approaches (e.g. 'expectancy-value theory' - Wigfield & Eccles, 2001, or 'perceptions-of-competence' research - Harter, 1982), given its substantial research base and its responsiveness in accounting for individual behaviour across tasks and contexts (Bandura & Locke, 2003). Or, as Pintrich & Schunk (1996) put it:

*…self-efficacy theory assumes that self-efficacy is much more situation specific and defines efficacy in terms of judgments of capability to perform specific actions in light of specific goals. Research has consistently shown self-efficacy beliefs to be related to academic achievement and performance on standardized tests and actual school tasks in addition to self-report measures of cognitive engagement and self-regulated learning*

(p. 89).

Although this notion of self efficacy is likely to have been drawn-on through the MALS assessment, due to the emphasis of the scale on academic self-concept it is not wholly clear how influential it was in the scores produced. However, given the substantial body of research promoting positive links between self-efficacy and goal achievement (Bandura & Locke, 2003) it is possible that developments in personal beliefs over their capacity to succeed in reading activities may have contributed to further gains for the students after periods without any further intervention. What is being suggested is that PT may have brought about a developed concept of self-efficacy in reading; one that may have promoted skill consolidation and a greater willingness to experience new, more challenging, literacy work on which further gains may have arisen. In this way, Bandura & Locke (2003) include reference to how a range of interventions ('procedures') may influence this particular construct of self-belief:

*Evidence that divergent procedures produce convergent results adds to the explanatory and predictive generality of the self-efficacy determinant* (p. 88).

The account above represents the beginning of discussion over the 'carry-over effects' shown for students in Cohort 2. Although space does not allow expansion of such theoretical accounts and others to be explored, it does offer a platform for future theoretical and empirical exploration. This research points to the use of a far broader methodology in exploring the motivational effects of PT input, and the basis for a range

of methods (e.g. student interviews, class observations and rating scales) exploring links between PT and motivational outcomes or constructs: an area, as yet, not considered in the literature to date.

## 7.5 Summary

Discussion of the findings and outcomes from the research underpinning PPTP reveals a range of outcomes requiring discussion of research and theory from a breadth of perspectives. In tandem with this, reflection on the research methodologies and methods employed offers a platform for future researchers to work from, while the attention given to the fidelity of the PT intervention may provide opportunity for replications of, at least, the quasi-experimental element of the study to be undertaken.

The findings from Aspect One offered a mixture of outcomes including unexpected yet welcome results for the second cohort, while at the same time requiring discussion and conjecture guided by findings from social-cognitive theories and organisational psychology to offer possible insights into the results. In this respect the work points to the need for any new intervention to be introduced in a principled way that considers organisational factors alongside ongoing normative, educative and affective forms of support when trying to embed and develop further new skills. Aspect Two provides opportunity for future researchers to build on the framework proposed, in terms of further trials and innovations. It is also suggested that the model provided offers a possible starting point for optimising PT practice across a broader range of skills.

Aspect Three served to stress the importance of the collaborative nature of the project as a whole. Findings here, and across the two other elements of the study, do not only suggest that Teaching Assistants may contribute in a committed and meaningful way to research, but may also gain a lot from it. Finally, and continuing this theme around collaborative working, it should also be noted how academics have been pointing to the need for professional educational psychologists to undertake more research in the field as a driver to local and national policy from an evidence-informed standpoint (Lindsay, 1998; Norwich, 2005). In this way, Webster & Beveridge (1997) stressed how the research can often be the most fruitful when they build on concerted efforts between schools, local authorities, educational psychology services and university departments. For some, this research may be considered an example of just that.

# CHAPTER 8

# Conclusions

## 8.0 Overview

*Although there have been dramatic improvements since 1997, 25% of primary school pupils go on to secondary school without the capabilities in literacy and numeracy that will enable them to make the most of their education. And as in the system as a whole, the social class gap is unacceptably wide* (DfES, 2004b, pp. 33-34).

Despite this clarion call for action four years ago, significant concerns continue to exist in the government's attempts to reduce illiteracy across the country (e.g. Tymms & Merrell, 2007; Whetton et al., 2007). Whilst central government has invested considerably in national literacy and numeracy programmes alongside a host of other school improvement initiatives, much is still left to do. As Tymms & Merrell (2007) point out:

*Massive efforts to bring about change have had a relatively small impact. These policies have cost many hundreds of millions of pounds but they have generally not had a sound research base and have not been systematically evaluated. The messages are clear:*

- *Policies need to be much more closely tied to the research evidence.*

- *Strategies should be trialled and scientifically evaluated before introduction on a national basis.*

Given the huge task confronting researchers and policy-makers, this thesis describes a relatively small-scale project investigating the outcomes of Precision Teaching (PT) interventions for improving sight-word reading skills. The investigation sought to evaluate the efficacy of PT, and to develop ways of improving this approach. The research also encompassed an investigation into the learning of Teaching Assistants (TAs) whose involvement in the project was expected to contribute to their professional development.

## 8.1 Precision teaching and student outcomes

The research highlighted the value of PT for students' sight-word reading skills when PT intervention had greater structure (through use of a framework), and the TAs had opportunity to build their skills in delivering programmes through ongoing support, monitoring and discussion. What is original about this research is not only the number of student participants (research on PT to date has generally involved small sample sizes), but its use with secondary aged students – a marked absence in the literature on PT. Despite these successes, delivery of such programmes at secondary schools in a way that moves attention away from earlier intervention for literacy skills is not what is being recommended here. However, such situations continue to arise and students require empirically supported interventions to try to prevent longer-term difficulties. As Wells (1998) notes:

*While it's important to get the teaching of literacy and numeracy right in primary schools, earlier intervention will be too late for some older pupils. So opportunities for catching up in secondary school will need to be given high priority. If they aren't, many pupils won't be able to get much benefit from the wider curriculum. And some will leave school with basic skills that provide hardly any grounding for the world of work and later education and training* (p. 1).

## 8.2 Modernising 'precision teaching' and promoting staff development

The second aspect of the study enabled development of a framework to improve PT delivery through an action-research methodology. This approach allowed mutual benefits for the students, TAs and the researcher. Through collaborative work a framework through which PT practice could be advanced was arrived at, and this appeared to contribute to an improvement in the development of student reading skills.

Through their involvement in every step of the project the TAs appeared to benefit too; not only did their PT practice appear to improve but their level of understanding around key elements of effective teaching and learning appeared to grow also. As a researcher, not only have results emerged that suggest the positive impact of PT intervention and how it can also produce continuing improvements following periods of withdrawal, a framework for enhancing PT practice has evolved. This should be seen as a particular contribution of this research: one that others can trial, elaborate on and clarify its generalisability to other areas of skill development.

Furthermore, examination of the processes and practices undertaken within PT sessions as part of Aspect Two of the research has allowed a contemporary concept of PT to emerge. Consistent with recent developments in formative assessment (e.g. Assessment for Learning) that draws on a broader theoretical basis, the notion of Precision Assessment is promoted over PT as a modernised concept: one that captures more appropriately the breadth and depth of activities undertaken to promote effective teaching and learning as an interactive, flexible endeavour.

## 8.3 Professional educational psychologists: making a difference?

With the above in mind, three points surface as conclusions to this research. Firstly, this study can be seen to offer some support to the recent revival of the notion of 'giving psychology away' (Macleod et al., 2007). In their article Macleod and her colleagues point to proposals made nearly forty years ago in the USA (Miller, 1969) that:

*…psychologists should work through non-psychologists to help alleviate social problems* (p. 555).

One aim of this movement was, at one level, to address a practical issue. Miller (1969) stated:

*There are simply not enough psychologists, even including non-professional, to meet every need for psychological services. The people at large have to be their own*

*psychologists, and make their own application of the principles we establish* (pp. 1070-1071).

Discussions of this kind were certainly not ignored by others in the UK (e.g. Kay, 1972) with movements toward more collaborative, broader and interventionist functions for educational psychologists (EPs) forming the central theme to Bill Gillham's book *Reconstructing Educational Psychology* (REP) published in 1978. However, for many commentators and academics, progress in the UK in this area since the seventies has been somewhat sporadic (Lokke et al., 1997; Stobie, 2002) noting how the profession has been too tightly bound up in legislative requirements relating to special educational needs (SEN). As Gillham (1999), in considering the impact of REP twenty years on, notes:

*The 1981 Education Act leading to the implementation of the statementing procedure and its corollaries can now be seen as nothing less than a tragedy for the profession* (Gillham, 1999, p. 220).

However, never has consideration of the value the professional EP brings to the table been more important. Messages from central government over recent years stress the need for all services to show how they are *'adding value'* (Baxter & Frederickson, 2005, p. 92) and offering *'value for money'* (Audit Commission, 2004, p. 4; Rowland, 2002, p. 278) within the context of modernised local authorities. With this in mind, EPs may wish to consider the possibilities that the spirit of the work described within this thesis may bring to their practice. Working with school staff over time to deliver quality

interventions suggests the opportunity for EP involvement to not only raise staff skills and knowledge, but also bring about exponential influence over the lives of many children and young people.

## 8.4 Professional educational psychologists and systemic working

The concept of 'giving psychology away' to colleagues in schools and other settings leads to the second point. Richards (1994) warns of the issues stemming from such practice, whereby an *'…appropriate model for the transfer of psychological skills is required'* (p. 12). This research offered support to the notion that embedding skills takes time, and consideration must be given to how staff are supported to develop new skills of professional practice. In addition to initial training, ongoing support meetings and various monitoring mechanisms to promote the consistency of PT interventions, the study can be seen to have drawn on some of the lessons from previous work by this author on changing professional behaviour by drawing on the field of organisational psychology (Roberts & Hampton, 2008). As part of this, efforts to involve key 'influential' staff in each school in addition to those TAs directly involved were made throughout the project's planning, delivery and evaluation. On reflection, the above represented an attempt to operationalise the 'guidelines' or the 'strategy of change' originally highlighted by Georgiades & Phillimore (1975, p. 316); actions that may have served to contribute to key systemic support for the project throughout each school.

## 8.5 Research to practice: the role of the professional educational psychologist

Finally, it is suggested that this research represents some kind of approximation toward what EPs could be doing to bring about positive change for children and young people in schools: the operationalisation of theoretically sound and systematically evaluated intervention (Cameron, 2006; Lindsay, 1998; Webster & Beveridge, 1997). Much has been made of the lack of empirically evaluated approaches to address national attainment issues in the recent past (e.g. Solity, 2003; Solity et al., 2000). With examples of effective programmes grounded in sound theory and research evidence available (e.g. Mackay, 2006, 2008; Solity & Shapiro, 2008) it is of some surprise that educational psychologists have had such limited impact on national work of this kind. In a modest way this thesis has gone about evaluating and modernising an established approach to addressing individual student reading skill development and, thus, contributing to the corpus of research examining its efficacy on which future support for children may be guided. Gross (2009) estimates the projected cost to the public purse arising from children and young people failing to grasp basic literacy skills in school as:

*…at between £5,000 and £43,000 per individual to the age of 37, and between £5,000 and £64,000 over a lifetime. This works out at a total of £198 million to £2.5 billion every year* (p. 5).

Without carefully implemented, rigorously trialled interventions the costs to the public are unlikely to fall. However, the cost to those youngsters who continue to fail to develop such key skills for life in school and beyond is difficult to ever imagine.

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# APPENDICES

# APPENDICES

## CHAPTER 1



## CHAPTER 3



## CHAPTER 4

**Appendix 1.0**

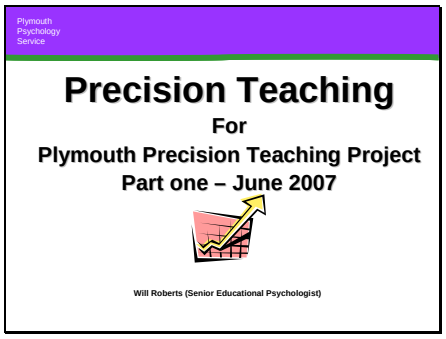
## Abbreviations

| | |
|---|---|
| ASC | Academic Self-concept |
| FSATI | Framework for the Systematic Adaptation of Teaching Interventions |
| HLTA | Higher Level Teaching Assistant |
| MALS | Myself As a Learner Scale |
| PIR | Participant Information Record |
| PPTP | Plymouth Precision Teaching Project |
| PT | Precision Teaching |
| PTPOs | Precision Teaching Practice Observations |
| RAM | Reading Accuracy Measure |
| RRM | Reliability of Recording Measure |
| SCC | Standard Celeration Chart |
| TA | Teaching Assistant |
| TAs | Teaching Assistants |
| WIAT II UK | Wechsler Individual Achievement Test Version 2 UK Edition |
| UTA | Usual Teaching Arrangements |

**Appendix 3.1.1**

## Precision Teaching training summary presentation delivered June and July 2007

Slide 1

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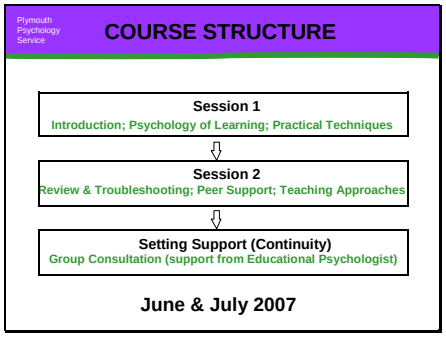

Slide 3

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**PRECISION TEACHING**

**-Broad groundings-**

**Research & Evaluation**

**(Finding out what works best)**

**Applied Behavioural Analysis**

**(Experimental measurement and evaluation)**

**Formative Assessment Model**

**(Assessment for Learning / Personalisation)**

**Humanistic Psychology**

**(focus on environment and 'growth')**

Slide 4

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**PRECISION TEACHING….**

**….. is a method of precisely *measuring***

**the effectiveness of teaching**

**PRECISION MONITORING** **PRECISION RECORDING**

**PRECISION TEACHING**

**An Evaluation Tool, NOT An Teaching Tool**

Slide 5

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**In a nutshell……Part 1**

**PRECISION TEACHING…..**

**……is a method of precisely finding out which teaching approaches work…..and then using them!**

Slide 6

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**In a nutshell……Part 2**

**PRECISION TEACHING…..**

**……is a way of ensuring skills are taught to such a high level that forgetting is minimised.**

Slide 7

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**ASSESSMENT-THROUGH TEACHING or CURRICULUM BASED ASSESSMENT**

**Essentially *OPTIMISTIC + NON-LABELLING* focuses on the *TEACHING PROBLEMS***

***INCLUSIVE* philosophy –**

***BUILD THE PROGRAMME AROUND THE PUPTL***

**Effectiveness of the *PROGRAMME* is evaluated, not within child factors**

Slide 8

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**ASSESSMENT-THROUGH TEACHING or CURRICULUM BASED ASSESSMENT**

**It is the suitability of the classroom/teaching environment and the child's interaction with it that is assessed, not the child.**

**(Howell et al., 1979; Solity & Bull, 1987)**

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## PRECISION TEACHING

**FUNDAMENTAL PREMISE:**
**ALL CHILDREN CAN LEARN**

**PT aims to find out what method of teaching is most effective for a particular child - and use it !!**

***It builds on success – and develops self-esteem***

Slide 10

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## HARING, N & EATON, M (1978)

**THEORY**

**'THE LEARNING HIERARCHY'**

**Accuracy (acquisition)**
**Fluency**
**Mastery (maintenance)**
**Generalisation**
**Adaption**

Slide 11

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## PRECISION TEACHING

**THEORY**

**'THE LEARNING HIERARCHY'**

**ACCURACY (ACQUISITION):**

**The Pupil Performs new skill with increasing accuracy**

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**PRECISION TEACHING**

**T H E O R Y**

**'THE LEARNING HIERARCHY'**

**FLUENCY:**

**The person performs new skill with accuracy and increasing speed**

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**PRECISION TEACHING**

**T H E O R Y**

**'THE LEARNING HIERARCHY'**

**MASTERY:**

**Mastery learning: pupil performs skill accurately and fluently, without error or hesitation on a set number of occasions**

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**PRECISION TEACHING**

**T H E O R Y**

**'THE LEARNING HIERARCHY'**

**GENERALISATION:**

**The pupil uses the *new* skill in a novel situation, with different material, under different conditions**

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## PRECISION TEACHING

**T H E O R Y**

**'THE LEARNING HIERARCHY'**

**ADAPTION:**

**the person uses the skill and knowledge learned and begins to alter and change it to master a new situation**

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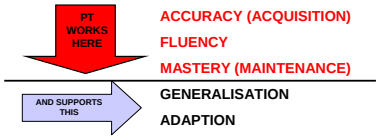
## PRECISION TEACHING

**T H E O R Y**

**'THE LEARNING HIERARCHY'**

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## FLUENCY AS THE GOAL OF PT

- **Mastery isn't just about getting it right**
  (Haring, Lovitt, Eaton, & Hansen, 1978)
- **Quality Criterions (8/10 or 90%) are not as reliable as Fluency and Accuracy measures in predicting longer term achievement** (Lindsley, 1990)
- **"It is the speed or rate of performance which measurably distinguishes experts from beginners"**
  (Binder, 1988)
- **"Only fluency bridges the gap between mere acquisition of skills and truly useful performance"**
  (Binder, 1988)

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## RESEARCH ON FLUENCY

**Research Clearly Links Mastery of any Skill or with Fluency and Accuracy**

**Increased *'Speed of Response'* improves:**

- Retention (Binder, 1988)
- Attention span / resistance to distraction (Binder,1990)
- Application to new areas of learning (Haughton, 1972)

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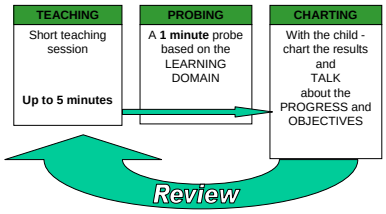
## PRECISION TEACHING

**Daily Teaching Model**

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## WHY DAILY?


**'Memory: A Contribution to Experimental Psychology'**

(Hermann Ebbinghaus, 1885)

**Breaks between periods of intense work serve to distribute effort and increase performance**

(Pellegrini & Blatchford, 2002)

**The Early Reading Research Project**

(Solity et al., 2000)

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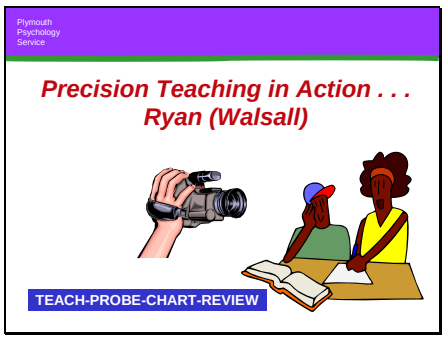


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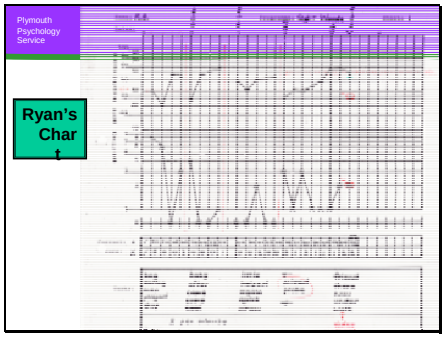


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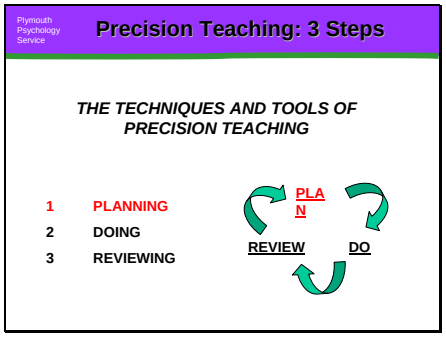

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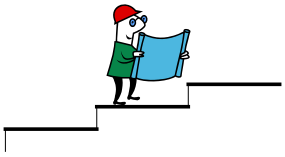
## PRECISION TEACHING

**1st 'PLANNING'**

***'Getting the Task Right'***



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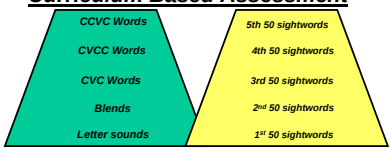
## PRECISION TEACHING

1st Planning

***Curriculum Based Assessment***




**INSTRUCTIONAL PSYCHOLOGY:**

**The pursuit of teaching the most generalisable (useful) skills represents key principle of Instructional Psychology** (Solity et al. 1999).

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## *THE TECHNIQUES AND TOOLS OF PRECISION TEACHING*

1 PLANNING
2 DOING
3 REVIEWING

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## PRECISION TEACHING

**2nd 'DOING'**

**- PROBING -**

**Using The Probe Sheet**

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## PRECISION TEACHING

2nd 'Doing'

**BASIC 'PROBE' SHEET**

| Name | | | Aim | Rate |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

- The Probe sheet is the stimulus for a short timed test (a 'Probe') usually for 1 minute in duration
- These sheets are used for 'see to say' ('see to write' probes). Other probes may be verbally delivered, but use the same structure ('hear to write')

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## PRECISION TEACHING

2nd 'Doing'

**PROBING**

- **You are using a 'SEE TO SAY' probe, 8 lines of 5 cells: 40x.**
- **You will probe the 'learning domain' for *exactly* 1 minute.**
- **You will need to *record* the responses e.g. correct / errors *tick/dot or cross/mark***

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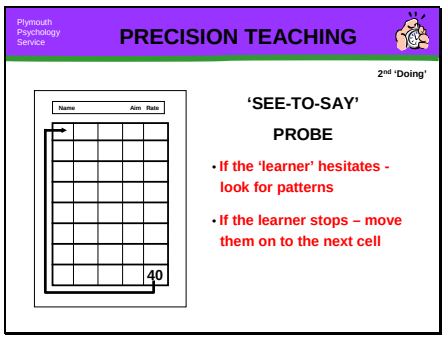


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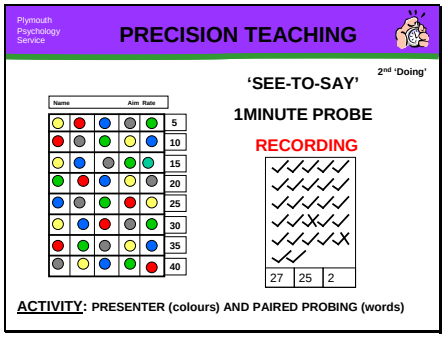


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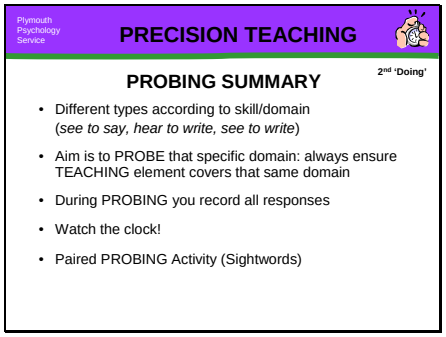

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***THE TECHNIQUES AND TOOLS OF PRECISION TEACHING***

1 PLANNING
2 DOING
3 REVIEWING


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**PRECISION TEACHING**

**3rd REVIEWING**

CHARTING
&
TARGET SETTING

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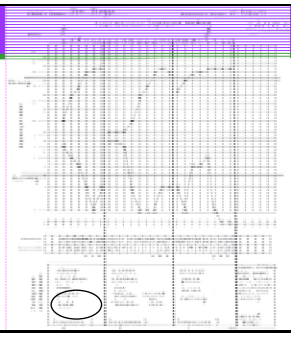

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**PRECISION TEACHING**

3rd Reviewing

## The Chart

COMPLETION WITH PUPTL

- Following a one minute probe……
- Date it!
- Record number correct and number incorrect in boxes below
- Plot 'o' (correct), 'x' (incorrect) on chart
- Review with pupil (stress positives, areas to work on etc…)
- Analyse

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**PRECISION TEACHING**

**PT & Target Setting**

**~ Aim rates ~**

**Jeanette will read was, it, is, a, on, at**
**at a rate of 50 letters per minute (FLUENCY RATE),**
**making up to 3 errors (ACCURACY LEVEL),**
**for three consecutive days (INDICATION OF MASTERY**

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**PRECISION TEACHING**

3rd Reviewing

**SETTING AIM RATES**

1. ***Previous Performance:*** For sequenced skills (i.e. mastered L/S a,e,i,o,u at 50 rpm with 3 errors; set next programme at same rate)
2. ***Peer Comparison:*** Take mean average rate for peer group on task
3. ***Research/Published guides:*** Solity & Bull, 1987; Formentin & Csapo, 1980; Haughton, 1972, Starlin, 1974.

**See-to-say (50 rpm, 3 errors)**

**See/hear-to-write (30 rpm, 2 errors)**

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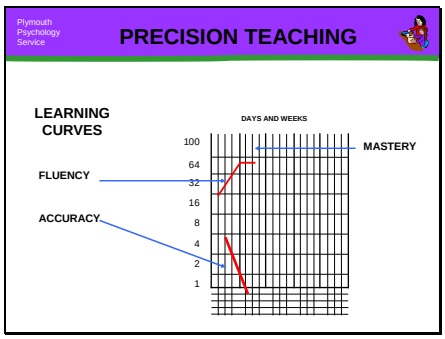


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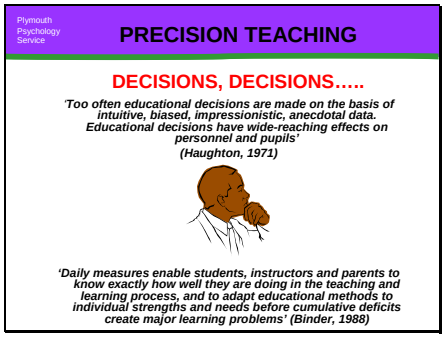


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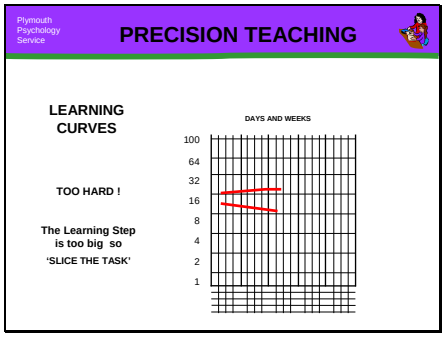

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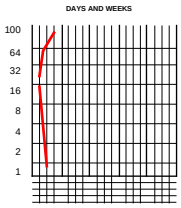
## PRECISION TEACHING

**LEARNING CURVES**

**TOO EASY !**

**The Learning task is TOO SIMPLE**

**'INCREASE THE STEP SIZE or COMLEXITY of the TASK'**

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## PRECISION TEACHING

### CHARTING SUMMARY

- The pupil's number of incorrect and correct responses to the probe are charted each day: ***VITAL FEEDBACK***
- The number of correct responses(o) when connected forms a ***LEARNING CURVE***
- The number of incorrect responses(x) when connected indicates a pupil's ***ACCURACY LEVEL***
- Total number of WPM indicates ***FLUENCY LEVEL***
- This chart requires constant MONITORING to ensure the teaching / teaching methods and the task are both appropriate: For example ***3 DAY / 8 DAY RULES***

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What types of changes could we make?

1. **Change the Sequence (order) of Tasks or Skills (what we teach)**
2. **Change Task or Skill Slices (what we teach)**
3. **Change Instructional Approach (how we teach)**
4. **Increase Motivation (how we teach)**

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## PRECISION TEACHING

### FOLLOW UP MATERIALS

**Key Articles**

Aubrey, C. What Exactly is Precision Teaching?

Binder (1988). Precision Teaching: Measuring and Attaining Exemplary Academic Achievement (Originally published in Youth Policy, 1988)

Raybould, E.C. and Solity, J. E. (1982). Teaching with Precision.

Raybould, E. C. and Solity, J. E. (1988 A). Precision Teaching ... and all that!

**PLUS: full Reference List (for those who wish to explore this even further)**

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## PRECISION TEACHING

### FOR PART TWO

**Assignment**

- **Get some practise before you work with your pupil**
- **Stick to you daily plan: include an Aim Rate**
- **Precision Teach daily:**

| TEACH | PROBE | CHART |
|---|---|---|

- **Review progress regularly and consider any changes with the pupil**
- **Involve the pupil in the CHART AND REVIEW stages**
- **Bring the results back to the next session for a 'problem solve' (THIS IS ESSENTIAL)**

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# Precision Teaching

**For**

**Plymouth Precision Teaching Project**

**Part two – July 2007**

**Will Roberts (Senior Educational Psychologist)**

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**SESSION 2:**
**Trouble shooting, Decision making and Teaching Methods**

- **Group Review / Peer Support**
- **Troubleshooting**
- **Making Choices & Task Analysis**
- **Teaching Methods**
- **Next steps**

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**PT: AN OVERVIEW**

THEORY
'THE LEARNING HIERARCHY'

- ACCURACY (ACQUISITION)
- FLUENCY
- MASTERY (MAINTENANCE)
- GENERALISATION
- ADAPTION

PROCESS
'PRECISION TEACHING'

TEACHING
PROBING
CHARTING
REVIEW

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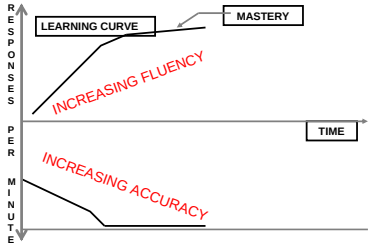
**THE CHART AND THE THEORY**



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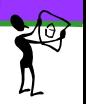
## PRECISION TEACHING



### WHERE ARE WE NOW ?

**Group Work**:

*- Each person to present their work so far to the group.*

1. - Who was it with?
2. - What did you do (probe) and find (chart)?
3. - Any difficulties?
4. - Questions arising? (One person to scribe)

**Feedback to Whole Group**

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## STAYING ON TRACK

**'Noticing and adjusting'**

**Optimising the programme:**
**4 key changes**

**'Common Clangers'**

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## PRECISION TEACHING

### MAKING A CHANGE

***Keep on Course for Success***
***4 WAYS***

- Change the Sequence of Tasks or Skills
- Change Task or Skill Slices
- Change Teaching Approach
- Increase Motivation

Solity & Bull, 1987

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## PRECISION TEACHING

### KEEPTNG ON COURSE FOR SUCCESS

**Change the Sequence of Tasks or Skills**

- **Precise curriculum placement is crucial: double check!**
- **Have all previous skills been maintained?**
- **Interleave (Solity et al., 1999)**

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## PRECISION TEACHING

### KEEPTNG ON COURSE FOR SUCCESS

**Change Task or Skill Slices**

***The skill may be correct but the task demands may be too high. Reduce them by:***

- **Decreasing the size of the task (e.g. less items)**
- **Lower Difficulty (e.g. reduce the range of c-v-c words by holding the medial vowel constant)**

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## PRECISION TEACHING

### REDUCING DIFFICULTY

**Carnine & Silbert (1979) - 'Direct Teaching'**

**FIRST focus CVC words starting with a continuous sound:**
**f , l, m, n, r, s, v, w, z**

**BEFORE those starting with a stop sound:**
**b, c, d, g, h, j, k, p, q, t, x, y**

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## PRECISION TEACHING

### KEEPTNG ON COURSE FOR SUCCESS

**Change Teaching Approach**

- **Consider stage of learning**
- **Vary teaching time / duration / activities**
- **Change pace**
- **Level of intervention (cues….prompts)**
- **Ask the child!**

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## PRECISION TEACHING

### KEEPTNG ON COURSE FOR SUCCESS

**Increase Motivation**

- **Maintain a Solution Focussed approach –** e.g. *Is there a teaching approach that is more engaging?*
- **Frequency / Variety of rewards**
- **Immediacy of Feedback**
- **Ask the Child!**

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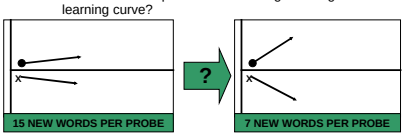
## PRECISION TEACHING

### COMMON CLANGERS

1. Timing accuracy
2. Correct timing principles?
   (“He finished before the time was up!”)
3. Does the probe measure the skill taught?
4. Is the teaching method related to the probe?
5. Is the slice or step of the task too large leading to a slow learning curve?



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## ….. COMMON CLANGERS

6. Does the learning curve plateau before reaching aim rate (see 8 day rule)?
7. Is the child's rate of progress allowed to climb so slowly that he/she is on the same task for too long (see 8 day rule)?
8. Have you checked for maintenance or mastery as well as meeting the original aim rate?
9. Is the child receiving immediate feedback on his/her efforts and praise for effort?
10. Is the chart being labelled correctly? Is the chart attractive and motivating for the pupil?

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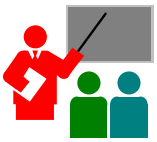
## PRECISION TEACHING

***EFFECTIVE TEACHING STRATEGIES***



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## TEACHINGAL PSYCHOLOGY

**EXPERIMENTAL RESEARCH**

**The Early Reading Research Project (Solity et al., 2000)**

- distributed rather than massed practice
- instruct to high fluency levels
- interleaved learning
- small steps
- Teaching the most useful skills
- 'direct' teaching techniques

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## PRECISION TEACHING

### TEACHING STRATEGIES WITHIN THE LEARNING HIERARCHY

| | |
|---|---|
| •ACCURACY - | Demonstration; Modelling; Cues and Prompts; Routine Drills |
| •FLUENCY - | Repeated Novel Drills; Reinforcement |
| •MASTERY - | Adequate Opportunities For Skill Usage |
| •GENERALISATION- | Discrimination / Differentiation Training |
| •ADAPTION - | Problem Solving; Simulations |

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## PRECISION TEACHING

**HOW TO INSTRUCT:**

***DIRECT TEACHING***

**'Project Head-start'**
**(Late/mid 1960's)**

**'Project Follow-Through'**
**(9 years later)**

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## PRECISION TEACHING

**'PROJECT FOLLOW THROUGH'**
**METROPOLITAN ACHIEVEMENT TESTS**

***9 YEARS ON….***

**In Reading, Maths and Spelling skills the positive effects of 'Direct Teaching' methods were still notable:**
**over and above all other methods employed in Head-Start.**

| READING SKILLS | | MATH'S SKILLS | | SPELLING SKILLS | |
|---|---|---|---|---|---|
| 1st. | Direct Teaching | 1st. | Direct Teaching | 1st. | Direct Teaching |
| 2nd. | Behaviour Analysis | 2nd. | Behaviour Analysis | 2nd. | Behaviour Analysis |
| 3rd. | Bank Street | 3rd. | Bank Street | 3rd. | Parent Edu'n |

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## PRECISION TEACHING

### HATTIE'S META-ANALYSIS (1999)

**TEACHING INNOVATIONS AND THEIR EFFECTS**

'-1.0' = 'Slows Down Learning by 50%'

'0' = 'No effect'

'1.0' = 'Accelerates Learning by 50%

-1.0 *EFFECT SIZE* 1.0

**Top Ten**

| | EFFECT SIZE |
|---|---|
| Positive Reinforcement | 1.13 |
| •Teaching Quality | 1.00 |
| •Teaching Quantity | 0.84 |
| •Direct Teaching | 0.82 |
| •Acceleration | 0.72 |
| •Home Factors | 0.67 |
| •Feedback | 0.65 |
| •Student Motivation | 0.61 |
| •Class Environment | 0.56 |
| •Challenge of Goals | 0.52 |

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## PRECISION TEACHING

### DIRECT TEACHING

The essential ingredients….

1. Clarify curriculum sequence: teacher directed
2. Establish precisely what the pupil can already do (placement test)
3. Get the task right (slice, difficulty)
4. Teach DIRECTLY to the task in small planned steps on a regular, one to one basis (preferably daily) until mastery is achieved
5. Monitor progress and give feedback
6. Show appreciation for success
7. Plan for generalisation of skill

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## PRECISION TEACHING

### A BASIC TEACHING FORMAT

| | |
|---|---|
| 1. MODEL | Teacher demonstrates skill or component (i.e words are read for the pupil) |
| 2. LEAD | Guide the pupil (i.e. say the words with the pupil, in unison) |
| 3. TEST | Ask the pupil to respond independently (i.e. the pupil reads the words alone) |
| 4. REVIEW | (Re-test) Test the pupil at a later time |

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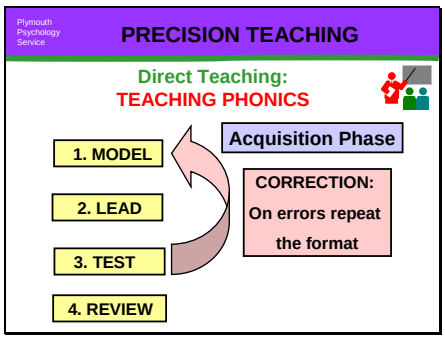


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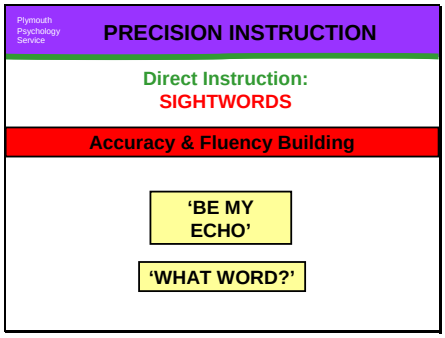


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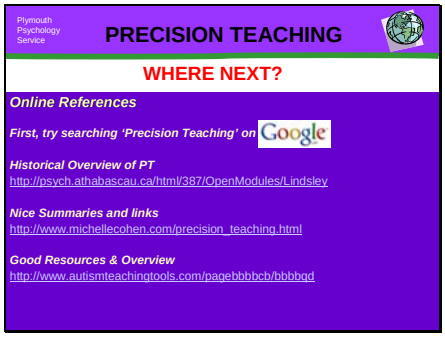

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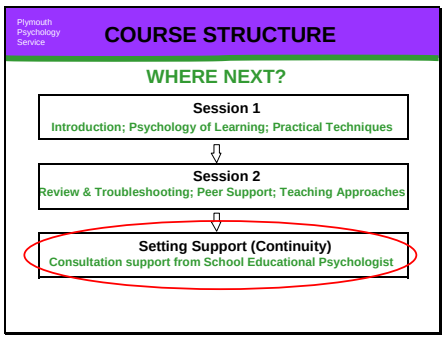


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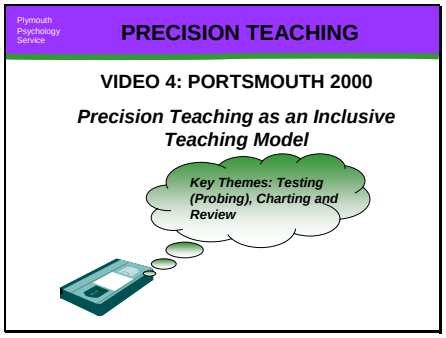


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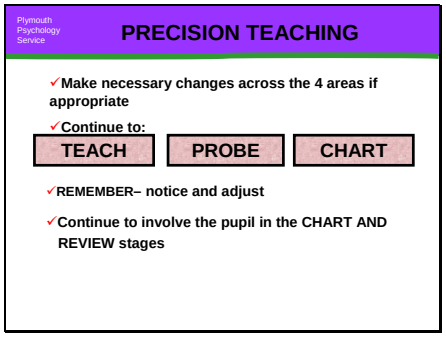


**Appendix 3.1.2**

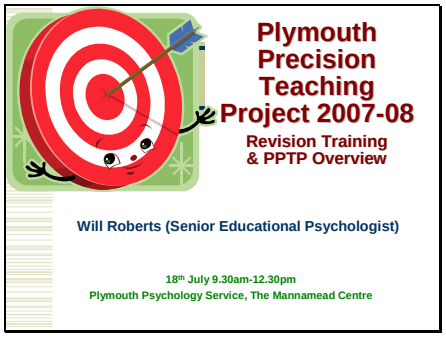
**Overview of the process used for group supervision as part of school and central base support sessions (taken from Bozic & Carter, 2002, p.193)**

1. Welcome. (Ground rules are agreed at the start of a sequence of sessions. Typically these include agreements on confidentiality and the maintenance of respect and empathy for other group members.)
2. Review of previous cases or issues – what has happened since we last met?
3. Prioritisation of concerns. The facilitator EP invites participants to offer a case or issue that can be discussed in today's session. Often teachers will bring a concern about a particular pupil, but sometimes the issue may be a group of pupils, a class, or a systemic feature of the school. A brief resume of each potential case or issue is made (1 minute each) and one is selected. This is done democratically, sometimes a concern may be held in reserve for a future session.
4. The participant whose concern has been selected becomes the 'problem-holder' or consultee. This person outlines the issue in slightly more detail.
5. Communication check: The facilitator EP asks a group member to re-state the problem and checks with the problem-holder that this is an accurate description.
6. Exploration: The group asks questions to elaborate the concern (20–30 minutes). The facilitator EP guides this as necessary, most frequently ensuring that group members do not rush into wanting to provide solutions and advice. Sometimes the EP can develop certain features of the exploration process. For instance demonstrating how to ask certain forms of solution-focused question or how paraphrasing can help to clarify meaning. Much insight into a problem can be gained from the exploration phase alone.
7. Ways forward. During this phase the group discuss possible ways forward (20–30 minutes). However, it is still possible to ask questions and elicit further information if this is necessary. The facilitator EP encourages participants to frame suggestions for action as possibilities that can be rejected, rather than advice that should be followed.
8. Process Review. Led by the facilitator each participant is invited to comment on today's session, significant ideas, concerns and so on. This often stimulates reflection on general issues and learning that participants have experienced in the session.

**Appendix 3.1.3**

**Precision Teaching review training and PPTP overview presentation delivered on 18th July 2007**

Slide 1

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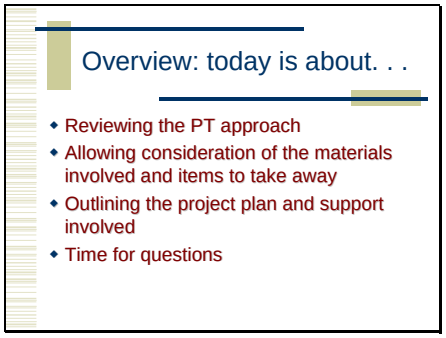

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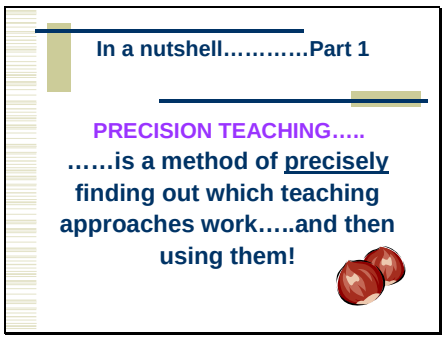


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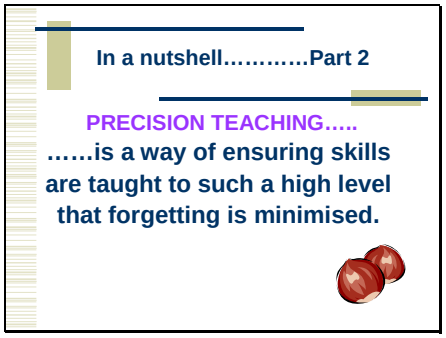


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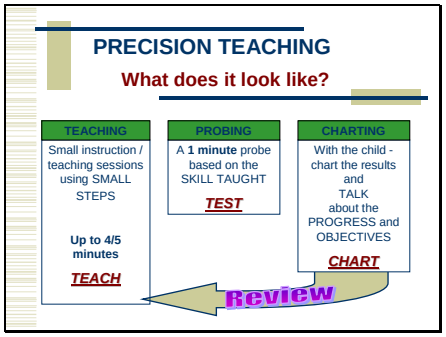


Slide 6

## What is it based on?

**PSYCHOLOGICAL T H E O R Y**

**'THE LEARNING HIERARCHY'**

**Accuracy (acquisition)**

**Fluency**

**Mastery (maintenance)**

**Generalisation**

Slide 7

## FLUENCY AS THE GOAL OF PT

- **Mastery isn't just about getting it right** (Haring, Lovitt, Eaton, & Hansen, 1978)
- **Quality Criterions (8/10 or 90%) are not as reliable as Fluency and Accuracy measures in predicting longer term achievement** (Lindsley, 1990)
- **"It is the speed or rate of performance which measurably distinguishes experts from beginners"** (Binder, 1988)
- **"Only fluency bridges the gap between mere acquisition of skills and truly useful performance"** (Binder, 1988)

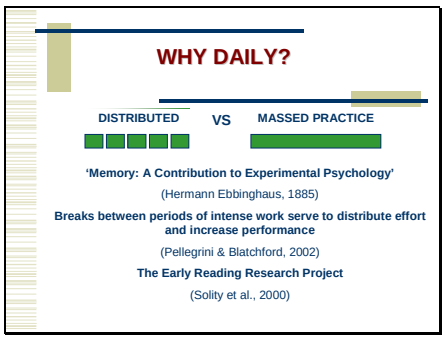
Slide 8

## Fluency is Central to skill gains and other key areas . . .

**Increased *'Speed of Response'* improves:**

- Retention (Binder, 1988)
- Attention span / resistance to distraction (Binder,1990)
- Application to new areas of learning (Haughton, 1972)

Slide 9

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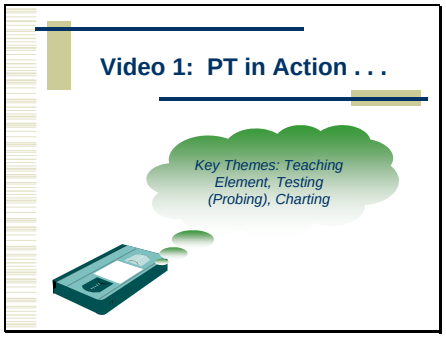


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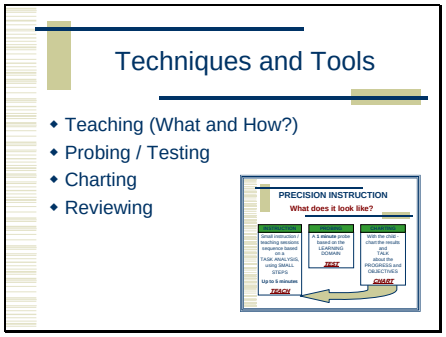


Slide 12

## Teaching : What and How?

- WHAT? We use the most useful skills to teach from research (e.g. the most commonly occurring words)
- HOW? Precision Teaching does not tell you how to teach –**but it will tell you if whatever you are doing is effective.** You can use any method to teach, but possible options include . . .

Slide 13

## How? What are the features . . .

**Accuracy Builders**

Lots of demonstration; Modelling; Cues and Prompts; Routines; working at a **Slower pace**

e.g. Model-Lead-Test-Review

**Fluency Builders**

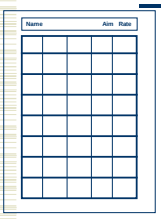
Repeated Drills; Reinforcement and Encouragement; working at **increasing pace**

Say-Cover-See

Card games

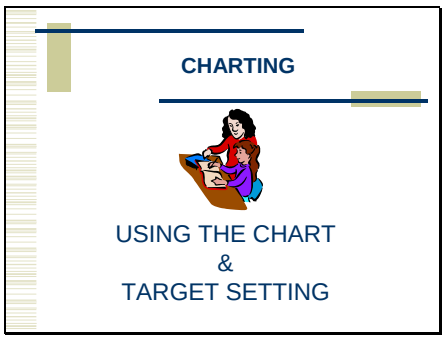
Slide 14

## Probing THE BASIC 'PROBE' SHEET




- The Probe sheet is the stimulus for a short timed test (a 'Probe') usually for 1 minute in duration
- These sheets are used for 'see to say' ('see to write' probes). Other probes may be verbally delivered, but use the same structure ('hear to write')

Slide 15

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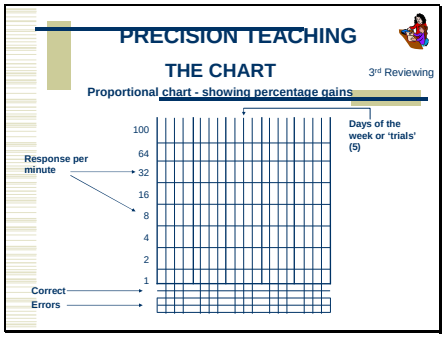


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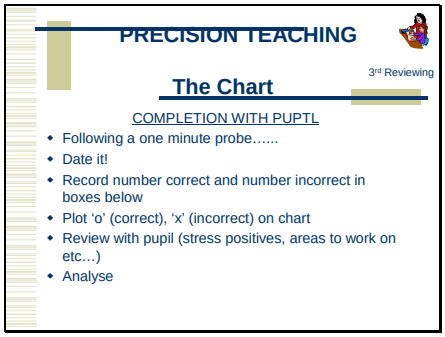

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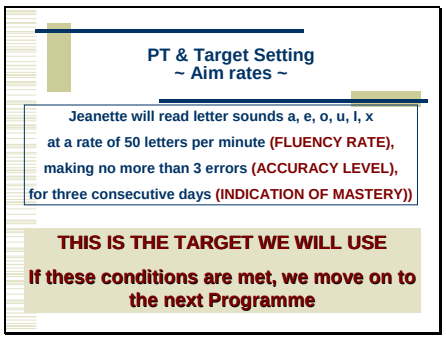


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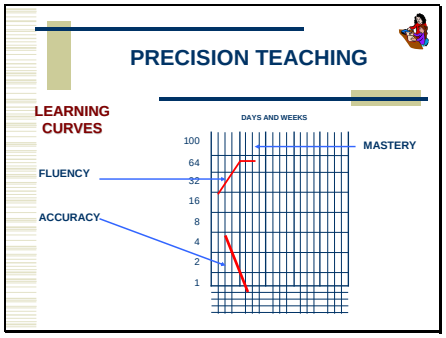


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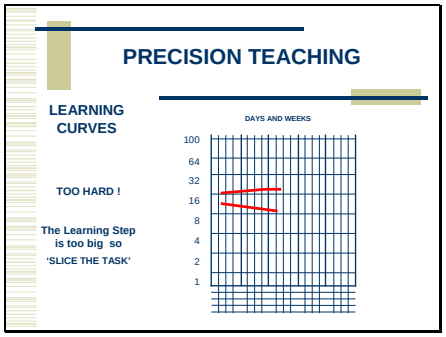

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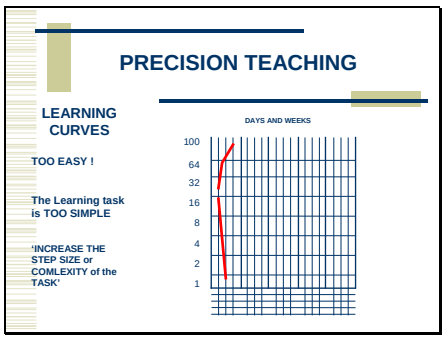


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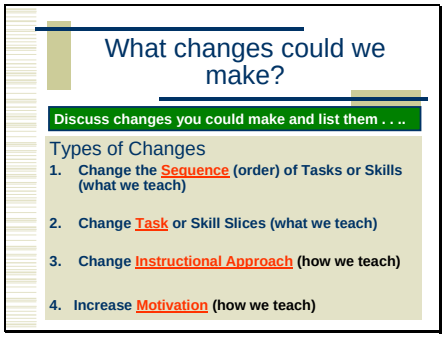


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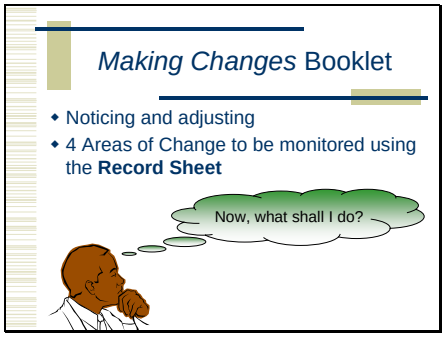

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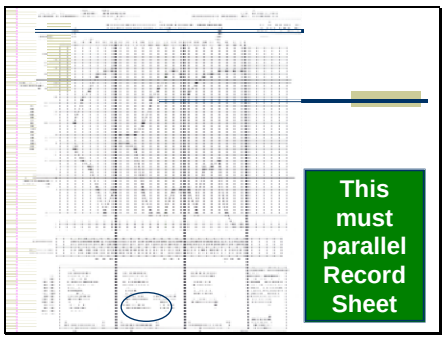


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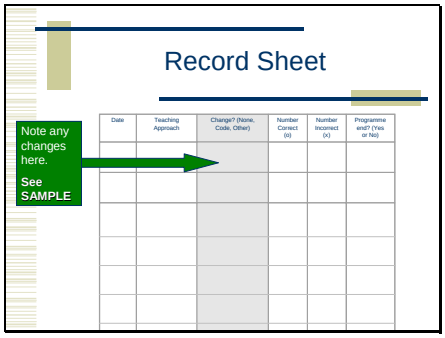


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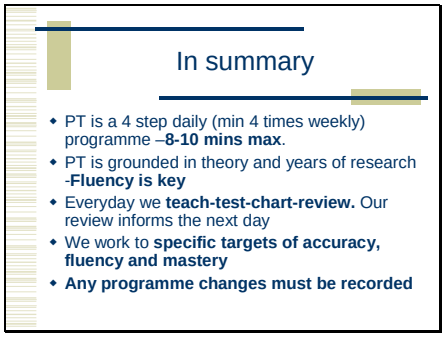

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## Plymouth Precision Teaching Project (PPTP) 2007-08

- Overview
- Design
- Set-up
- Schedule
- Support
- Initial Checks
- Next Steps

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## Project Overview

- 5 Secondary Schools in Plymouth are taking part
- Focussing on students needing support for reading skills – we will focus on **sightwords**
- All programmes will be set up for you and measures before **and** after taken.
- Training, materials and support not from school SLS

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## Project Design

- Schools to select students into two broadly even numbered cohorts (Autumn and Spring terms, forming 4 groups A-D).
- **Parental consent is essential**

| | Cohort 1 | | | Cohort 2 | |
|---|---|---|---|---|---|
| | Term 1 | Term 2 | | Term 3 | Term 4 |
| Gp A | Precision Teaching | Usual Teaching | Gp C | Precision Teaching | Usual Teaching |
| Gp B | Usual Teaching | Precision Teaching | Gp D | Usual Teaching | Precision Teaching |

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## Support Visits & Observations

| School | Date of PTPO & School based support session 1 | Date of central-base support session 1 | Date of PTPO & School based support session 2 | Date of central-base support session 2 |
|---|---|---|---|---|
| 1 | 17th Sept 2007 | 5th Nov 2007 | 19th Feb 2008 | 19th Mar 2008 |
| 2 | 17th Sept 2007 | | 18th Feb 2008 | |
| 3 | 17th Sept 2007 | | 18th Feb 2008 | |
| 4 | 18th Sept 2007 | | 18th Feb 2008 | |
| 5 | 18th Sept 2007 | | 19th Feb 2008 | |

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## Project Support & Feedback

- Support via **school support visits and observations**
- **1 group support session** per cohort at Mannamead Centre 9.30am-11am on dates as confirmed (Please call ahead and leave a message for me to confirm attendance on P. 224962)
- **Email support** will.roberts@plymouth.gov.uk
- **Final Presentation on 8th May 2008 9.30am at MMC**

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## Finding out more from you!

| School | Interview number | TA/s involved (TA code) | Interview date |
|---|---|---|---|
| 1 | 1, 2 | 1, 2 | 5th and 6th November 2008 |
| 2 | 3 | 3 | 6th November 2008 |
| 3 | 4, 5, 6 | 4, 5, 6 | 7th and 8th November 2008 |
| 4 | 7 | 7 | 5th November 2008 |
| 5 | 8 | 8 | 8th November 2008 |

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## Final Interviews

| School | Interview number | TA/s involved (TA code) | Interview date |
|---|---|---|---|
| 1 | 9, 10 | 1, 2 | 7th May 2008 |
| 2 | 11, | 3 | 16th May 2008 |
| 3 | 12, 13, 14 | 4, 5, 6 | 20th May 2008 |
| 4 | 15 | 7 | 29th April 2008 |
| 5 | 16 | 8 | 29th April 2008 |

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## Next steps . . .
## 3 Things to do!

1. **We will arrange a setup visit for you today for the first week in September (4th -7th am or pm visits)–** each child in Cohort 1 **(groups A and B)** will need to be free for **12-15 minutes** to do the assessment and programme plan. We will do this with the staff member involved present so we can develop the plan with you.
2. **Confirm the set-up and review visit for Cohort 1** , again am and pm slots are available
3. And **confirm Support Visit at school** with WR

**Questions . . . .**

**Appendix 3.1.4**

**'Making changes to Precision Teaching programmes' – a booklet provided to participant TAs during presentation on 18th July 2007**

# Making Changes to Precision Teaching Programmes


## Using Research to Ensure Success

Will Roberts
Senior Educational Psychologist

## First, check the programme routinely:

**'Noticing and adjusting' is the heart of Precision Teaching!**

**Monitor the student's progress each day, and where necessary adapt in the following ways to support the student's progress**

## Second, be creative and look for sensible changes to make.

If you are stuck always ask the student for ideas too! There are 4 ways to *Keep on Course for Success,*

1. **Change the Sequence of Tasks or Skills (what we teach)**
2. **Change Task or Skill Slices (what we teach)**
3. **Change Instructional Approach (how we teach)**
4. **Increase Motivation (how we teach)**

**1. Change the Sequence of Tasks or Skills**

- Precise curriculum placement is crucial: double check!
- Have all previous skills been maintained? Double check!
- 'Interleave' (Solity et al., 1999), e.g.

| Prog 1 | Prog 2 | CHANGE MADE | Prog 3 | Prog 4 | Prog 5 | Mixed Probe | Prog 6 |
|---|---|---|---|---|---|---|---|
| *and*<br>*the*<br>*a*<br>*I*<br>*to* | *it*<br>*is*<br>*my*<br>*go*<br>*went* | | *in*<br>***and***<br>*on*<br>***the***<br>*we* | *with*<br>***a***<br>*he*<br>***I***<br>*was* | *have*<br>***to***<br>*play*<br>***it***<br>*of* | *In,* ***and***<br>*on,* ***the***<br>*we, with*<br>***a,*** *he,* ***I***<br>*was, have*<br>***to,*** *play*<br>***it,*** *of* | |

INTERLEAVED SETS

## 2. Change Task or Skill Slices

*The skill may be correct but the task demands may be too high. Reduce them by:*
•Decreasing the size of the task (e.g. less items)
•Lowering difficulty (e.g. reduce the range of c-v-c words by holding the medial vowel constant) or you could try this if appropriate:

**'Reducing Difficulty'**

(Carnine & Silbert (1979) - 'Direct Instruction')

**FIRST focus CVC words starting with a continuous sound as these are easier to learn:**

**f , l, m, n, r, s, v, w, z**

**BEFORE those starting with a stop sound:**

**b, c, d, g, h, j, k, p, q, t, x, y**

## 3. Change Instructional Approach

• Vary instruction time / duration / activities

• Change pace of teaching to maintain engagement

• Vary the level of intervention (cues….prompts)

• Ask the student about what has worked best for them

• Consider **stage of learning**: is the child still at the accuracy building stage, showing some fluency, or near to mastery? There are certain teaching approaches that are more relevant at these different stages. They are:

**ACCURACY STAGE ***
Demonstration; Modelling; Cues and Prompts; Routine Drills; Slower pace
**FLUENCY STAGE**
Repeated Novel Drills; Reinforcement and Encouragement

**Model-Lead-Test-Review approaches are often most effective here ***

**4. Increase Motivation**

•Maintain a Solution Focussed approach – e.g. *Is there a teaching approach that is more engaging?*

•Vary the frequency / Variety of rewards

•Immediacy of Feedback is crucial

**•Ask the student what would be a good reward!**

## Final Notes

In all, ensure that you are following the key messages above. The principles of Instructional Psychology (the most effective teaching approaches) below should also act as useful guidance in your general Precision Teaching practice.

**Key Instructional Principles**

• Use rigorous, regularly reviewed measurements

• Use distributed rather than massed teaching practice

• Always instruct to high fluency levels

• Implement interleaved learning to build retention

• Utilise small steps of learning

• Teaching the most useful skills allows natural practice and generalisation

• Try 'Direct Instruction' teaching techniques (e.g. **Model-Lead-Test-Review)**

# Precision Teaching Record Sheet

**Name of Student: ……..**

**Precision Teacher: ……**

**Programme & Skill/Task: ……**

**Target Levels:**
Accuracy: ……. Fluency: ……. Mastery: …….

| Date | Teaching Approach | Change? (None, Code, Other) | Number Correct (o) | Number Incorrect (x) | Programme end? (Yes or No) |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**Changing Teaching Approach?**

**Code 1 - Change the Sequence of Tasks or Skills**
**Code 2 - Change Task or Skill Slices**
**Code 3- Change Instructional Approach**
**Code 4- Increase Motivation**

***Other – please note yourself***

**Appendix 3.1.5**

**Reading Accuracy Measure (RAM) assessment booklet**

# NLS High-frequency words

Taken from *The National Literacy Strategy: framework for teaching* (1998; p. 60-63)

# Reading Accuracy Measure

## *Assessment Pack*

(332 words in total)

**NLS High-frequency words**

## LIST 1 (45 words)

| | | | | | | |
|---|---|---|---|---|---|---|
| I | up | look | we | like | and | on |
| at | for | he | is | said | go | you |
| are | this | going | they | away | play | a |
| am | cat | to | come | day | the | dog |
| big | my | mum | no | dad | all | get |
| in | went | was | of | me | she | see |
| it | yes | can | | | | |

**LIST 2** (163 words)

| | | | | |
|---|---|---|---|---|
| about | after | again | an | another |
| because | back | ball | be | as |
| bed | been | boy | brother | but |
| by | call(ed) | came | can’t | could |
| did | do | don’t | dig | door |
| down | first | jump | just | last |
| laugh | little | live(d) | love | made |
| make | man | many | may | more |
| much | must | name | new | next |
| night | not | now | off | old |
| once | one | or | our | their |

| | | | | |
|---|---|---|---|---|
| them | then | there | these | three |
| time | too | took | tree | two |
| us | very | want | water | way |
| were | what | when | where | who |
| will | with | would | your | from |
| out | girl | over | good | people |
| got | push | half | has | have |
| help | her | here | him | his |
| home | house | how | if | pull |
| put | ran | saw | school | seen |
| should | sister | so | some | take |
| than | that | | | |

**Plus:**

| | | | |
|---|---|---|---|
| Monday | Saturday | Tuesday | Friday |
| Wednesday | Thursday | Sunday | |

| | | | |
|---|---|---|---|
| February | January | March | December |
| October | April | June | November |
| July | May | August | September |

thirteen one eighteen six three fourteen
twenty sixteen fifteen eleven four nineteen

nine two twelve five seven eight ten
seventeen

Green red blue yellow black white
brown pink grey orange

## LIST 3 (124 words)

| | | | |
|---|---|---|---|
| above | across | almost | along |
| also | always | animals | any |
| around | asked | baby | balloon |
| before | began | being | below |
| better | between | birthday | both |
| brother | brought | can’t | change |
| children | clothes | coming | didn’t |
| different | does | don’t | during |
| earth | every | eyes | father |
| follow(ing) | first | found | friends |
| garden | goes | gone | great |

| | | | |
|---|---|---|---|
| half | happy | head | heard |
| high | I’m | important | inside |
| jumped | knew | know | lady |
| leave | light | might | money |
| morning | mother | much | near |
| never | number | often | only |
| opened | other | outside | own |
| paper | place | right | round |
| second | show | sister | small |
| something | sound | started | still |
| sometimes | stopped | such | suddenly |
| swimming | sure | think | those |

| | | | |
|---|---|---|---|
| thought | through | today | together |
| told | tries | turn(ed) | under |
| until | upon | used | walk(ed)(ing) |
| watch | where | while | white |
| whole | why | window | without |
| woke(n) | word | work | world |
| write | year | young | |

**Appendix 3.1.6**

**PT programme plan pro-forma**

# Precision Teaching Programme Plan

Student's Name: …… Date set: ……

School: …… Cohort: ……

Assessment & Programme Conducted by: ……

| Programme 1 | Programme 2 | Programme 3 | Mixed Probe |
|---|---|---|---|
| | | | |

| Programme 4 | Programme 5 | Programme 6 | Mixed Probe |
|---|---|---|---|
| | | | |

## Appendix 3.1.7

## Template letter to gain parental / carer consent for each student participant

*This was a template of a letter with the minimum requirements for consent given to each school. Schools adapted it to make it appropriate to their school.*

### Re: Secondary School Literacy Project

Dear Parent / Carer,

I am writing to you to request permission for you son/daughter to be involved in a reading skills project in collaboration with Plymouth Educational Psychology Service from (September07-Decmeber 07/January08- April 08)*. This project covers five secondary schools across the city and is focused on improving literacy attainments of over 80 students in Plymouth.

The project will involve **student's name** receiving specialist teaching sessions each week from a teaching assistant to develop their reading skills and improve their views on work in school in general. The input will be planned and monitored by a member of the Educational Psychology Service who will also provide support for staff as the project develops and directly work with your son/daughter* at the beginning middle and end to monitor their progress and develop each individual programme. Your son/daughter* will receive a term of specialist input and results of this will be available to you and **student's name** at the end of the Autumn or Spring terms.

We very much hope you will support this project as it will offer additional support to each student which will be greatly beneficial across all curriculum areas. If you wish to discuss this further please contact me on Plymouth 01752 XXXXXX or **School SENCo name** as soon as possible. Please complete the slip below to confirm whether you wish for **students' name** to be involved.

Many thanks for your time and support,

Best wishes,

***Will Roberts*** ****delete as appropriate***
**Senior Educational Psychologist**

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

**Please detach this form and return to your school's SENCo (SENCo name)**

I give permission for ____________ to participate in the Secondary School Literacy Project starting from (September07/October07/January08/February08)*. I understand that should I wish to withdraw my child from the project at any time I can contact the school SENCo to do this.

Signed: ______________________________ (parent / carer) Date: ______

**Appendix 3.1.8**

**PPTP De-briefing letter for students**

**Re: Secondary School Literacy Project**

Dear **Student's name,**

You have now reached the end of the literacy project that you have been working on with **Teaching Assistant's name**. Thank you for working hard and taking part.

The aim of this project was to see if the extra sessions you did with **Teaching Assistant's name** made a difference to your reading skills and the way you see yourself in school. From your results on the tests you did at the beginning, middle and end of the project we can tell you that:

Your reading of commonly occurring words was XX at the start, XX in the middle and XX. From this we can see that***……..complete as necessary.***

Also, your results on the short checklist we did with you thinking about how you see yourself at school was XX at the start, XX in the middle and XX. From this we can see that***……..complete as necessary.***

We will use this information to put into a large report with all the other students who took part to see if having the extra reading practice has changed their results too. Don't worry- we will not include your name when we look at all the results so people won't know your own scores.

If you would like to know more about the project please talk to the teaching assistant you worked with and if they can't help, they will contact us. I will also come in to school on **Date** at **Time** to make sure this makes sense to you and explain this a little more. I will also send a letter to your **Parent / carer's name** so they know how you have done.

Thank you again for taking part – it has been great to work with you!

Best wishes,

***Will Roberts***
**Senior Educational Psychologist**
Telephone – 01752 XXXXXX

**Appendix 3.1.9**

**PPTP De-briefing letter for parents / carers**

**Re: Secondary School Literacy Project**

Dear **Parent's / carer's name,**

This is the end of the 12 week reading skills project that your son / daughter took part in at their school in collaboration with the Educational Psychology Service.

Firstly, we would like to thank **Student's name** for taking part and for all their hard work. The aim of this project was to see if student's literacy abilities and their view on school work in general improved with a teaching method called Precision Teaching. These extra sessions were delivered by a teaching assistant and monitored, supported and planned by the Educational Psychology Service. Five schools across Plymouth have taken part in this project with over eighty children receiving specialist teaching to improve their literacy attainments.

We conducted short 15 minute assessments with each child taking part at the beginning, middle and end of the project. We have done the assessments three times to see if the extra teaching sessions have made a difference to your child's literacy and how they feel about school. Evidence from many pieces of research suggests that this type of teaching has a significant impact on children's reading.

We can see from the results on the tests conducted at the beginning, middle and end of the project that:

**Student's name** reading of commonly occurring words was XX at the start, XX in the middle and XX. From this we can see that***……..complete as necessary.***

Also, the results from the short checklist conducted regarding **Student's name** general views on work at school was XX at the start, XX in the middle and XX. From this we can see that***……..complete as necessary.***

From here we now plan to look at the results of all the students who took part to see if having the extra reading practice has changed their results too. Although we have presented individual data for **Student's name** (above), this will be kept totally anonymous and your child will not be able to be identified by anyone. We have assigned the children with participant numbers rather than using their names. All the information that we use to write the report will be kept confidential and we will not use any information which could identify your child, i.e. their name, age, sex, school etc.

If you require any more information about the project or do not wish for your child's data from the assessments to be included please contact myself directly on the details below:

**Will Roberts**
**Plymouth Educational Psychology Service**
**Telephone (01752) XXXXXX**

Again, many thanks for allowing Student's name to take part and I look forward to meeting with them on **Date** and **Time** to discuss their progress further.

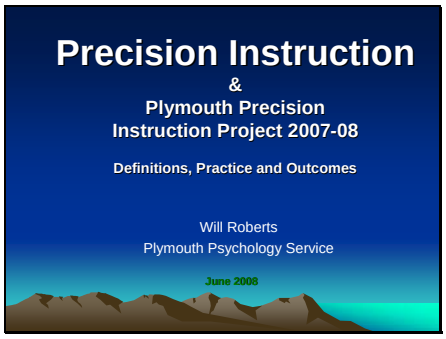
Best wishes

***Will Roberts***
**Senior Educational Psychologist**

**Appendix 3.1.10**

**Powerpoint presentation for school staff presented in June 2008**

Slide 1

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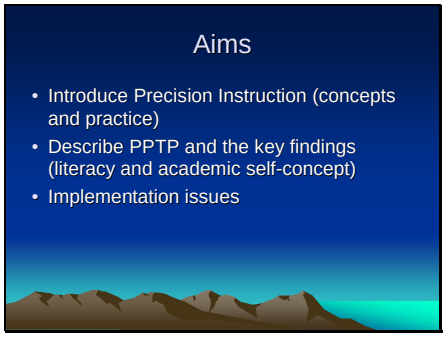

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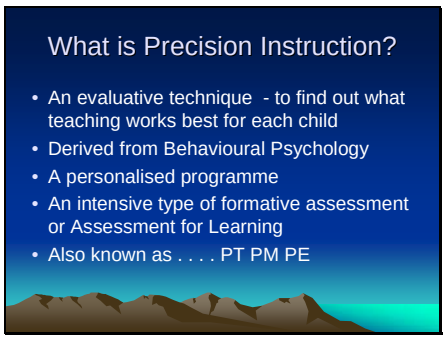


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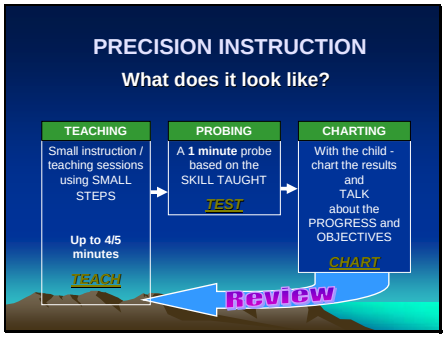


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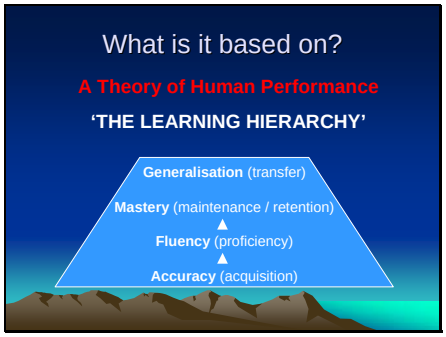

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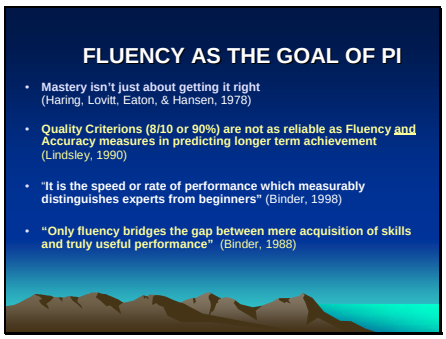


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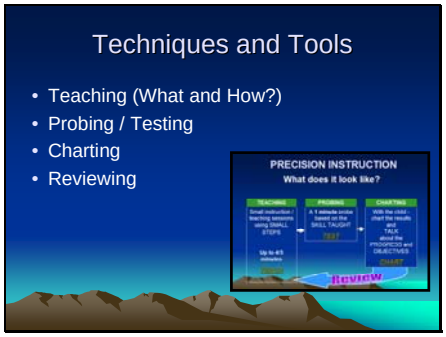

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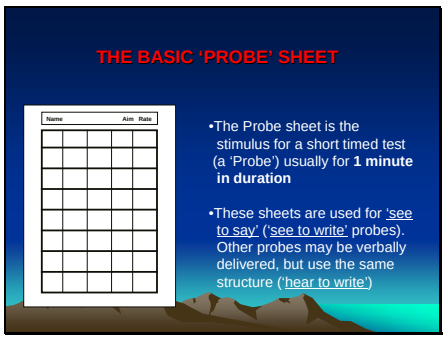


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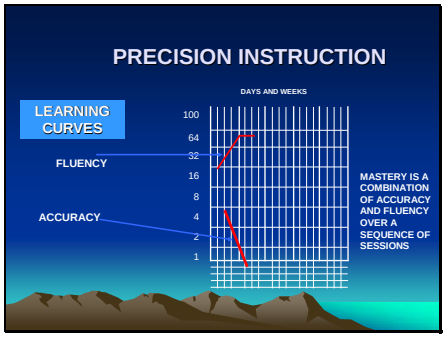


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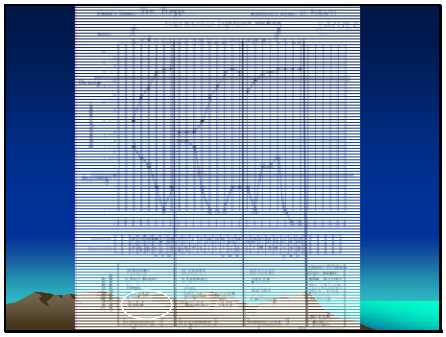

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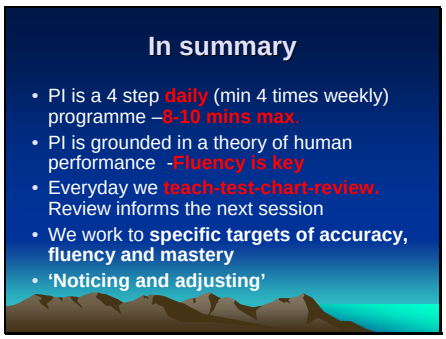


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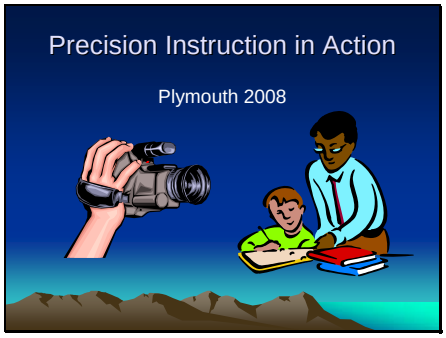


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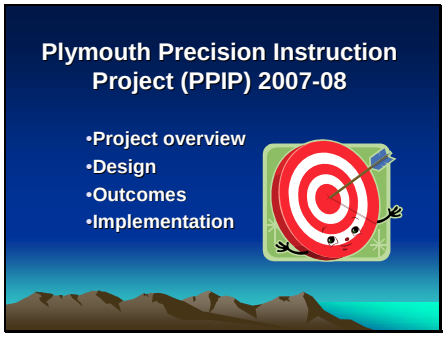

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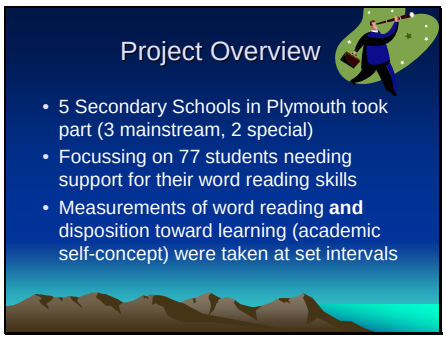


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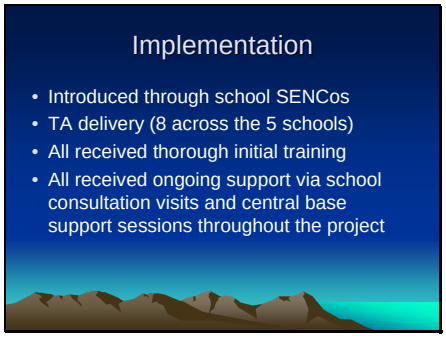


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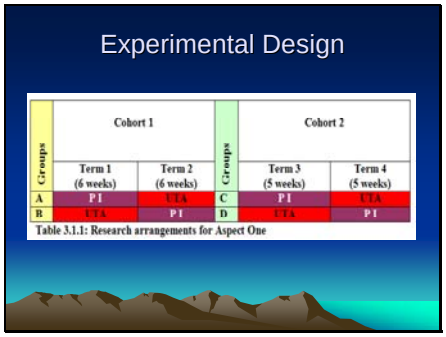



| Groups | Cohort 1 | | Groups | Cohort 2 | |
|---|---|---|---|---|---|
| | Term 1 (6 weeks) | Term 2 (6 weeks) | | Term 3 (5 weeks) | Term 4 (5 weeks) |
| A | PI | LTA | C | PI | LTA |
| B | LTA | PI | D | LTA | PI |

Table 3.1.1: Research arrangements for Aspect One

Slide 18

## Measurements

- **Reading Accuracy Measure (RAM)-** High frequency NLS list YR-Y5 (332 words in total)
- **WIATT II UK Word Reading Test – Raw score (from 0-131) and a norm-referenced measure (i.e. a 'reading age' from 4 years to 16 years of age)**
- **Myself as a Learner Scale (MALS)** (Burden, 1998) provided a single measure of academic self-concept *('How I see myself as a learner')* (scores from 20-100)

Slide 19

## Pre, Mid and Post measures for both RAM & MALS

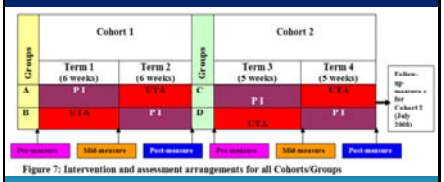


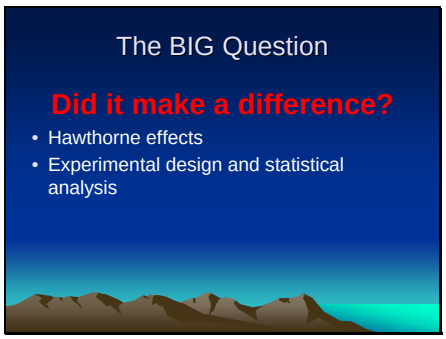

Figure 7: Intervention and assessment arrangements for all Cohorts/Groups

Slide 20

## Reliability

- Efforts to ensure 'treatment fidelity' (training / consultations / recording systems / observations and record keeping analysis)
- Confidence in daily practice (PT Practice Observations x 16)
- Confidence in recording process (Reliability of Recording Measure - Cohort 2)

Slide 21

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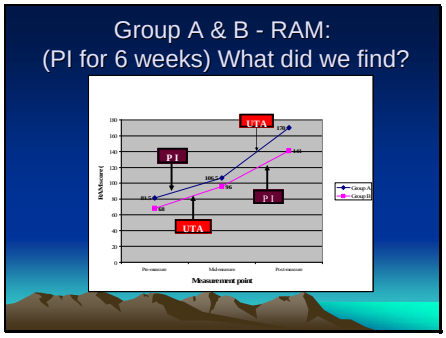


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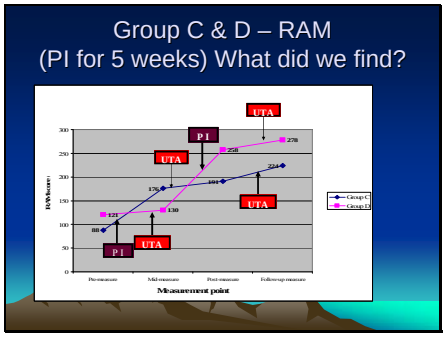

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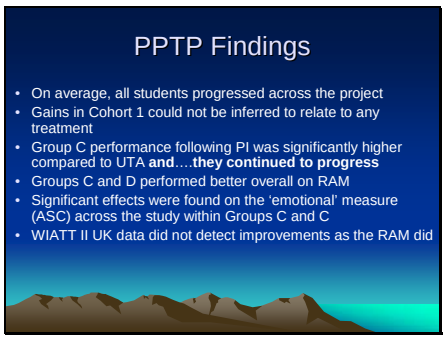


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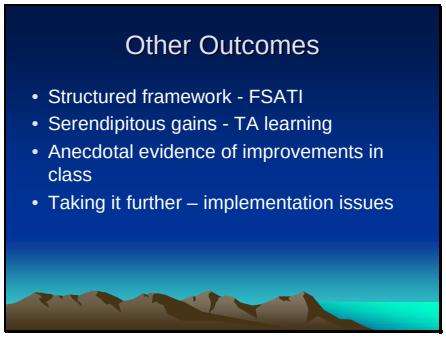


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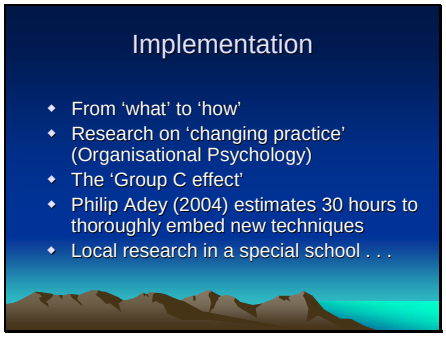

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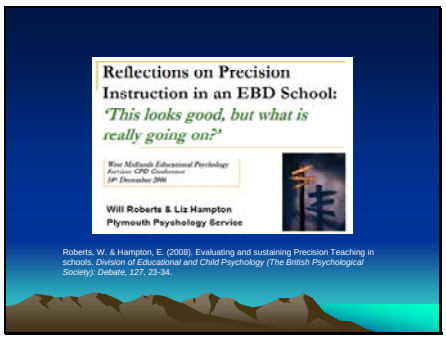


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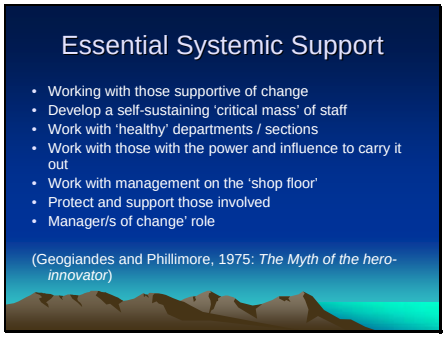


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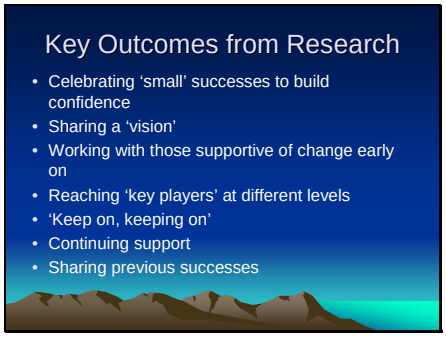

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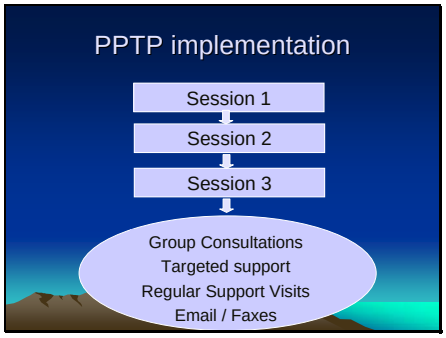
Slide 31



**Appendix 4.1.1**

**PPTP - PT Practice Observations (PTPOs) 1-8**

**Cohort 1**

| School | Observation number | TA/s involved (TA code) | Observation date |
|---|---|---|---|
| 1 | 1, 2 | 1, 2 | 17th Sept 2007 |
| 2 | 3 | 3 | 17th Sept 2007 |
| 3 | 4, 5, 6 | 4, 5, 6 | 17th Sept 2007 |
| 4 | 7 | 7 | 18th Sept 2007 |
| 5 | 8 | 8 | 18th Sept 2007 |

| Observation number | Were the 5 basic PT steps observed? Yes (Y) or No (N) | | | | | Use of PT Record Sheet & SCC? Yes (Y) or No (N) | |
|---|---|---|---|---|---|---|---|
| | a. | b. | c. | d. | e. | Record Sheet | SCC |
| 1 | Y | Y | Y | Y | Y | Y | Y |
| 2 | Y | Y | Y | Y | Y | Y | Y |
| 3 | Y | Y | Y | Y | Y | Y | Y |
| 4 | Y | Y | Y | Y | Y | Y | Y |
| 5 | Y | Y | Y | Y | Y | Y | Y |
| 6 | Y | Y | Y | Y | Y | Y | Y |
| 7 | Y | Y | Y | Y | Y | Y | Y |
| 8 | Y | Y | Y | Y | Y | Y | Y |

**Appendix 4.1.2**

**PPTP - PT Practice Observations (PTPOs) 9-16**

**Cohort 2**

| School | Observation number | TA/s involved (TA code) | Observation date |
|---|---|---|---|
| 1 | 9, 10 | 1, 2 | 19th Feb 2008 |
| 2 | 11, | 3 | 18th Feb 2008 |
| 3 | 12, 13, 14 | 4, 5, 6 | 18th Feb 2008 |
| 4 | 15 | 7 | 18th Feb 2008 |
| 5 | 16 | 8 | 19th Feb 2008 |

| Observation number | Were the 5 basic PT steps observed? Yes (Y) or No (N) | | | | | Use of FSATI, FSATI Record Sheet & SCC? Yes (Y) or No (N) | | |
|---|---|---|---|---|---|---|---|---|
| | a. | b. | c. | d. | e. | FSATI | Record Sheet | SCC |
| 9 | Y | Y | Y | Y | Y | Y | Y | Y |
| 10 | Y | Y | Y | Y | Y | Y | Y | Y |
| 11 | Y | Y | Y | Y | Y | Y | Y | Y |
| 12 | Y | Y | Y | Y | Y | Y | Y | Y |
| 13 | Y | Y | Y | Y | Y | Y | Y | Y |
| 14 | Y | Y | Y | Y | Y | Y | Y | Y |
| 15 | Y | Y | Y | Y | Y | Y | Y | Y |
| 16 | Y | Y | Y | Y | Y | Y | Y | Y |

**Appendix 4.1.3**

**Statistical Package for the Social Sciences (SPSS) Output for tests of normality (distribution of chronological ages within groups)**

**Tests of Normality**

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Group | Statistic | df | Sig. | Statistic | df | Sig. |
| ChronAge | 1.00 | .165 | 14 | .200* | .932 | 14 | .321 |
| | 2.00 | .173 | 13 | .200* | .930 | 13 | .346 |
| | 3.00 | .111 | 27 | .200* | .945 | 27 | .163 |
| | 4.00 | .132 | 23 | .200* | .924 | 23 | .081 |

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**Appendix 4.1.4**

**Statistical Package for the Social Sciences (SPSS) Output for an Univariate ANOVA comparison of chronological ages of participants between all groups**

## Univariate Analysis of Variance

**Between-Subjects Factors**

| | | N |
|---|---|---|
| Group | 1.00 | 14 |
| | 2.00 | 13 |
| | 3.00 | 27 |
| | 4.00 | 23 |

**Descriptive Statistics**

Dependent Variable: ChronAge

| Group | Mean | Std. Deviation | N |
|---|---|---|---|
| 1.00 | 13.4286 | 1.36514 | 14 |
| 2.00 | 14.0638 | 1.58089 | 13 |
| 3.00 | 13.6196 | 1.47575 | 27 |
| 4.00 | 13.1617 | 1.47102 | 23 |
| Total | 13.5231 | 1.47625 | 77 |

**Tests of Between-Subjects Effects**

Dependent Variable: ChronAge

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|
| Corrected Model | 7.181[a] | 3 | 2.394 | 1.103 | .354 | .043 |
| Intercept | 12870.552 | 1 | 12870.552 | 5929.741 | .000 | .988 |
| Group | 7.181 | 3 | 2.394 | 1.103 | .354 | .043 |
| Error | 158.447 | 73 | 2.171 | | | |
| Total | 14246.980 | 77 | | | | |
| Corrected Total | 165.628 | 76 | | | | |

a. R Squared = .043 (Adjusted R Squared = .004)

**Appendix 4.1.5**

**Individual data (RAM scores) for all students on Pre, Mid, Post and Follow-up measures from the RAM**

| Participant (student) number | School | School Type | Cohort | Group | Age | Sex | Pre-RAM | Mid-RAM | Post-RAM | Follow-up RAM |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 2 | 1 | 1 | 11:06 | 1 | 41 | 60 | 60 | |
| 2 | 2 | 2 | 1 | 1 | 11:05 | 1 | 85 | 107 | 142 | |
| 3 | 2 | 2 | 1 | 1 | 12:06 | 1 | 276 | 330 | 324 | |
| 4 | 2 | 2 | 1 | 1 | 15:06 | 1 | 78 | 106 | 198 | |
| 5 | 2 | 2 | 1 | 2 | 16:02 | 1 | 68 | 126 | 140 | |
| 6 | 2 | 2 | 1 | 2 | 14:02 | **1** | 117 | 123 | 239 | |
| 9 | 5 | 1 | 1 | 1 | 13:11 | 2 | 66 | 74 | 108 | |
| 10 | 5 | 1 | 1 | 1 | 13:03 | 1 | 109 | 170 | 246 | |
| 12 | 5 | 1 | 1 | 2 | 11:05 | 1 | 98 | 104 | 141 | |
| 13 | 5 | 1 | 1 | 2 | 15:08 | 1 | 118 | 96 | 210 | |
| 14 | 5 | 1 | 1 | 2 | 15:04 | 2 | 47 | 45 | 51 | |
| 15 | 1 | 1 | 1 | 1 | 13:10 | 2 | 42 | 76 | 133 | |
| 16 | 1 | 1 | 1 | 1 | 14:09 | 1 | 118 | 196 | 290 | |
| 17 | 1 | 1 | 1 | 1 | 12:05 | 2 | 239 | 250 | 324 | |
| 18 | 1 | 1 | 1 | 2 | 12:07 | 1 | 228 | 156 | 320 | |
| 19 | 1 | 1 | 1 | 2 | 15:08 | 1 | 64 | 76 | 208 | |
| 20 | 1 | 1 | 1 | 2 | 15:06 | 1 | 36 | 49 | 98 | |
| 21 | 3 | 2 | 1 | 1 | 15:01 | 2 | 34 | 39 | 44 | |
| 22 | 3 | 2 | 1 | 1 | 11:06 | 2 | 39 | 47 | 82 | |
| 23 | 3 | 2 | 1 | 1 | 14:01 | 2 | 24 | 29 | 56 | |
| 24 | 3 | 2 | 1 | 2 | 13:11 | 2 | 52 | 52 | 71 | |
| 25 | 3 | 2 | 1 | 2 | 12:06 | 2 | 38 | 36 | 77 | |
| 26 | 3 | 2 | 1 | 2 | 13:06 | 1 | 217 | 256 | 325 | |
| 28 | 4 | 1 | 1 | 1 | 14:06 | 2 | 322 | 332 | 332 | |
| 29 | 4 | 1 | 1 | 1 | 13:09 | 2 | 319 | 331 | 331 | |
| 30 | 4 | 1 | 1 | 2 | 11:11 | 1 | 129 | 204 | 319 | |
| 31 | 4 | 1 | 1 | 2 | 14:06 | 1 | 14 | 11 | 67 | |
| 33 | 1 | 1 | 2 | 3 | 11:09 | 1 | 221 | 320 | 318 | 319 |
| 34 | 1 | 1 | 2 | 3 | 12:01 | 1 | 111 | 181 | 171 | 312 |
| 35 | 1 | 1 | 2 | 3 | 14:03 | 1 | 222 | 330 | 321 | 326 |
| 36 | 1 | 1 | 2 | 4 | 12:03 | 1 | 123 | 130 | 258 | 301 |
| 37 | 1 | 1 | 2 | 4 | 12:02 | 1 | 110 | 112 | 238 | 254 |
| 38 | 1 | 1 | 2 | 4 | 11:05 | 2 | 245 | 267 | 321 | 325 |
| 39 | 2 | 2 | 2 | 3 | 12:10 | 1 | 142 | 320 | 306 | 322 |
| 40 | 2 | 2 | 2 | 3 | 12:01 | 1 | 115 | 200 | 143 | 169 |
| 41 | 2 | 2 | 2 | 3 | 11:05 | 1 | 88 | 203 | 142 | 224 |
| 42 | 2 | 2 | 2 | 3 | 15:08 | 2 | 140 | 289 | 289 | 291 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 43 | 2 | 2 | 2 | 4 | 15:04 | 1 | 61 | 68 | 163 | 201 |
| 44 | 2 | 2 | 2 | 3 | 13:10 | 2 | 116 | 320 | 332 | 332 |
| 45 | 2 | 2 | 2 | 3 | 14:09 | 1 | 71 | 165 | 213 | 289 |
| 46 | 2 | 2 | 2 | 4 | 12:05 | 2 | 239 | 241 | 294 | 329 |
| 47 | 3 | 2 | 2 | 3 | 12:07 | 1 | 32 | 151 | 158 | 160 |
| 48 | 3 | 2 | 2 | 3 | 15:08 | 2 | 27 | 123 | 182 | 199 |
| 49 | 3 | 2 | 2 | 3 | 15:06 | 1 | 35 | 144 | 188 | 201 |
| 50 | 3 | 2 | 2 | 3 | 15:01 | 1 | 118 | 248 | 259 | 267 |
| 51 | 3 | 2 | 2 | 3 | 14:06 | 2 | 47 | 152 | 179 | 189 |
| 52 | 3 | 2 | 2 | 3 | 14:01 | 1 | 16 | 136 | 145 | 143 |
| 53 | 3 | 2 | 2 | 3 | 13:11 | 2 | 133 | 222 | 191 | 195 |
| 54 | 3 | 2 | 2 | 3 | 12:06 | 1 | 43 | 154 | 152 | 328 |
| 55 | 3 | 2 | 2 | 3 | 11:06 | 1 | 17 | 50 | 80 | 95 |
| 56 | 3 | 2 | 2 | 3 | 11:05 | 1 | 140 | 244 | 288 | 320 |
| 57 | 3 | 2 | 2 | 3 | 12:06 | 2 | 66 | 176 | 193 | 103 |
| 58 | 3 | 2 | 2 | 3 | 15:06 | 1 | 15 | 120 | 133 | 145 |
| 59 | 3 | 2 | 2 | 3 | 16:02 | 1 | 42 | 167 | 203 | 213 |
| 60 | 3 | 2 | 2 | 4 | 14:02 | 1 | 111 | 113 | 267 | 240 |
| 61 | 3 | 2 | 2 | 4 | 13:11 | 2 | 264 | 279 | 329 | 328 |
| 62 | 3 | 2 | 2 | 4 | 13:03 | 2 | 121 | 132 | 194 | 197 |
| 63 | 3 | 2 | 2 | 4 | 13:01 | 1 | 73 | 65 | 195 | 241 |
| 64 | 3 | 2 | 2 | 4 | 16:01 | 1 | 91 | 84 | 126 | 159 |
| 65 | 3 | 2 | 2 | 4 | 16:00 | 1 | 74 | 73 | 240 | 278 |
| 66 | 3 | 2 | 2 | 4 | 15:01 | 1 | 239 | 254 | 320 | 321 |
| 67 | 3 | 2 | 2 | 4 | 14:04 | 1 | 52 | 40 | 59 | 69 |
| 68 | 3 | 2 | 2 | 4 | 12:07 | 1 | 69 | 69 | 196 | 197 |
| 69 | 3 | 2 | 2 | 4 | 12:01 | 1 | 61 | 89 | 105 | 112 |
| 70 | 3 | 2 | 2 | 4 | 11:05 | 1 | 9 | 13 | 26 | 29 |
| 71 | 3 | 2 | 2 | 4 | 14:01 | 1 | 32 | 34 | 69 | 70 |
| 72 | 3 | 2 | 2 | 4 | 12:10 | 1 | 304 | 305 | 332 | 332 |
| 73 | 4 | 1 | 2 | 3 | 13:08 | 1 | 78 | 174 | 179 | 180 |
| 74 | 4 | 1 | 2 | 3 | 13:07 | 2 | 61 | 80 | 97 | 98 |
| 75 | 4 | 1 | 2 | 4 | 11:06 | 1 | 282 | 280 | 319 | 325 |
| 76 | 4 | 1 | 2 | 4 | 11:04 | 1 | 247 | 223 | 324 | 317 |
| 77 | 4 | 1 | 2 | 4 | 11:08 | 1 | 231 | 225 | 312 | 309 |
| 78 | 5 | 1 | 2 | 3 | 12:10 | 2 | 243 | 321 | 322 | 324 |
| 79 | 5 | 1 | 2 | 3 | 13:00 | 2 | 129 | 173 | 220 | 291 |
| 80 | 5 | 1 | 2 | 3 | 15:01 | 1 | 205 | 305 | 329 | 328 |
| 81 | 5 | 1 | 2 | 4 | 12:06 | 1 | 198 | 207 | 331 | 332 |
| 82 | 5 | 1 | 2 | 4 | 13:03 | 1 | 214 | 214 | 326 | 330 |

**Notes to table above**

**Note 1:** School Type codes - 1 denotes mainstream school; 2 denotes Special school.
**Note 2**: Group codes - 1 is group A; 2 is group B; 3 is group C; 4 is group D.

**Note 3:** Sex codes – 1 denotes male participant; 2 denotes female.
**Note 4:** Cells shaded yellow denotes Cohort 1. Cells shaded green denotes Cohort 2.
**Note 5:** Maximum RAM score is 332, minimum is 0

| **RAM Assessment dates** | |
|---|---|
| Cohort 1 Pre-Ram | Sep-07 |
| Cohort 1 Mid-Ram | Oct or Nov-07 |
| Cohort 1 Post-Ram | Dec-07 |
| Cohort 2 Pre-Ram | Jan-08 |
| Cohort 2 Mid-Ram | Feb-08 |
| Cohort 2 Post-Ram | Apr-08 |
| Cohort 2 'Follow-up' RAM | Jul-08 |

**Appendix 4.1.6**

**Statistical Package for the Social Sciences (SPSS) Output for tests of normality within groups in cohort 1 across Pre, Mid and Post RAM measures (including Histograms and Q-Q Plots)**

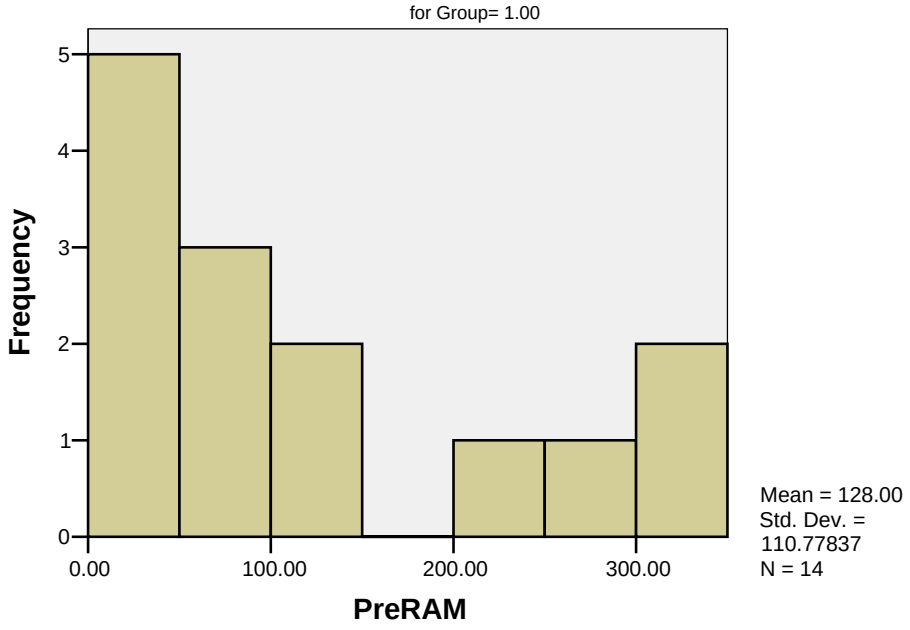
**Tests of Normality**

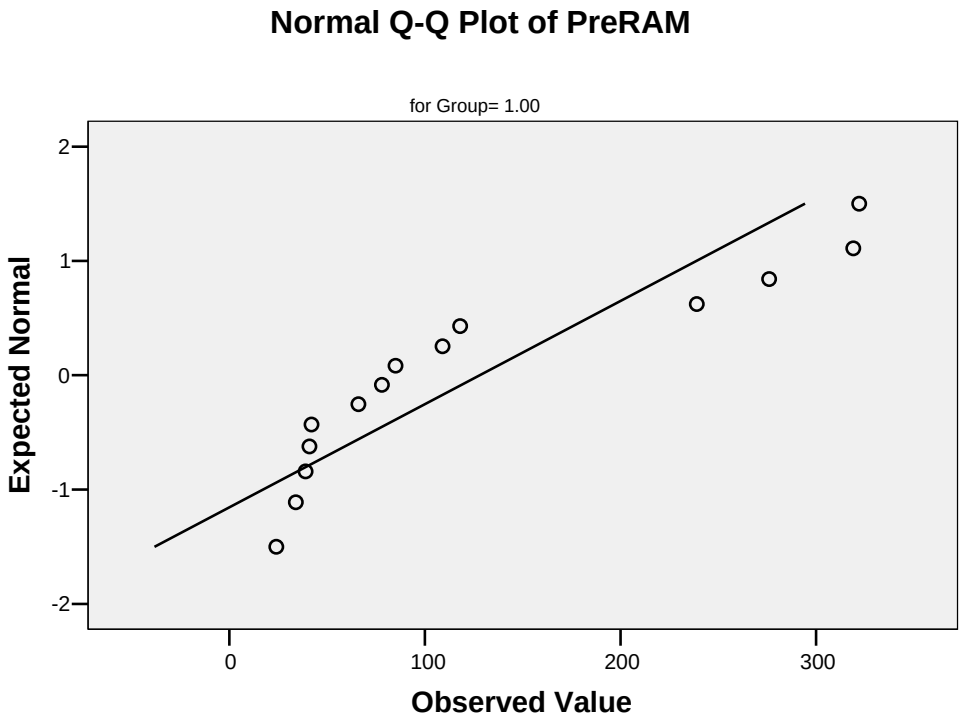
| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Group | Statistic | df | Sig. | Statistic | df | Sig. |
| PreRAM | 1.00 | .250 | 14 | .018 | .802 | 14 | .005 |
| | 2.00 | .191 | 13 | .200* | .881 | 13 | .074 |
| MidRAM | 1.00 | .228 | 14 | .046 | .851 | 14 | .023 |
| | 2.00 | .148 | 13 | .200* | .932 | 13 | .361 |
| PostRAM | 1.00 | .165 | 14 | .200* | .867 | 14 | .039 |
| | 2.00 | .166 | 13 | .200* | .884 | 13 | .082 |

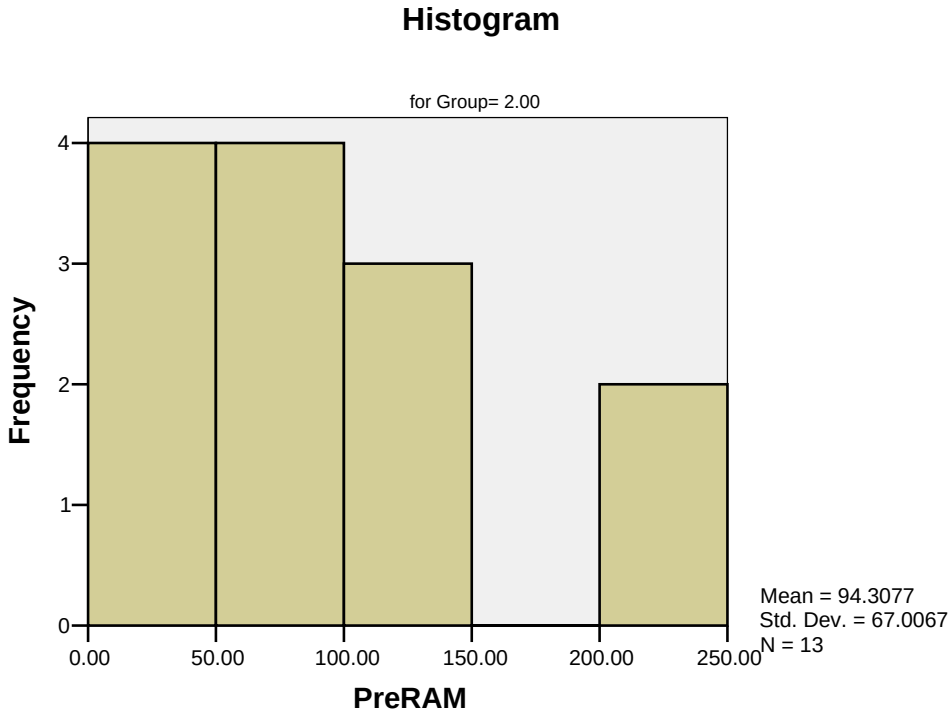
*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

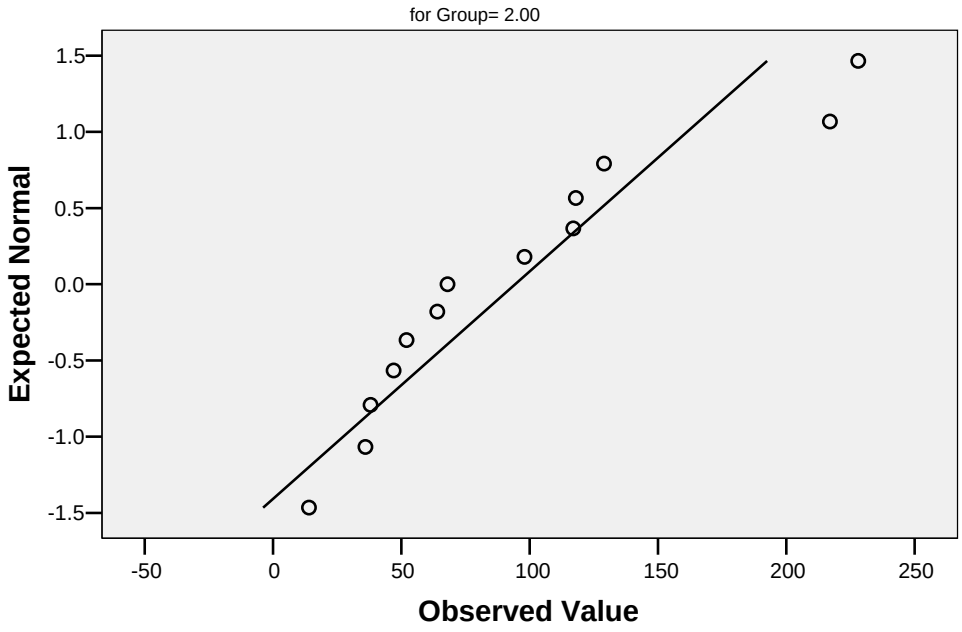
**Histogram**



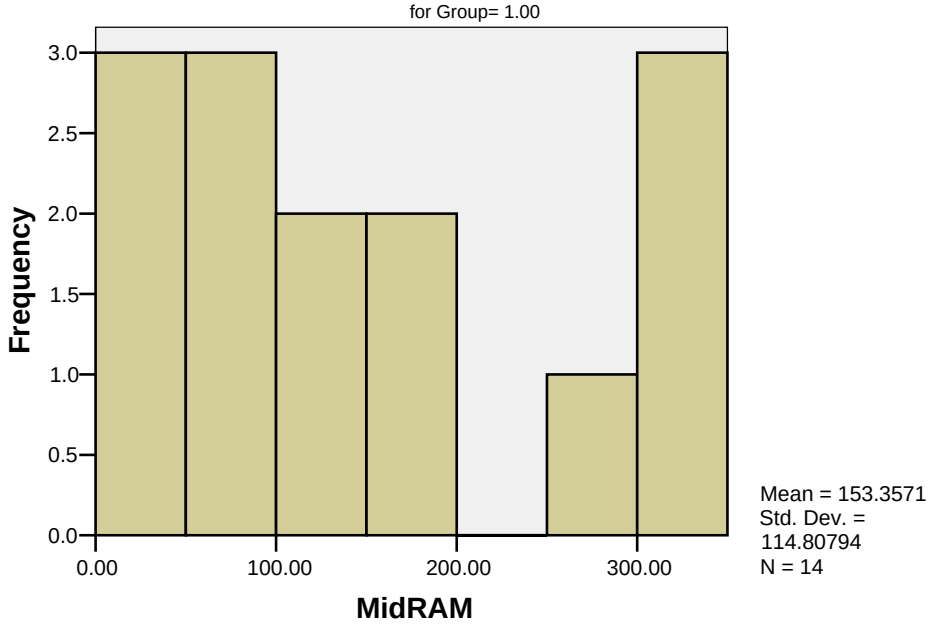

Normal Q-Q Plot of PreRAM
for Group= 1.00
Expected Normal
Observed Value
2
1
0
-1
-2
0
100
200
300

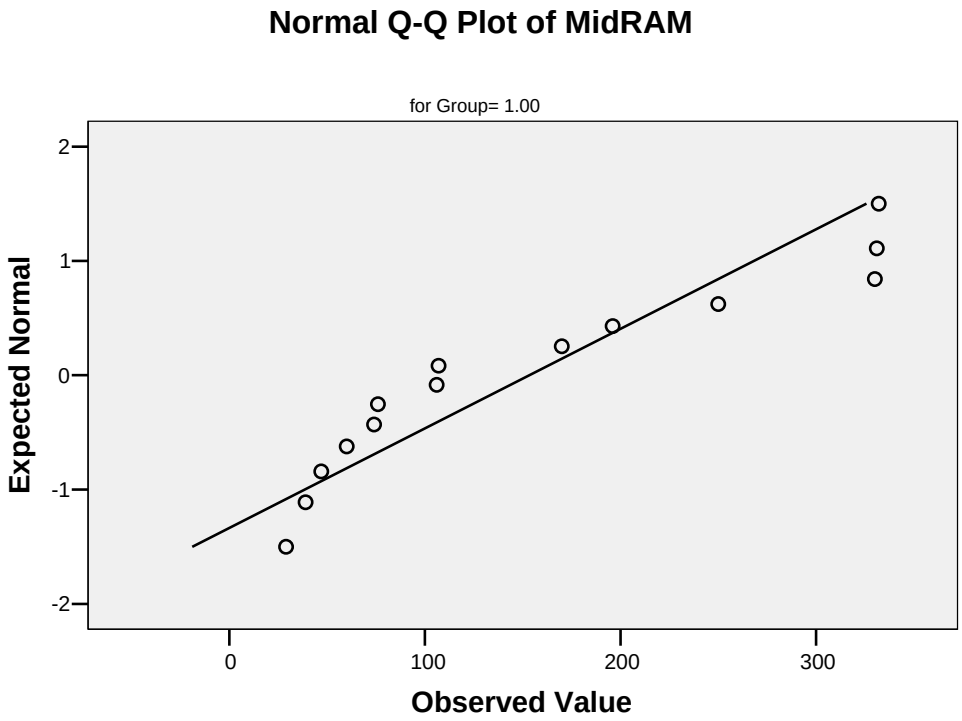

Histogram
for Group= 2.00
Frequency
PreRAM
4
3
2
1
0
0.00
50.00
100.00
150.00
200.00
250.00
Mean = 94.3077
Std. Dev. = 67.0067
N = 13

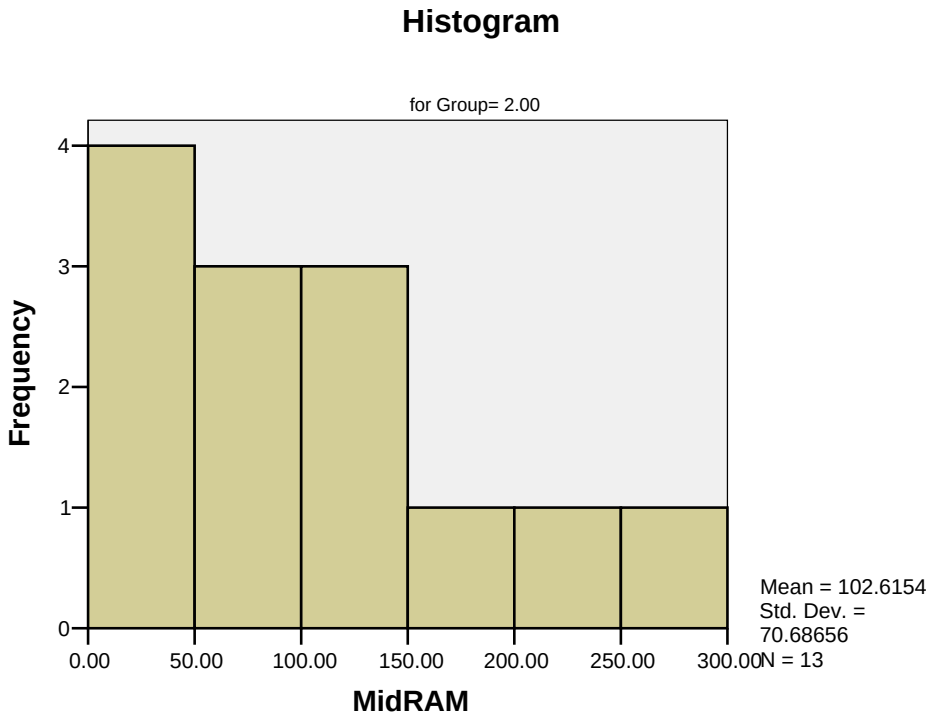
**Normal Q-Q Plot of PreRAM**

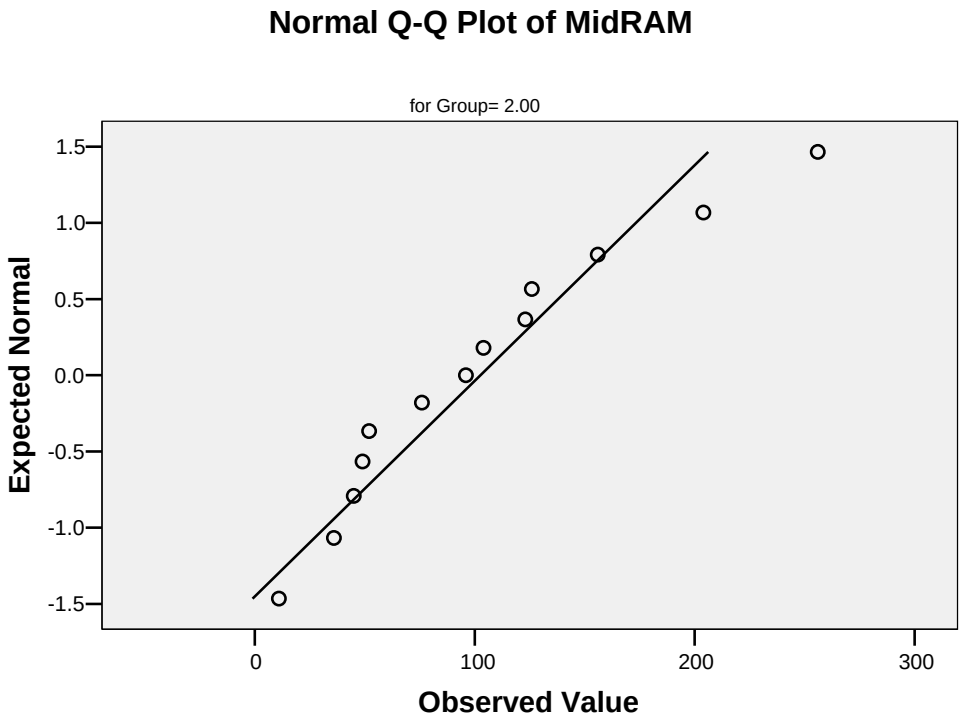


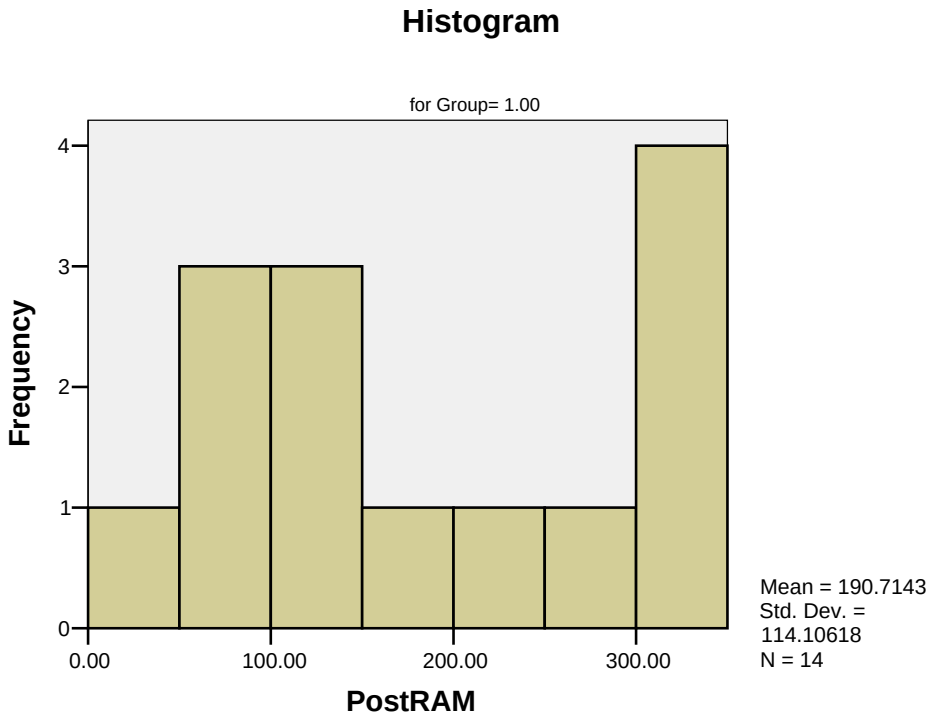

**Histogram**



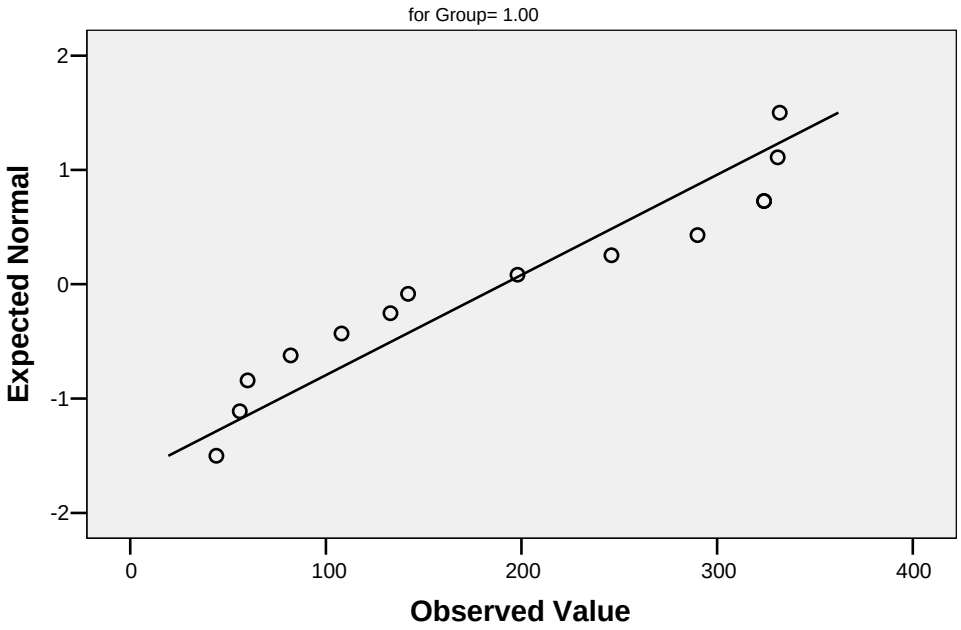

Normal Q-Q Plot of MidRAM
for Group= 1.00
Expected Normal
2
1
0
-1
-2
0
100
200
300
Observed Value


Histogram
for Group= 2.00
Frequency
4
3
2
1
0
0.00
50.00
100.00
150.00
200.00
250.00
300.00
MidRAM
Mean = 102.6154
Std. Dev. =
70.68656
N = 13

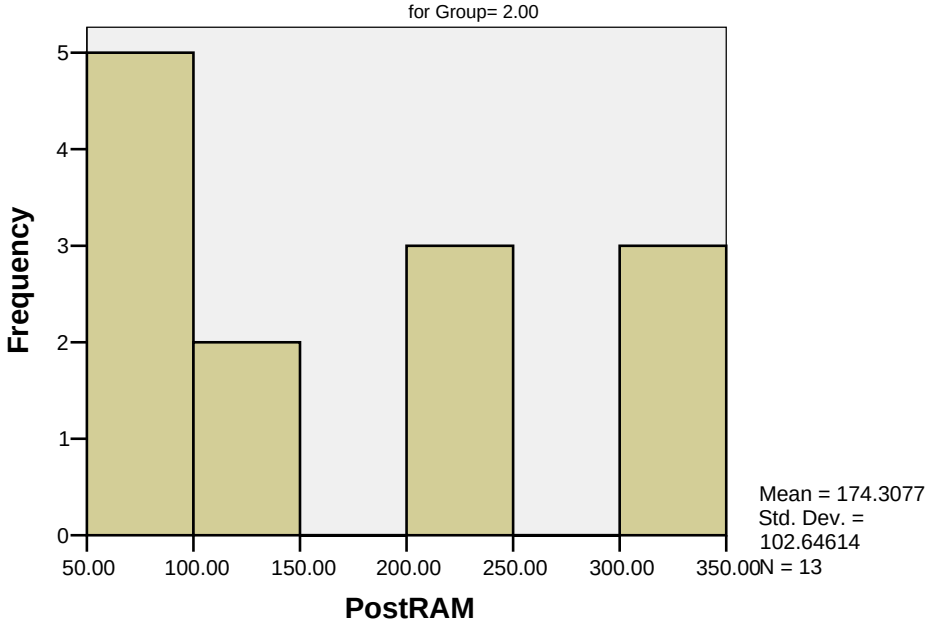

Normal Q-Q Plot of MidRAM
for Group= 2.00
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0
100
200
300
Observed Value

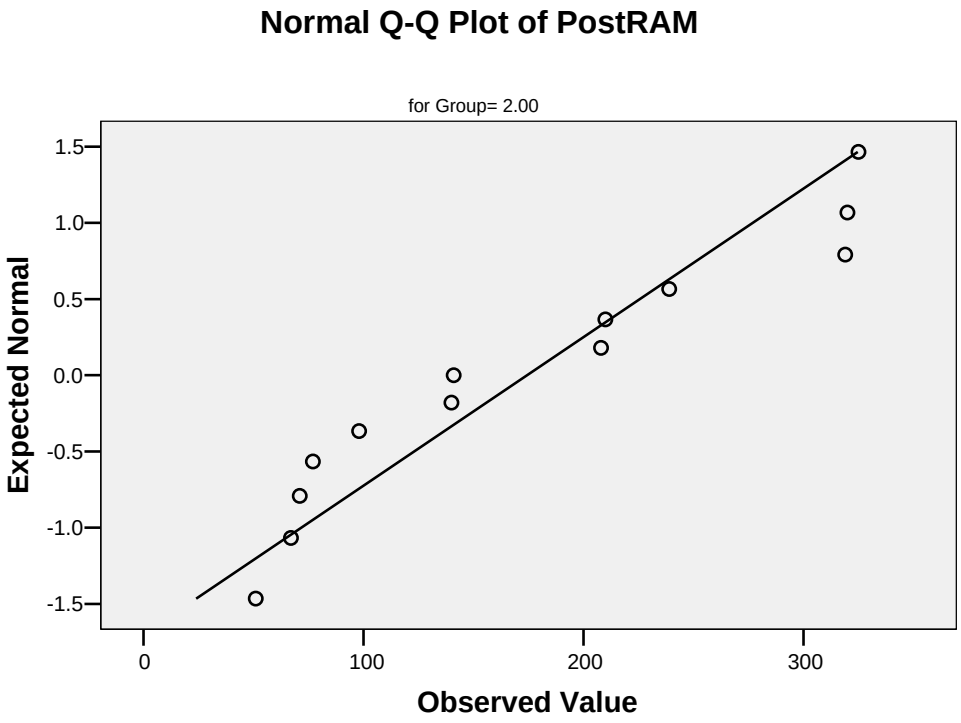

Histogram
for Group= 1.00
Frequency
4
3
2
1
0
0.00
100.00
200.00
300.00
PostRAM
Mean = 190.7143
Std. Dev. =
114.10618
N = 14

**Normal Q-Q Plot of PostRAM**




**Histogram**




Normal Q-Q Plot of PostRAM
for Group= 2.00
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0
100
200
300
Observed Value

**Appendix 4.1.7**

**Statistical Package for the Social Sciences (SPSS) Output for a *Kolmogorov-Smirnov Z* (K-SZ) test comparison of RAM scores (Pre, Mid and Post) between groups A and B.**

## Two-Sample Kolmogorov-Smirnov Test

**Frequencies**

| | Group | N |
|---|---|---|
| PreRAM | 1.00 | 14 |
| | 2.00 | 13 |
| | Total | 27 |
| MidRAM | 1.00 | 14 |
| | 2.00 | 13 |
| | Total | 27 |
| PostRAM | 1.00 | 14 |
| | 2.00 | 13 |
| | Total | 27 |

**Test Statistics[a]**

| | | PreRAM | MidRAM | PostRAM |
|---|---|---|---|---|
| Most Extreme Differences | Absolute | .286 | .275 | .209 |
| | Positive | .126 | .000 | .137 |
| | Negative | -.286 | -.275 | -.209 |
| Kolmogorov-Smirnov Z | | .742 | .713 | .542 |
| Asymp. Sig. (2-tailed) | | .641 | .689 | .931 |
| Exact Sig. (2-tailed) | | .484 | .553 | .841 |
| Point Probability | | .030 | .034 | .027 |

**Appendix 4.1.7.1**

**Statistical Package for the Social Sciences (SPSS) Output for a *Wilcoxon signed-rank* (WS-R) test comparison of RAM scores (Pre- Mid-measures and Mid-Post-measures) within groups A and B (cohort 1).**

**Group A**

## Wilcoxon Signed Ranks Test

**Ranks**

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| MidRAM - PreRAM | Negative Ranks | 0[a] | .00 | .00 |
| | Positive Ranks | 14[b] | 7.50 | 105.00 |
| | Ties | 0[c] | | |
| | Total | 14 | | |

a. MidRAM < PreRAM

b. MidRAM > PreRAM

c. MidRAM = PreRAM

**Test Statistics[b]**

| | MidRAM - PreRAM |
|---|---|
| Z | -3.297[a] |
| Asymp. Sig. (2-tailed) | .001 |
| Exact Sig. (2-tailed) | .000 |
| Exact Sig. (1-tailed) | .000 |
| Point Probability | .000 |

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

**Ranks**

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| PostRAM - MidRAM | Negative Ranks | 1[a] | 2.00 | 2.00 |
| | Positive Ranks | 10[b] | 6.40 | 64.00 |
| | Ties | 3[c] | | |
| | Total | 14 | | |

a. PostRAM < MidRAM

b. PostRAM > MidRAM

c. PostRAM = MidRAM

**Test Statistics[b]**

| | PostRAM - MidRAM |
|---|---|
| Z | -2.758[a] |
| Asymp. Sig. (2-tailed) | .006 |
| Exact Sig. (2-tailed) | .003 |
| Exact Sig. (1-tailed) | .001 |
| Point Probability | .000 |

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

**Group B**

## Wilcoxon Signed Ranks Test

**Ranks**

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| MidRAM - PreRAM | Negative Ranks | 5[a] | 5.00 | 25.00 |
| | Positive Ranks | 7[b] | 7.57 | 53.00 |
| | Ties | 1[c] | | |
| | Total | 13 | | |

a. MidRAM < PreRAM

b. MidRAM > PreRAM

c. MidRAM = PreRAM

**Test Statistics[b]**

| | MidRAM - PreRAM |
|---|---|
| Z | -1.099[a] |
| Asymp. Sig. (2-tailed) | .272 |
| Exact Sig. (2-tailed) | .292 |
| Exact Sig. (1-tailed) | .146 |
| Point Probability | .009 |

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

# Wilcoxon Signed Ranks Test

**Ranks**

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| PostRAM - MidRAM | Negative Ranks | 0[a] | .00 | .00 |
| | Positive Ranks | 13[b] | 7.00 | 91.00 |
| | Ties | 0[c] | | |
| | Total | 13 | | |

a. PostRAM < MidRAM

b. PostRAM > MidRAM

c. PostRAM = MidRAM

**Test Statistics[b]**

| | PostRAM - MidRAM |
|---|---|
| Z | -3.180[a] |
| Asymp. Sig. (2-tailed) | .001 |
| Exact Sig. (2-tailed) | .000 |
| Exact Sig. (1-tailed) | .000 |
| Point Probability | .000 |

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

**Appendix 4.1.8**

**Statistical Package for the Social Sciences (SPSS) Output for tests of normality within groups in cohort 2 across Pre, Mid, Post and Follow-up RAM measures (including Histograms and Q-Q Plots)**

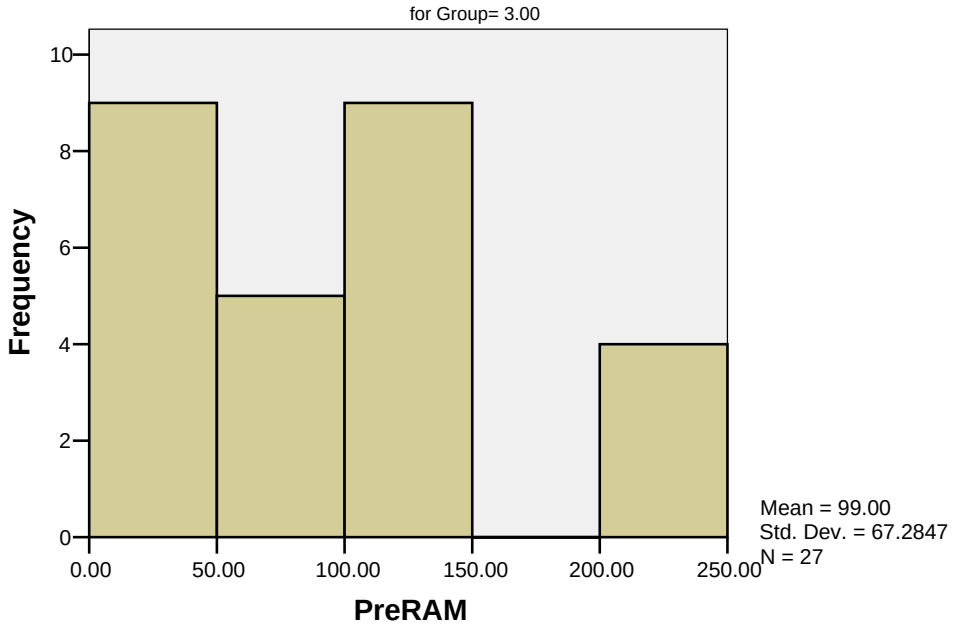
**Tests of Normality**

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Group | Statistic | df | Sig. | Statistic | df | Sig. |
| PreRAM | 3.00 | .114 | 27 | .200* | .918 | 27 | .036 |
| | 4.00 | .180 | 23 | .051 | .907 | 23 | .035 |
| MidRAM | 3.00 | .162 | 27 | .068 | .928 | 27 | .061 |
| | 4.00 | .154 | 23 | .167 | .913 | 23 | .047 |
| PostRAM | 3.00 | .156 | 27 | .090 | .921 | 27 | .041 |
| | 4.00 | .180 | 23 | .052 | .870 | 23 | .006 |
| FollowupRAM | 3.00 | .188 | 27 | .015 | .888 | 27 | .007 |
| | 4.00 | .202 | 23 | .016 | .839 | 23 | .002 |

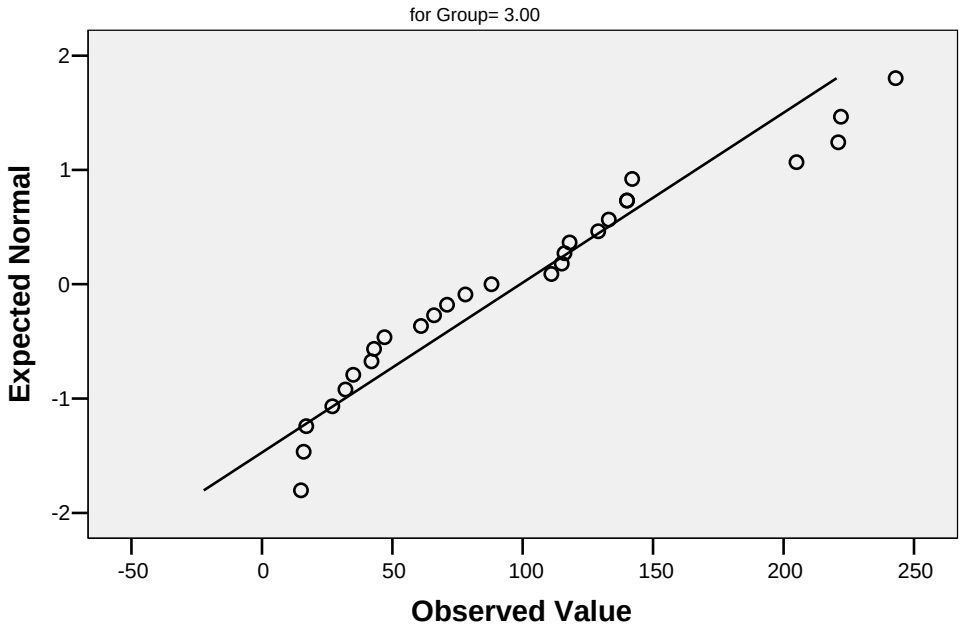
*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

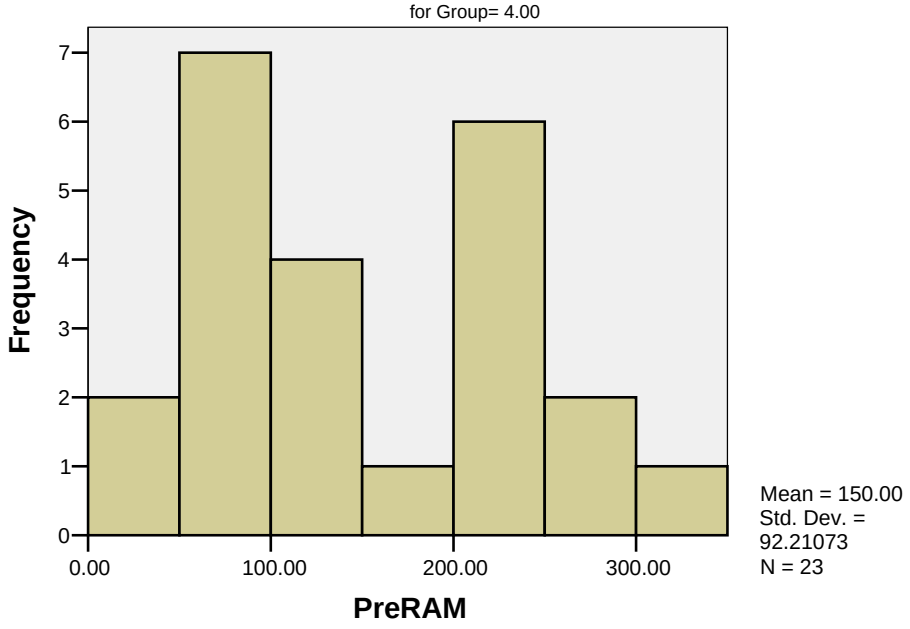
**Histogram**



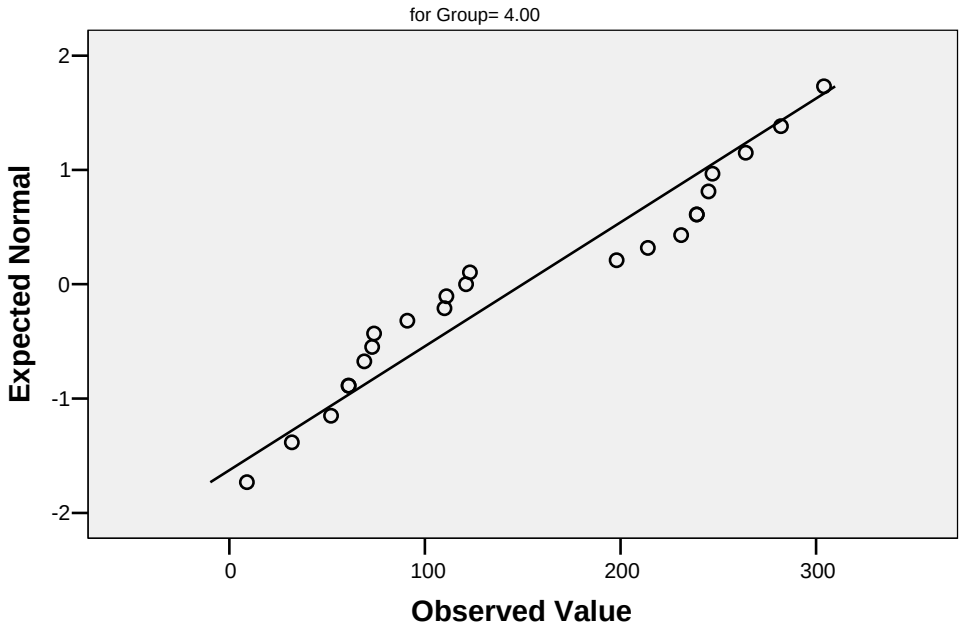
**Normal Q-Q Plot of PreRAM**



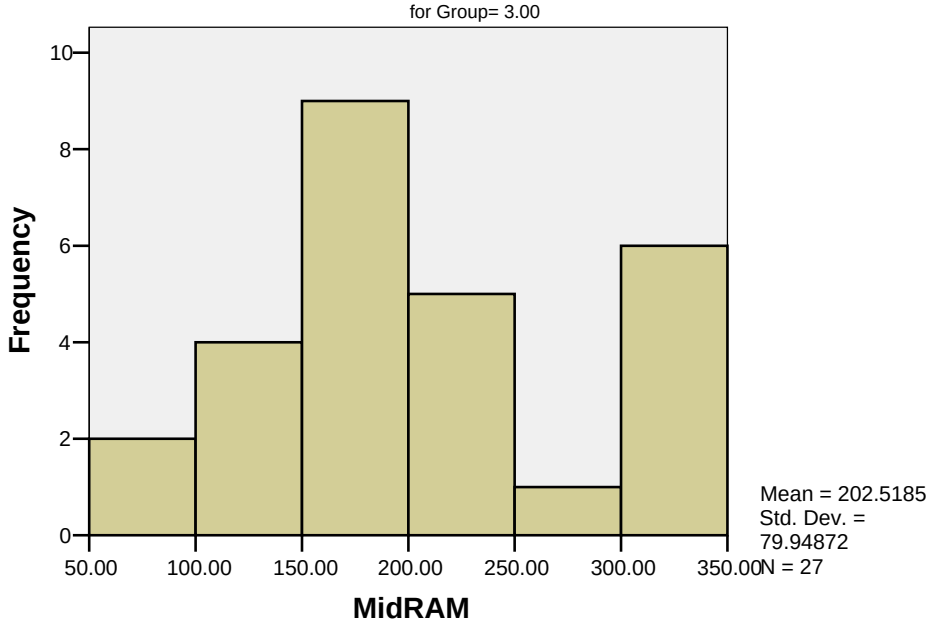

**Histogram**

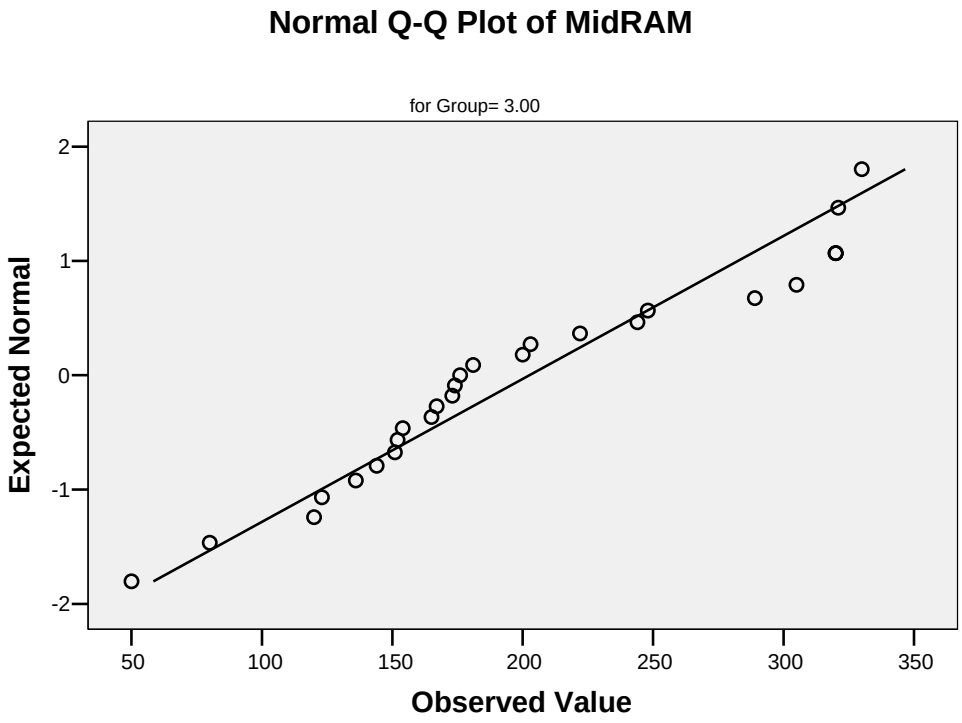


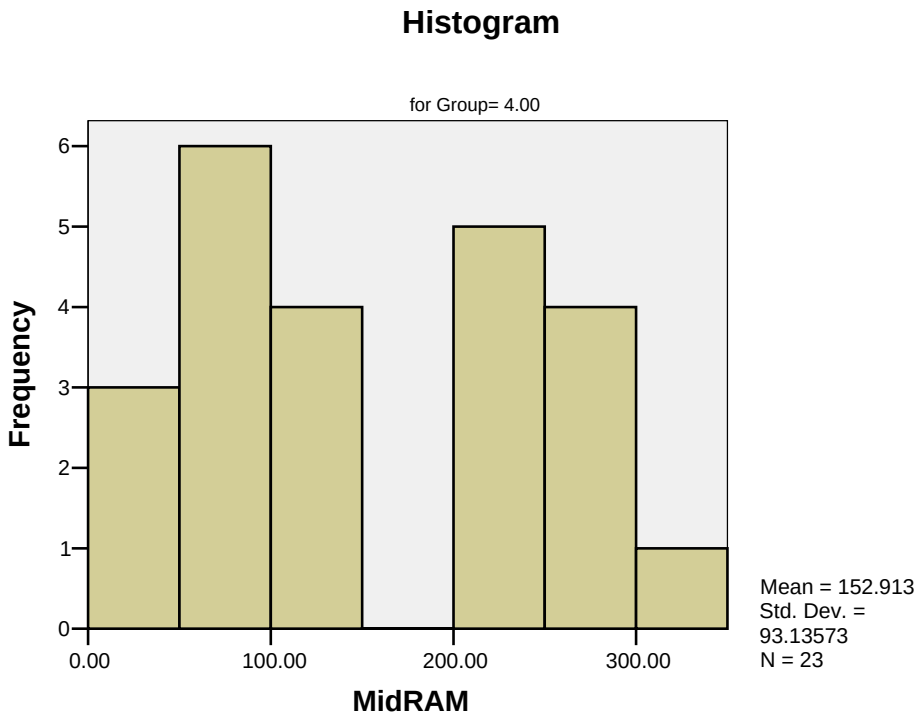
**Normal Q-Q Plot of PreRAM**



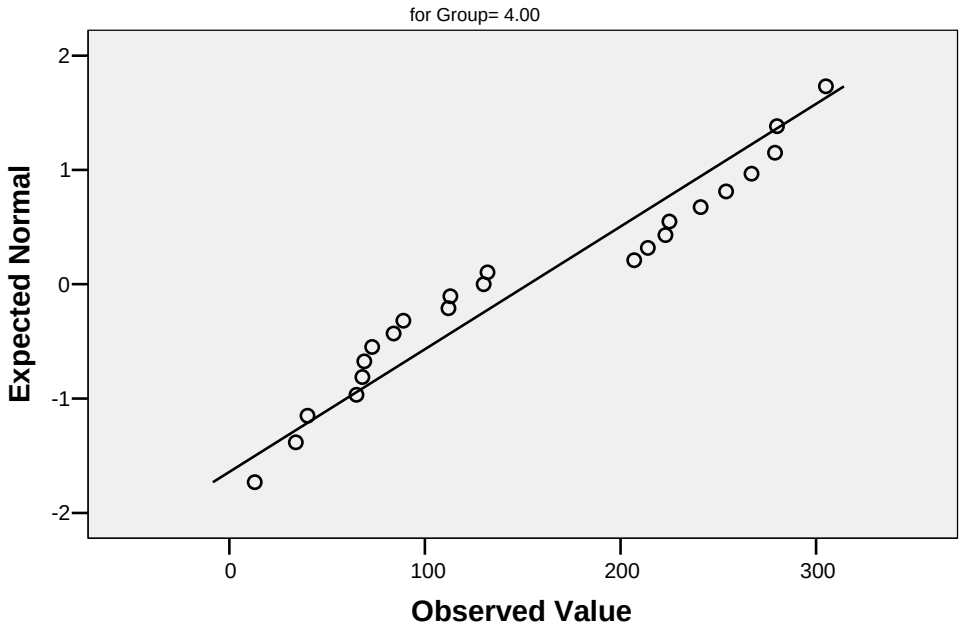

**Histogram**



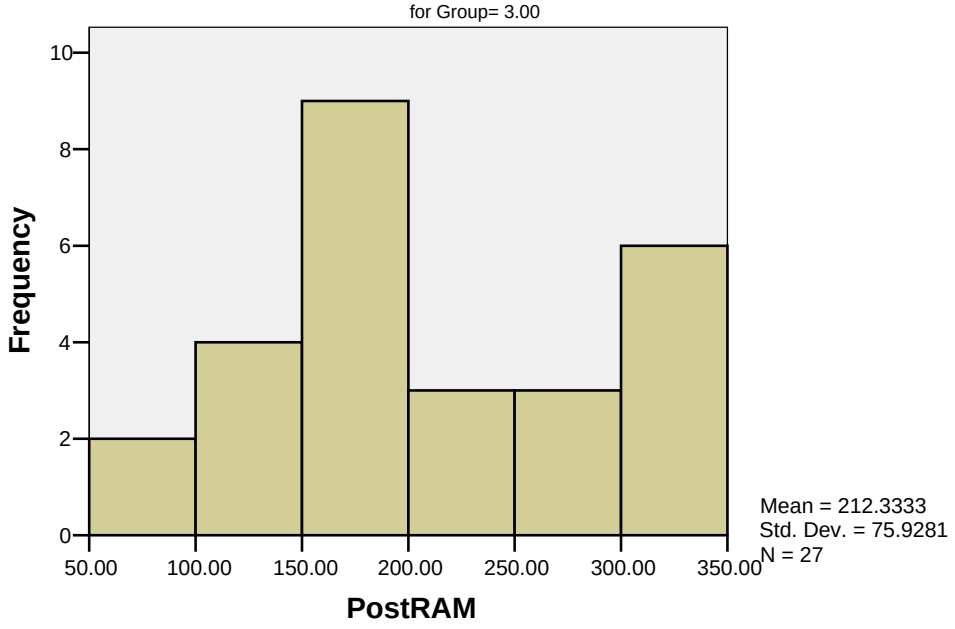

Normal Q-Q Plot of MidRAM
for Group= 3.00
Expected Normal
Observed Value
2
1
0
-1
-2
50
100
150
200
250
300
350

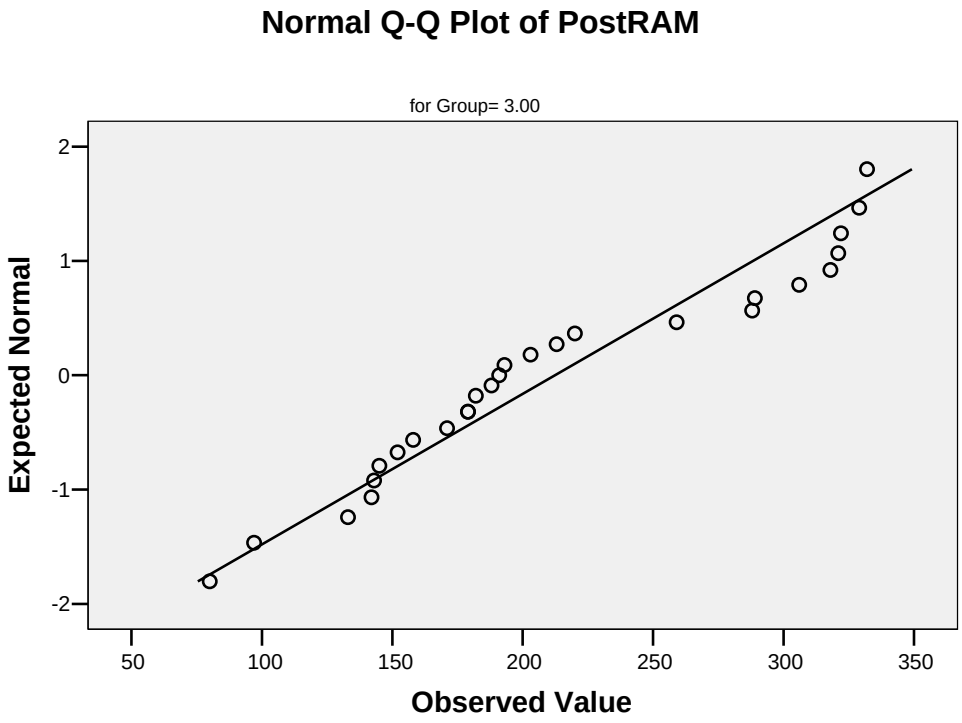

Histogram
for Group= 4.00
Frequency
MidRAM
0
1
2
3
4
5
6
0.00
100.00
200.00
300.00
Mean = 152.913
Std. Dev. =
93.13573
N = 23

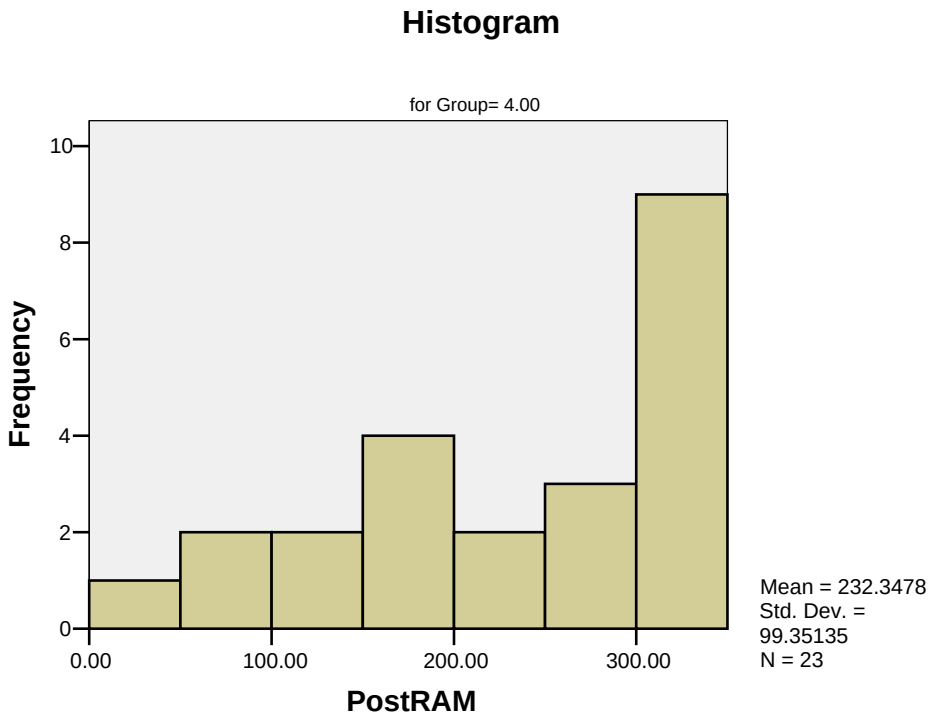
**Normal Q-Q Plot of MidRAM**

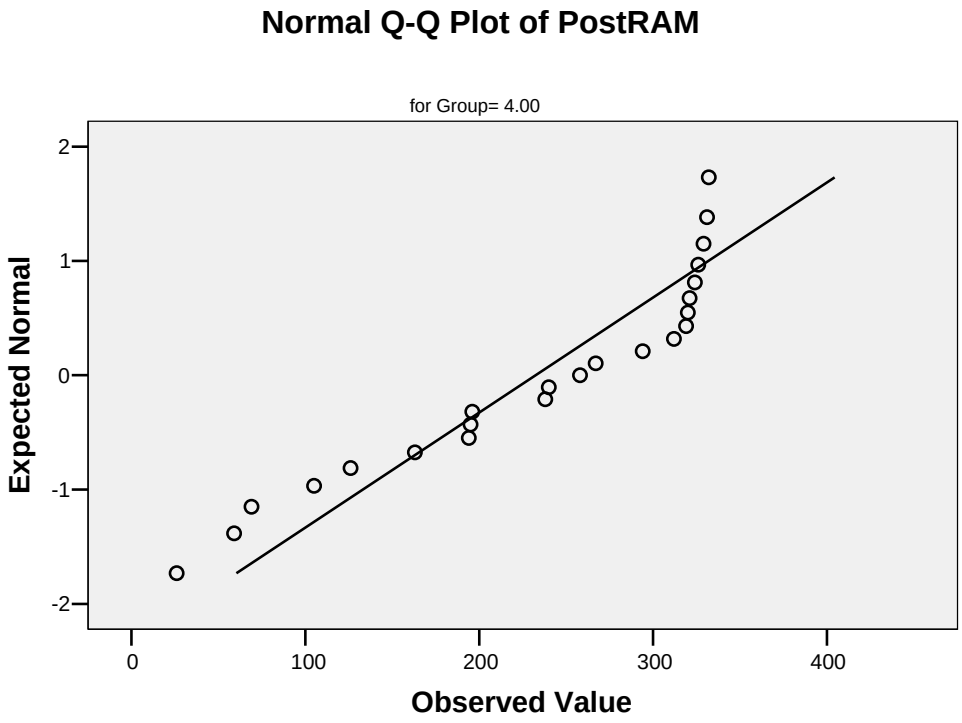


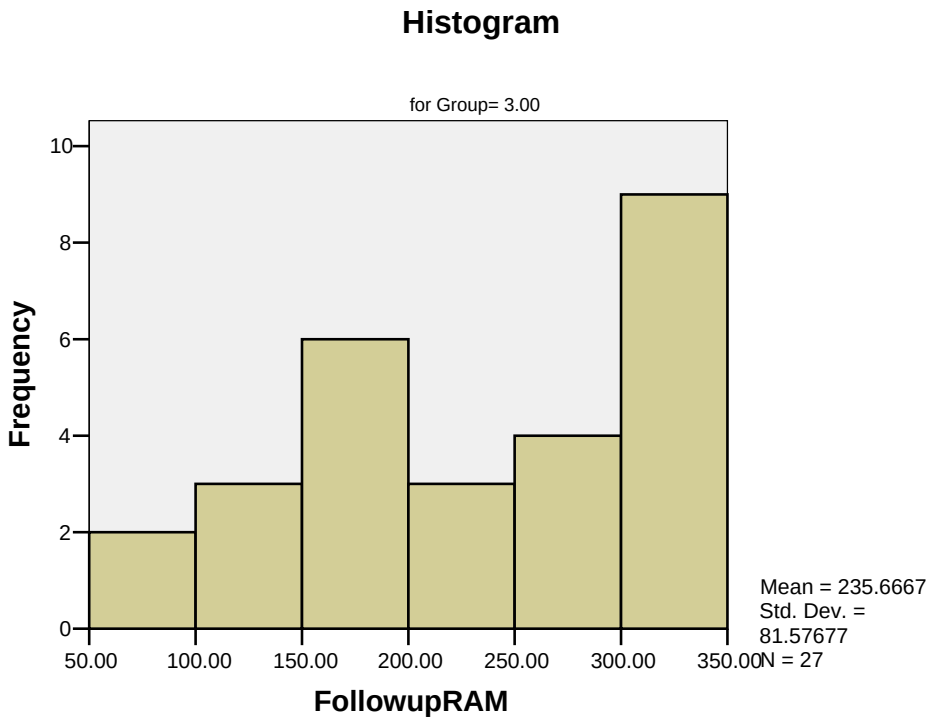

**Histogram**



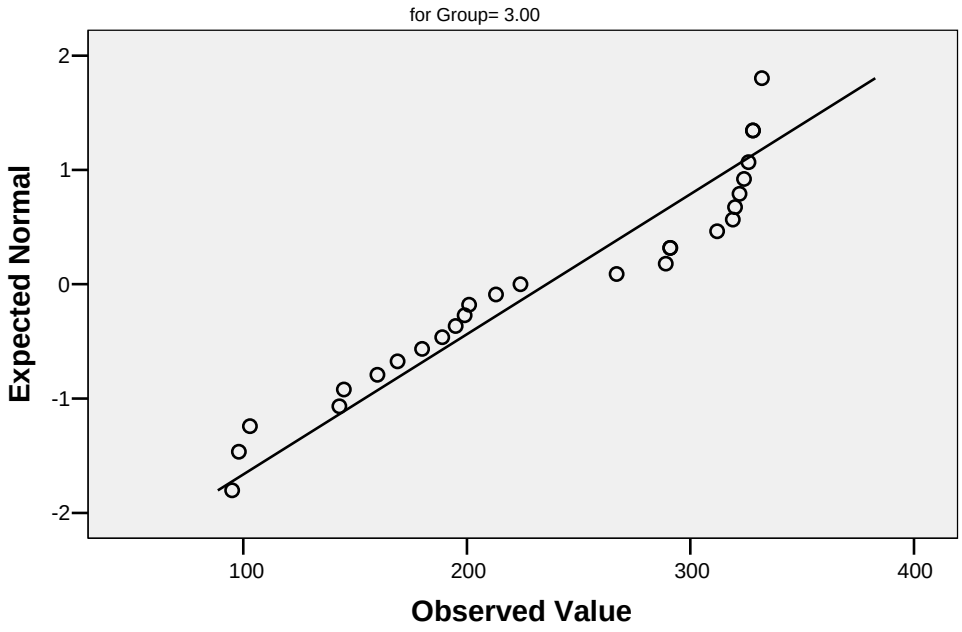

Normal Q-Q Plot of PostRAM
for Group= 3.00
Expected Normal
Observed Value
2
1
0
-1
-2
50
100
150
200
250
300
350


Histogram
for Group= 4.00
Frequency
PostRAM
10
8
6
4
2
0
0.00
100.00
200.00
300.00
Mean = 232.3478
Std. Dev. =
99.35135
N = 23

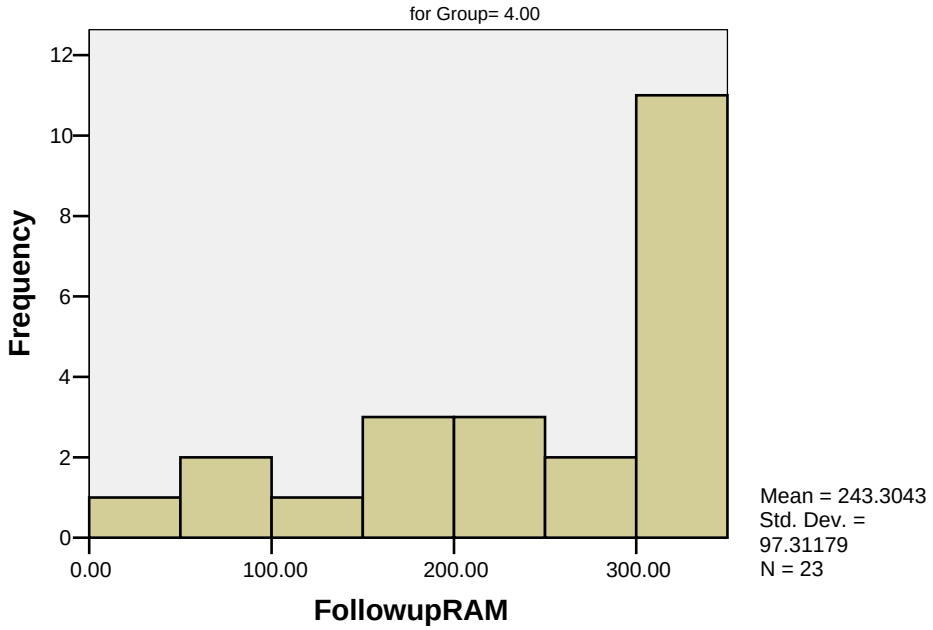

Normal Q-Q Plot of PostRAM
for Group= 4.00
Expected Normal
Observed Value
2
1
0
-1
-2
0
100
200
300
400

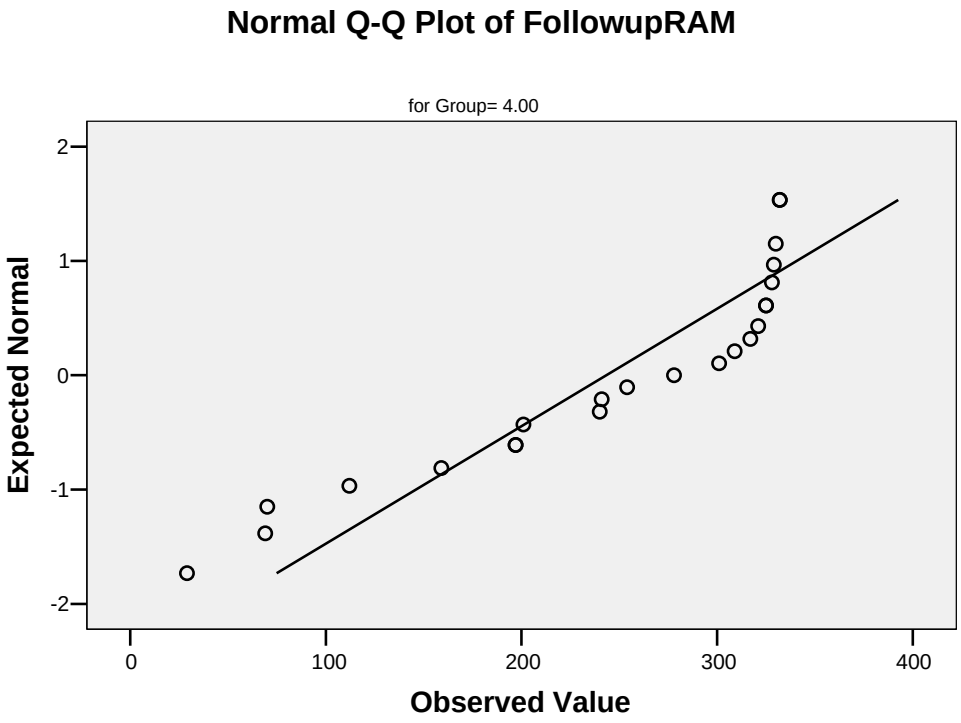

Histogram
for Group= 3.00
Frequency
FollowupRAM
10
8
6
4
2
0
50.00
100.00
150.00
200.00
250.00
300.00
350.00
Mean = 235.6667
Std. Dev. =
81.57677
N = 27

**Normal Q-Q Plot of FollowupRAM**




**Histogram**




Normal Q-Q Plot of FollowupRAM
for Group= 4.00
Expected Normal
2
1
0
-1
-2
0
100
200
300
400
Observed Value

**Appendix 4.1.9**

**Statistical Package for the Social Sciences (SPSS) Output for a *Kolmogorov-Smirnov Z* (K-SZ) test comparison of RAM scores (Pre, Mid, Post and Follow-up measures) between groups C and D (cohort 2).**

## Two-Sample Kolmogorov-Smirnov Test

**Frequencies**

| | Group | N |
|---|---|---|
| PreRAM | 3.00 | 27 |
| | 4.00 | 23 |
| | Total | 50 |
| MidRAM | 3.00 | 27 |
| | 4.00 | 23 |
| | Total | 50 |
| PostRAM | 3.00 | 27 |
| | 4.00 | 23 |
| | Total | 50 |
| FollowupRAM | 3.00 | 27 |
| | 4.00 | 23 |
| | Total | 50 |

**Test Statistics[a]**

| | | PreRAM | MidRAM | PostRAM | FollowupRAM |
|---|---|---|---|---|---|
| Most Extreme Differences | Absolute | .311 | .417 | .295 | .171 |
| | Positive | .311 | .064 | .295 | .171 |
| | Negative | -.043 | -.417 | -.143 | -.130 |
| Kolmogorov-Smirnov Z | | 1.095 | 1.470 | 1.039 | .602 |
| Asymp. Sig. (2-tailed) | | .181 | .027 | .231 | .862 |
| Exact Sig. (2-tailed) | | .139 | .018 | .179 | .773 |
| Point Probability | | .002 | .001 | .008 | .012 |

a. Grouping Variable: Group

**Appendix 4.1.9.1**

**Statistical Package for the Social Sciences (SPSS) Output for a *Wilcoxon signed-rank* (WS-R) test comparison of RAM scores (Pre- Mid-measures, Mid-Post-measures and Post-Follow-up-measures) within groups C and D (cohort 2)**

**Group C**

## Wilcoxon Signed Ranks Test

**Ranks**

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| MidRAM - PreRAM | Negative Ranks | 0[a] | .00 | .00 |
| | Positive Ranks | 27[b] | 14.00 | 378.00 |
| | Ties | 0[c] | | |
| | Total | 27 | | |

a. MidRAM < PreRAM

b. MidRAM > PreRAM

c. MidRAM = PreRAM

**Test Statistics[b]**

| | MidRAM - PreRAM |
|---|---|
| Z | -4.541[a] |
| Asymp. Sig. (2-tailed) | .000 |
| Exact Sig. (2-tailed) | .000 |
| Exact Sig. (1-tailed) | .000 |
| Point Probability | .000 |

# Wilcoxon Signed Ranks Test

**Ranks**

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| PostRAM - MidRAM | Negative Ranks | 8[a] | 12.44 | 99.50 |
| | Positive Ranks | 18[b] | 13.97 | 251.50 |
| | Ties | 1[c] | | |
| | Total | 27 | | |

a. PostRAM < MidRAM

b. PostRAM > MidRAM

c. PostRAM = MidRAM

**Test Statistics[b]**

| | PostRAM - MidRAM |
|---|---|
| Z | -1.931[a] |
| Asymp. Sig. (2-tailed) | .054 |
| Exact Sig. (2-tailed) | .053 |
| Exact Sig. (1-tailed) | .027 |
| Point Probability | .001 |

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

# Wilcoxon Signed Ranks Test

**Ranks**

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| FollowupRAM - PostRAM | Negative Ranks | 3[a] | 11.00 | 33.00 |
| | Positive Ranks | 23[b] | 13.83 | 318.00 |
| | Ties | 1[c] | | |
| | Total | 27 | | |

a. FollowupRAM < PostRAM

b. FollowupRAM > PostRAM

c. FollowupRAM = PostRAM

**Test Statistics[b]**

| | FollowupRAM - PostRAM |
|---|---|
| Z | -3.622[a] |
| Asymp. Sig. (2-tailed) | .000 |
| Exact Sig. (2-tailed) | .000 |
| Exact Sig. (1-tailed) | .000 |
| Point Probability | .000 |

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

**Group D**

## Wilcoxon Signed Ranks Test

**Ranks**

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| MidRAM - PreRAM | Negative Ranks | 7[a] | 10.79 | 75.50 |
| | Positive Ranks | 14[b] | 11.11 | 155.50 |
| | Ties | 2[c] | | |
| | Total | 23 | | |

a. MidRAM < PreRAM

b. MidRAM > PreRAM

c. MidRAM = PreRAM

**Test Statistics[b]**

| | MidRAM - PreRAM |
|---|---|
| Z | -1.393[a] |
| Asymp. Sig. (2-tailed) | .164 |
| Exact Sig. (2-tailed) | .170 |
| Exact Sig. (1-tailed) | .085 |
| Point Probability | .003 |

# Wilcoxon Signed Ranks Test

**Ranks**

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| PostRAM - MidRAM | Negative Ranks | 0[a] | .00 | .00 |
| | Positive Ranks | 23[b] | 12.00 | 276.00 |
| | Ties | 0[c] | | |
| | Total | 23 | | |

a. PostRAM < MidRAM

b. PostRAM > MidRAM

c. PostRAM = MidRAM

**Test Statistics[b]**

| | PostRAM - MidRAM |
|---|---|
| Z | -4.197[a] |
| Asymp. Sig. (2-tailed) | .000 |
| Exact Sig. (2-tailed) | .000 |
| Exact Sig. (1-tailed) | .000 |
| Point Probability | .000 |

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

# Wilcoxon Signed Ranks Test

**Ranks**

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| FollowupRAM - PostRAM | Negative Ranks | 4[a] | 9.63 | 38.50 |
| | Positive Ranks | 18[b] | 11.92 | 214.50 |
| | Ties | 1[c] | | |
| | Total | 23 | | |

a. FollowupRAM < PostRAM

b. FollowupRAM > PostRAM

c. FollowupRAM = PostRAM

**Test Statistics[b]**

| | FollowupRAM - PostRAM |
|---|---|
| Z | -2.862[a] |
| Asymp. Sig. (2-tailed) | .004 |
| Exact Sig. (2-tailed) | .003 |
| Exact Sig. (1-tailed) | .001 |
| Point Probability | .000 |

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

**Appendix 4.1.10**

**Individual data ('raw scores' and 'reading ages') for students on Pre, Mid, Post and Follow-up measures from the WIAT-II UK word reading test (WRT)**

| Participant (student) number | School | School Type | Cohort | Group | Age | Sex | Pre - Raw Score | Pre- Reading Age | Mid- Raw Score | Mid- Reading Age | Post- Raw Score | Post- Reading Age | Follow- up Raw | Follow- up Reading Age |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 33 | 1 | 1 | 2 | 3 | 11:09 | 1 | 79 | 07:00 | 83 | 07:00 | 89 | 07:04 | 85 | 07:00 |
| 34 | 1 | 1 | 2 | 3 | 12:01 | 1 | 69 | 06:04 | 76 | 06:08 | 71 | 06:08 | 72 | 06:08 |
| 35 | 1 | 1 | 2 | 3 | 14:03 | 1 | 84 | 07:00 | 88 | 07:04 | 92 | 07:08 | 90 | 07:08 |
| 36 | 1 | 1 | 2 | 4 | 12:03 | 1 | 71 | 06:08 | 74 | 06:08 | 76 | 06:08 | 85 | 07:00 |
| 37 | 1 | 1 | 2 | 4 | 12:02 | 1 | 66 | 06:04 | 75 | 06:08 | 72 | 06:08 | 78 | 06:08 |
| 38 | 1 | 1 | 2 | 4 | 11:05 | 2 | 76 | 06:08 | 78 | 06:08 | 79 | 07:00 | 85 | 07:00 |
| 39 | 2 | 2 | 2 | 3 | 12:10 | 1 | 89 | 07:04 | 88 | 07:04 | 91 | 07:08 | 92 | 07:08 |
| 40 | 2 | 2 | 2 | 3 | 12:01 | 1 | 74 | 06:08 | 73 | 06:08 | 74 | 06:08 | 68 | 06:04 |
| 41 | 2 | 2 | 2 | 3 | 11:05 | 1 | 68 | 06:04 | 71 | 06:08 | 71 | 06:08 | 68 | 06:04 |
| 42 | 2 | 2 | 2 | 3 | 15:08 | 2 | 69 | 06:04 | 88 | 07:04 | 88 | 07:00 | 90 | 07:08 |
| 43 | 2 | 2 | 2 | 4 | 15:04 | 1 | 58 | 06:00 | 63 | 06:00 | 64 | 06:04 | 82 | 07:00 |
| 44 | 2 | 2 | 2 | 3 | 13:10 | 2 | 65 | 06:04 | 80 | 07:00 | 80 | 07:00 | 85 | 07:00 |
| 45 | 2 | 2 | 2 | 3 | 14:09 | 1 | 70 | 06:04 | 77 | 06:08 | 80 | 07:00 | 85 | 07:00 |
| 46 | 2 | 2 | 2 | 4 | 12:05 | 2 | 77 | 06:08 | 74 | 06:08 | 70 | 06:04 | 82 | 07:00 |
| 47 | 3 | 2 | 2 | 3 | 12:07 | 1 | 53 | 06:00 | 53 | 06:00 | 52 | 06:00 | 55 | 06:00 |
| 48 | 3 | 2 | 2 | 3 | 15:08 | 2 | 55 | 06:00 | 55 | 06:00 | 53 | 06:00 | 53 | 06:00 |
| 49 | 3 | 2 | 2 | 3 | 15:06 | 1 | 59 | 06:00 | 59 | 06:00 | 57 | 06:00 | 90 | 07:08 |
| 50 | 3 | 2 | 2 | 3 | 15:01 | 1 | 73 | 06:08 | 76 | 06:08 | 75 | 06:08 | 82 | 07:00 |
| 51 | 3 | 2 | 2 | 3 | 14:06 | 2 | 64 | 06:04 | 61 | 06:04 | 63 | 06:04 | 92 | 07:08 |
| 52 | 3 | 2 | 2 | 3 | 14:01 | 1 | 51 | 06:00 | 50 | 06:00 | 52 | 06:00 | 53 | 06:00 |
| 53 | 3 | 2 | 2 | 3 | 13:11 | 2 | 80 | 07:00 | 77 | 06:08 | 76 | 06:08 | 65 | 06:04 |
| 54 | 3 | 2 | 2 | 3 | 12:06 | 1 | 54 | 06:00 | 56 | 06:00 | 56 | 06:00 | 56 | 06:00 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 3 | 2 | 2 | 3 | 11:06 | 1 | 49 | 06:00 | 50 | 06:00 | 50 | 06:00 | 53 | 06:00 |
| 56 | 3 | 2 | 2 | 3 | 11:05 | 1 | 70 | 06:04 | 69 | 06:04 | 67 | 06:04 | 90 | 07:08 |
| 57 | 3 | 2 | 2 | 3 | 12:06 | 2 | 58 | 06:00 | 60 | 06:04 | 60 | 06:04 | 59 | 06:00 |
| 58 | 3 | 2 | 2 | 3 | 15:06 | 1 | 53 | 06:00 | 53 | 06:00 | 52 | 06:00 | 70 | 06:04 |
| 59 | 3 | 2 | 2 | 3 | 16:02 | 1 | 61 | 06:04 | 61 | 06:04 | 62 | 06:04 | 70 | 06:04 |
| 60 | 3 | 2 | 2 | 4 | 14:02 | 1 | 73 | 06:08 | 70 | 06:04 | 80 | 07:00 | 82 | 07:00 |
| 61 | 3 | 2 | 2 | 4 | 13:11 | 2 | 83 | 07:00 | 85 | 07:00 | 88 | 07:04 | 92 | 07:08 |
| 62 | 3 | 2 | 2 | 4 | 13:03 | 2 | 69 | 06:04 | 68 | 06:04 | 68 | 06:04 | 70 | 06:04 |
| 63 | 3 | 2 | 2 | 4 | 13:01 | 1 | 67 | 06:04 | 70 | 06:04 | 73 | 06:08 | 70 | 06:04 |
| 64 | 3 | 2 | 2 | 4 | 16:01 | 1 | 66 | 06:04 | 66 | 06:04 | 63 | 06:04 | 70 | 06:04 |
| 65 | 3 | 2 | 2 | 4 | 16:00 | 1 | 80 | 07:00 | 72 | 06:08 | 86 | 07:04 | 95 | 08:04 |
| 66 | 3 | 2 | 2 | 4 | 15:01 | 1 | 81 | 07:00 | 79 | 07:00 | 82 | 07:00 | 80 | 07:00 |
| 67 | 3 | 2 | 2 | 4 | 14:04 | 1 | 54 | 06:00 | 54 | 06:00 | 53 | 06:00 | 61 | 06:04 |
| 68 | 3 | 2 | 2 | 4 | 12:07 | 1 | 61 | 06:04 | 62 | 06:04 | 88 | 07:04 | 63 | 06:04 |
| 69 | 3 | 2 | 2 | 4 | 12:01 | 1 | 60 | 06:04 | 58 | 06:00 | 58 | 06:00 | 62 | 06:04 |
| 70 | 3 | 2 | 2 | 4 | 11:05 | 1 | 51 | 06:00 | 79 | 07:00 | 51 | 06:00 | 51 | 06:00 |
| 71 | 3 | 2 | 2 | 4 | 14:01 | 1 | 53 | 06:00 | 53 | 06:00 | 53 | 06:00 | 80 | 07:00 |
| 72 | 3 | 2 | 2 | 4 | 12:10 | 1 | 75 | 06:08 | 75 | 06:08 | 86 | 07:04 | 80 | 07:00 |
| 73 | 4 | 1 | 2 | 3 | 13:08 | 1 | 67 | 06:04 | 71 | 06:08 | 71 | 06:08 | 95 | 08:04 |
| 74 | 4 | 1 | 2 | 3 | 13:07 | 2 | 56 | 06:00 | 58 | 06:00 | 57 | 06:00 | 78 | 06:08 |
| 75 | 4 | 1 | 2 | 4 | 11:06 | 1 | 85 | 07:00 | 90 | 07:08 | 91 | 07:08 | 95 | 08:04 |
| 76 | 4 | 1 | 2 | 4 | 11:04 | 1 | 80 | 07:00 | 83 | 07:00 | 84 | 07:00 | 87 | 07:04 |
| 77 | 4 | 1 | 2 | 4 | 11:08 | 1 | 72 | 06:08 | 70 | 06:04 | 74 | 06:08 | 83 | 07:00 |
| 78 | 5 | 1 | 2 | 3 | 12:10 | 2 | 83 | 07:00 | 80 | 07:00 | 80 | 07:00 | 78 | 06:08 |
| 79 | 5 | 1 | 2 | 3 | 13:00 | 2 | 71 | 06:08 | 65 | 06:04 | 68 | 06:04 | 81 | 07:00 |
| 80 | 5 | 1 | 2 | 3 | 15:01 | 1 | 90 | 07:08 | 94 | 08:00 | 95 | 08:04 | 95 | 08:04 |
| 81 | 5 | 1 | 2 | 4 | 12:06 | 1 | 92 | 07:08 | 90 | 07:08 | 94 | 08:00 | 95 | 08:04 |
| 82 | 5 | 1 | 2 | 4 | 13:03 | 1 | 92 | 07:08 | 92 | 07:08 | 95 | 08:04 | 97 | 08:08 |

**Notes to table above**

**Note 1:** School Type codes - 1 denotes mainstream school; 2 denotes Special school.
**Note 2**: Group codes - 1 is group A; 2 is group B; 3 is group C; 4 is group D.
**Note 3:** Sex codes – 1 denotes male participant; 2 denotes female.
**Note 4:** Cells shaded yellow denotes Cohort 1. Cells shaded green denotes Cohort 2.
**Note 5:** Maximum WIAT raw score is 131, minimum is 0. Maximum WIAT reading age is 16:00 years, minimum is 4:00 years.

| **WIAT -II Assessment dates** | |
|---|---|
| Cohort 1 Pre-WIAT -II | Sep-07 |
| Cohort 1 Mid-WIAT -II | Oct or Nov-07 |
| Cohort 1 Post-WIAT -II | Dec-07 |
| Cohort 2 Pre-WIAT -II | Jan-08 |
| Cohort 2 Mid-WIAT -II | Feb-08 |
| Cohort 2 Post-WIAT -II | Apr-08 |
| Cohort 2 'Follow-up' WIAT -II | Jul-08 |

**Appendix 4.1.11**

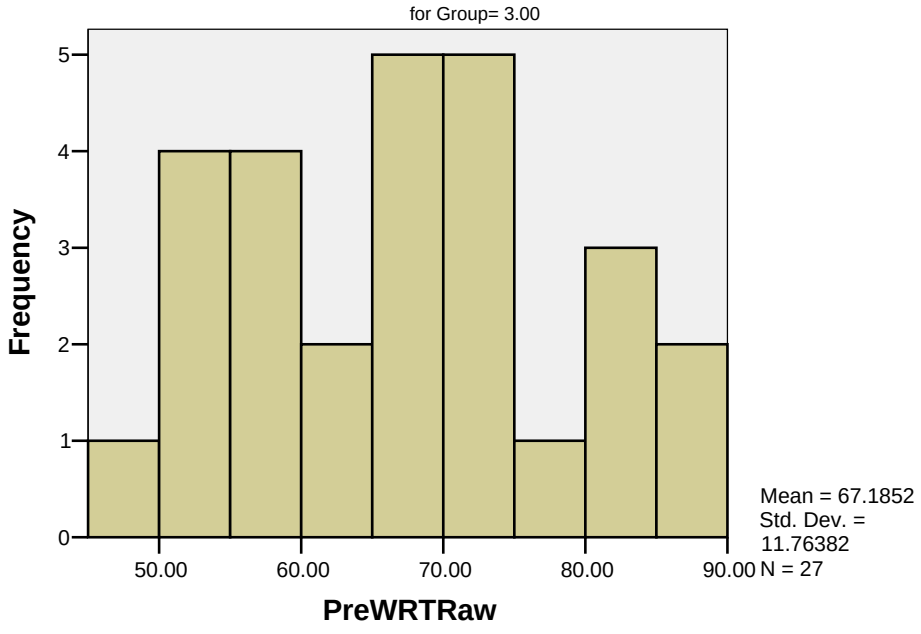
**Statistical Package for the Social Sciences (SPSS) Output for tests of normality within groups in cohort 2 across Pre, Mid, Post and Follow-up WRT raw-scores (including Histograms and Q-Q Plots)**

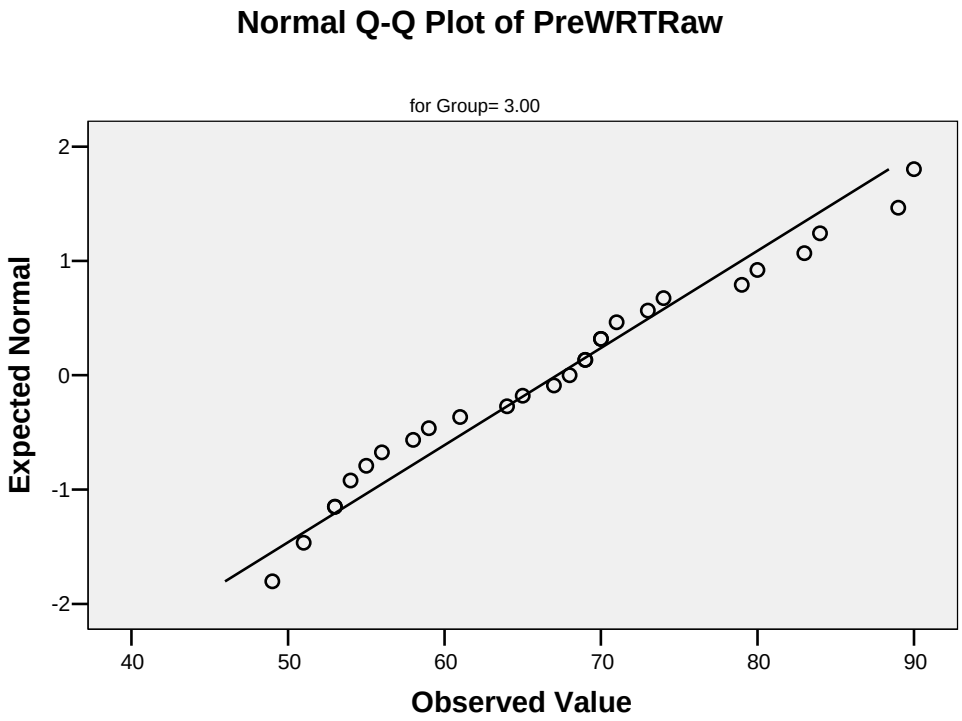
**Tests of Normality**

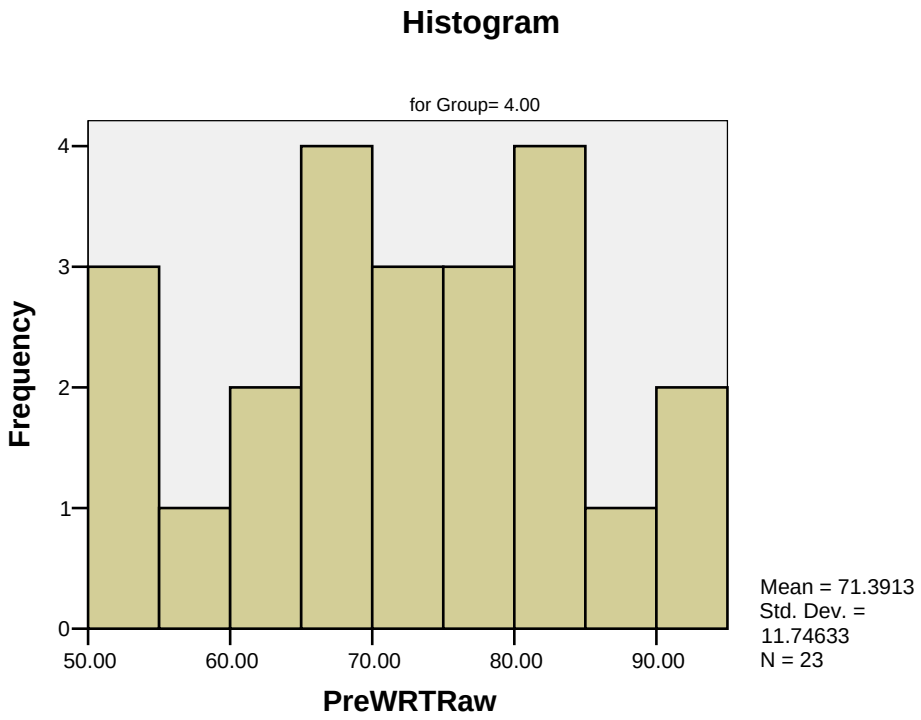
| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Group | Statistic | df | Sig. | Statistic | df | Sig. |
| PreWRTRaw | 3.00 | .090 | 27 | .200* | .958 | 27 | .331 |
| | 4.00 | .073 | 23 | .200* | .973 | 23 | .759 |
| MidWRTRaw | 3.00 | .146 | 27 | .148 | .949 | 27 | .198 |
| | 4.00 | .085 | 23 | .200* | .973 | 23 | .765 |
| PostWRTRaw | 3.00 | .116 | 27 | .200* | .940 | 27 | .123 |
| | 4.00 | .096 | 23 | .200* | .950 | 23 | .292 |
| FollowupWRTRaw | 3.00 | .143 | 27 | .164 | .907 | 27 | .019 |
| | 4.00 | .173 | 23 | .071 | .942 | 23 | .198 |

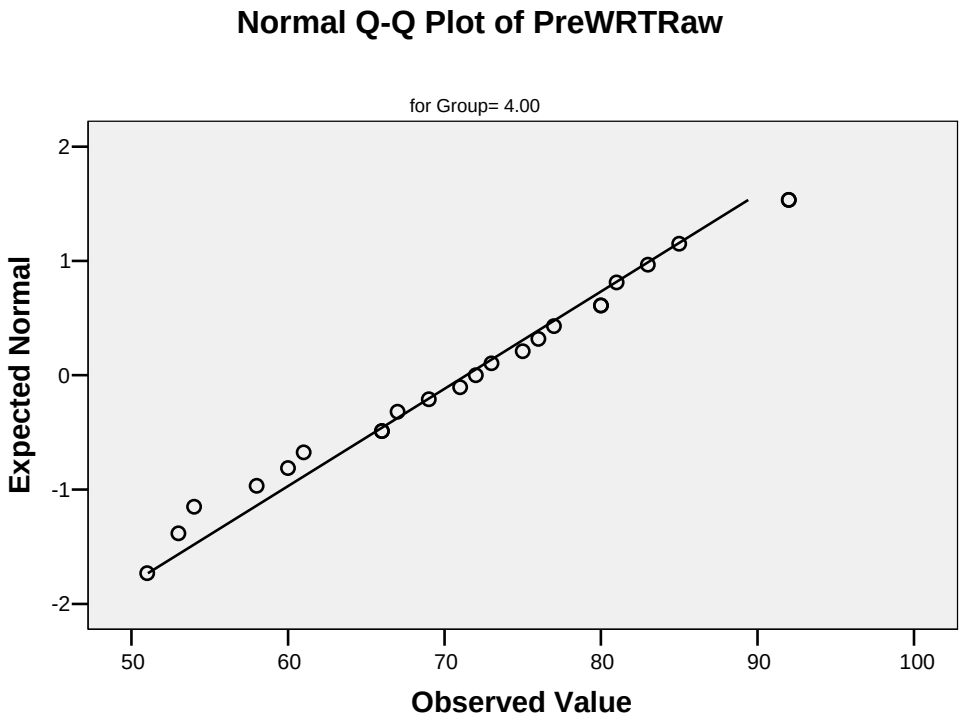
*. This is a lower bound of the true significance.

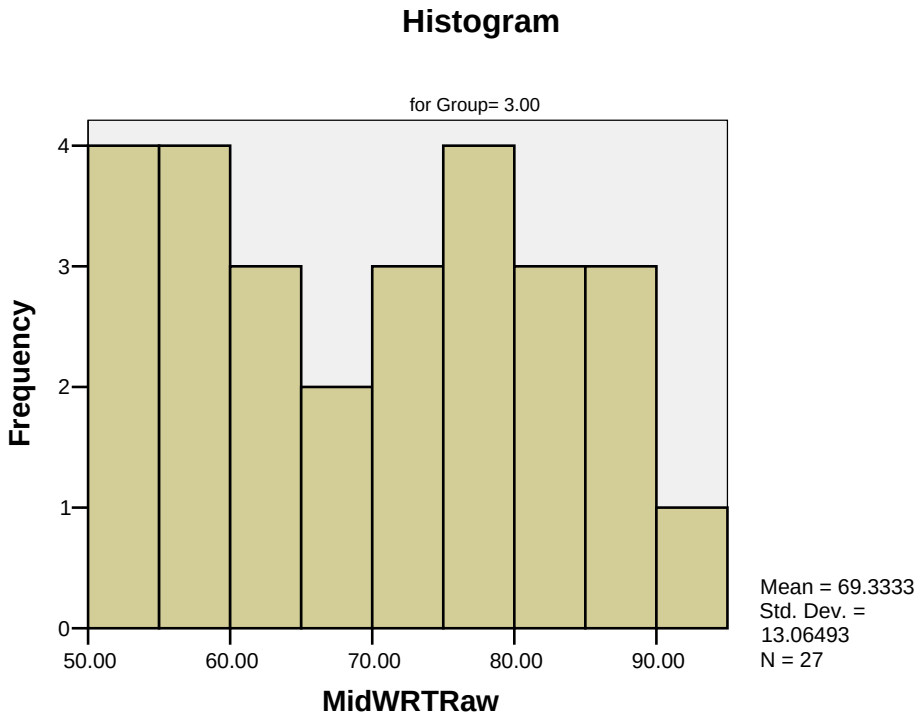
**Histogram**

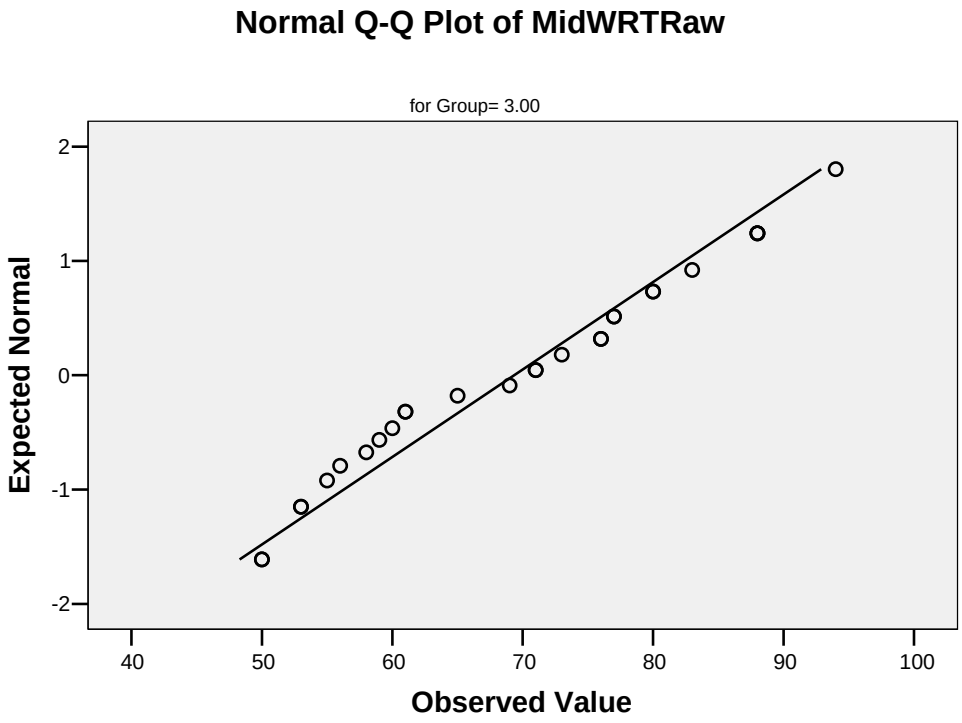



Normal Q-Q Plot of PreWRTRaw
for Group= 3.00
Expected Normal
Observed Value
2
1
0
-1
-2
40
50
60
70
80
90

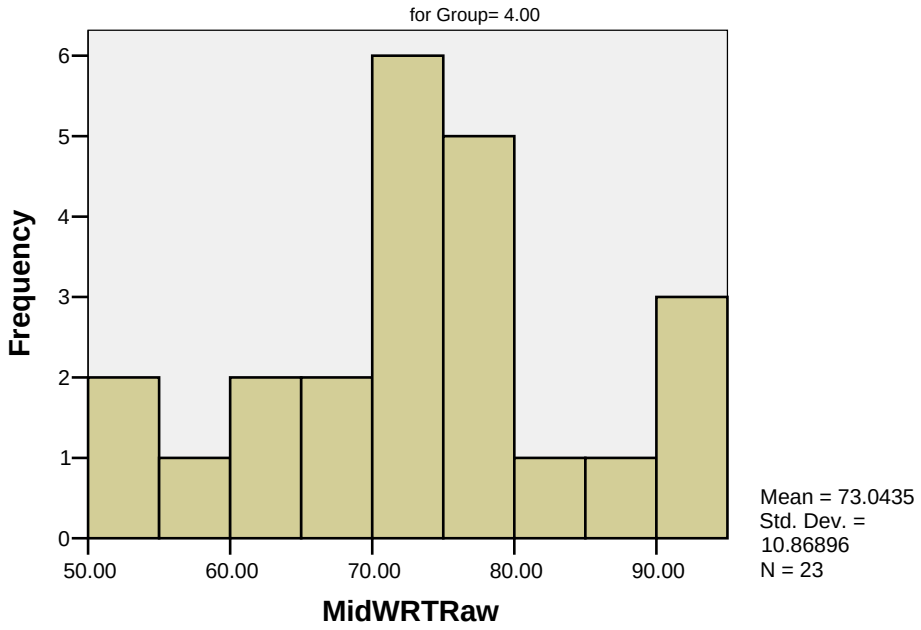

Histogram
for Group= 4.00
Frequency
PreWRTRaw
4
3
2
1
0
50.00
60.00
70.00
80.00
90.00
Mean = 71.3913
Std. Dev. =
11.74633
N = 23


Normal Q-Q Plot of PreWRTRaw
for Group= 4.00
Expected Normal
Observed Value
2
1
0
-1
-2
50
60
70
80
90
100

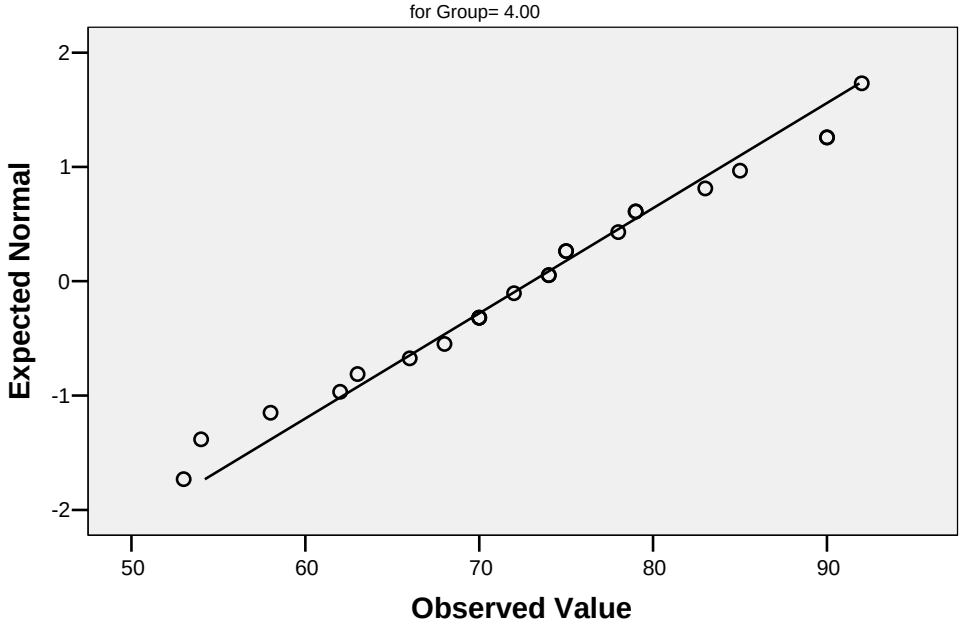

Histogram
for Group= 3.00
Frequency
MidWRTRaw
4
3
2
1
0
50.00
60.00
70.00
80.00
90.00
Mean = 69.3333
Std. Dev. =
13.06493
N = 27

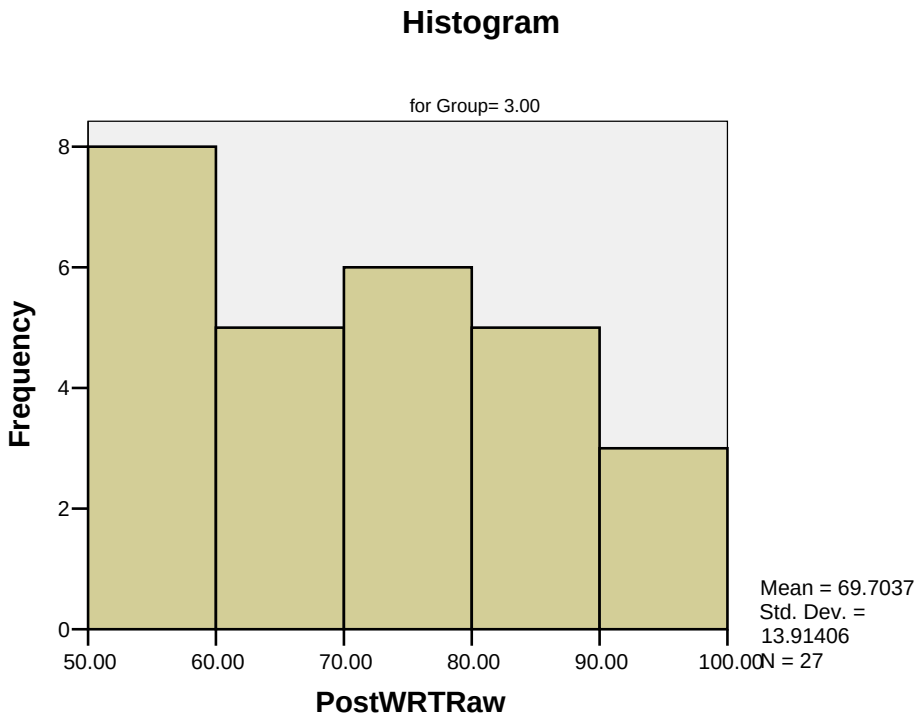

Normal Q-Q Plot of MidWRTRaw
for Group= 3.00
Expected Normal
2
1
0
-1
-2
40
50
60
70
80
90
100
Observed Value

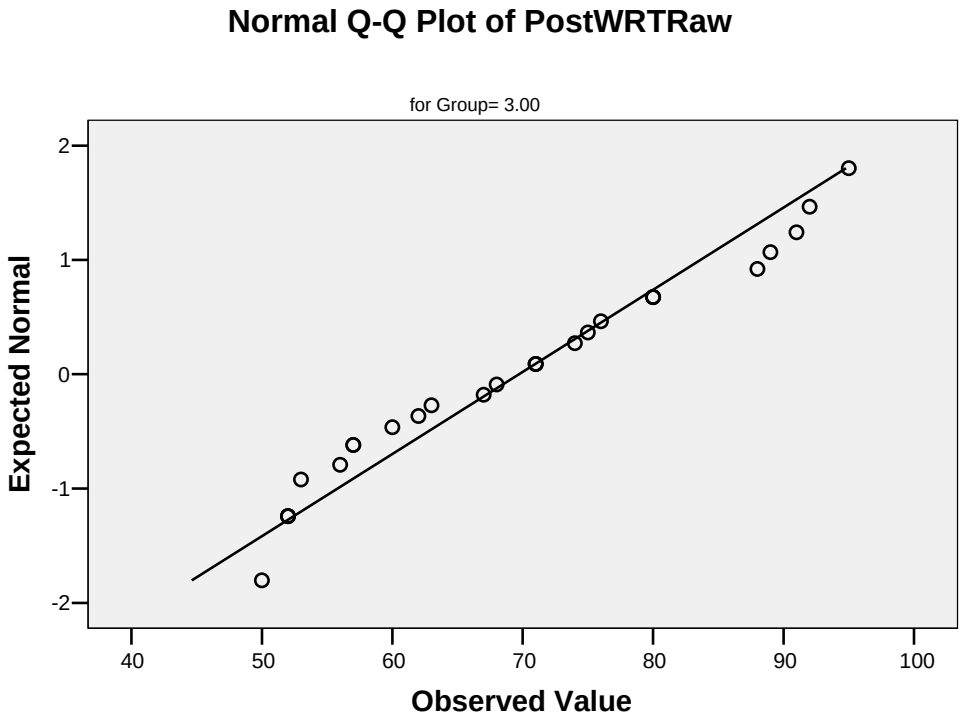
**Histogram**



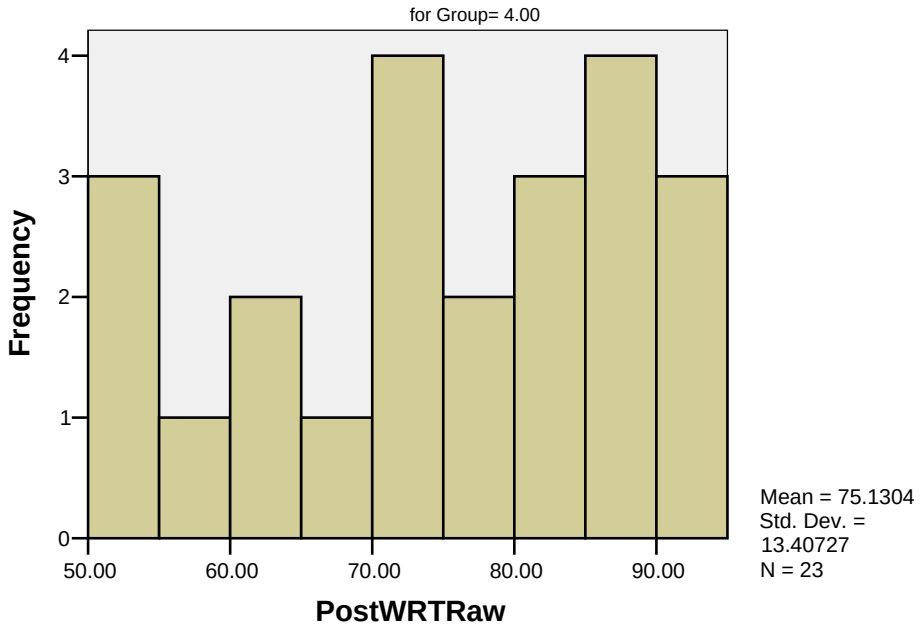

**Normal Q-Q Plot of MidWRTRaw**



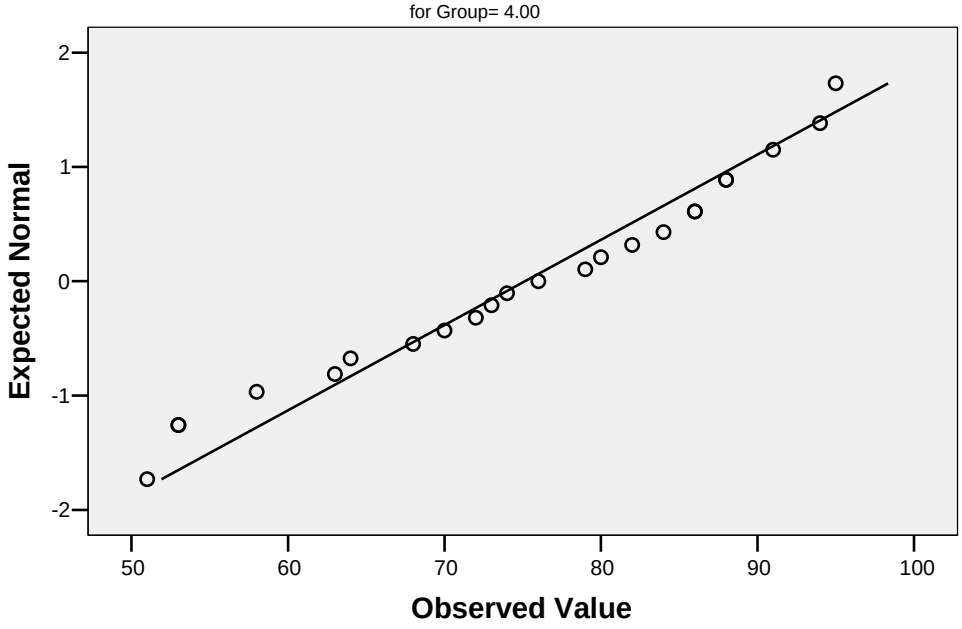

Histogram
for Group= 3.00
Frequency
8
6
4
2
0
50.00
60.00
70.00
80.00
90.00
100.00
PostWRTRaw
Mean = 69.7037
Std. Dev. =
13.91406
N = 27

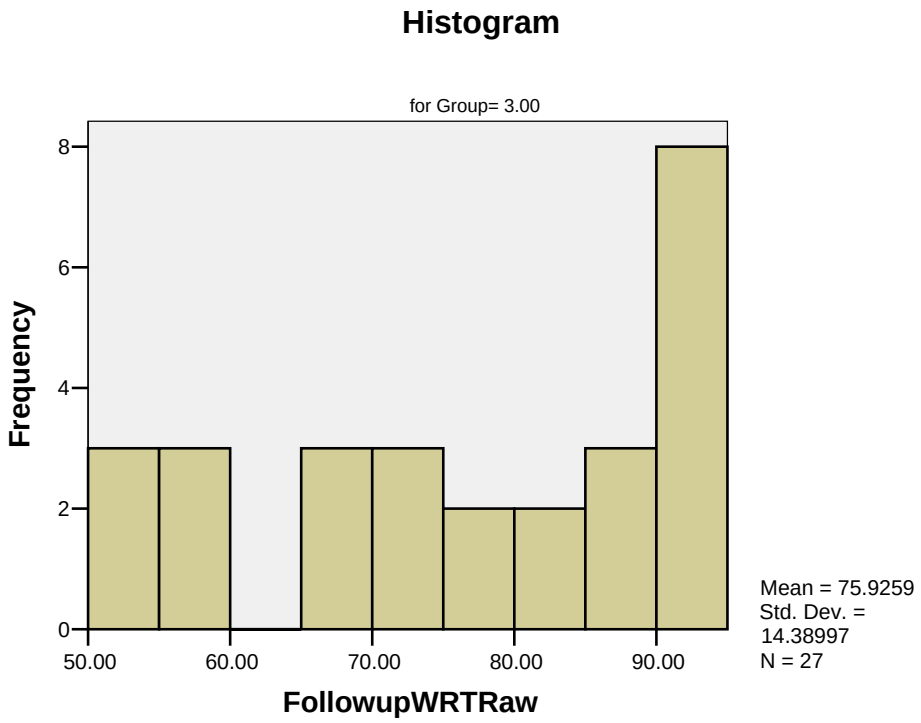

Normal Q-Q Plot of PostWRTRaw
for Group= 3.00
Expected Normal
2
1
0
-1
-2
40
50
60
70
80
90
100
Observed Value

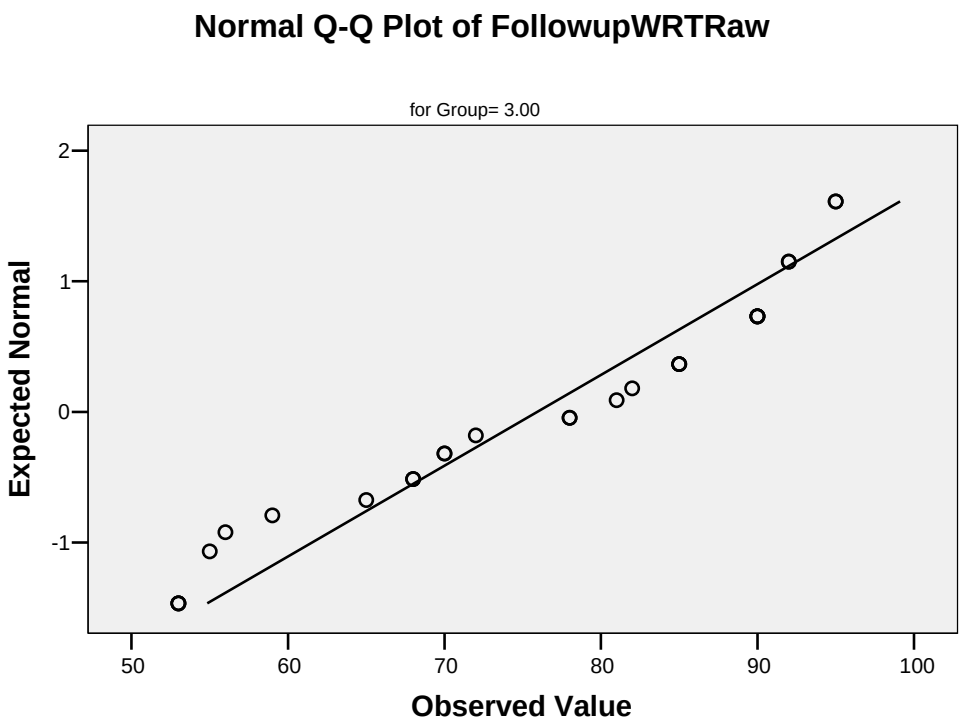
**Histogram**

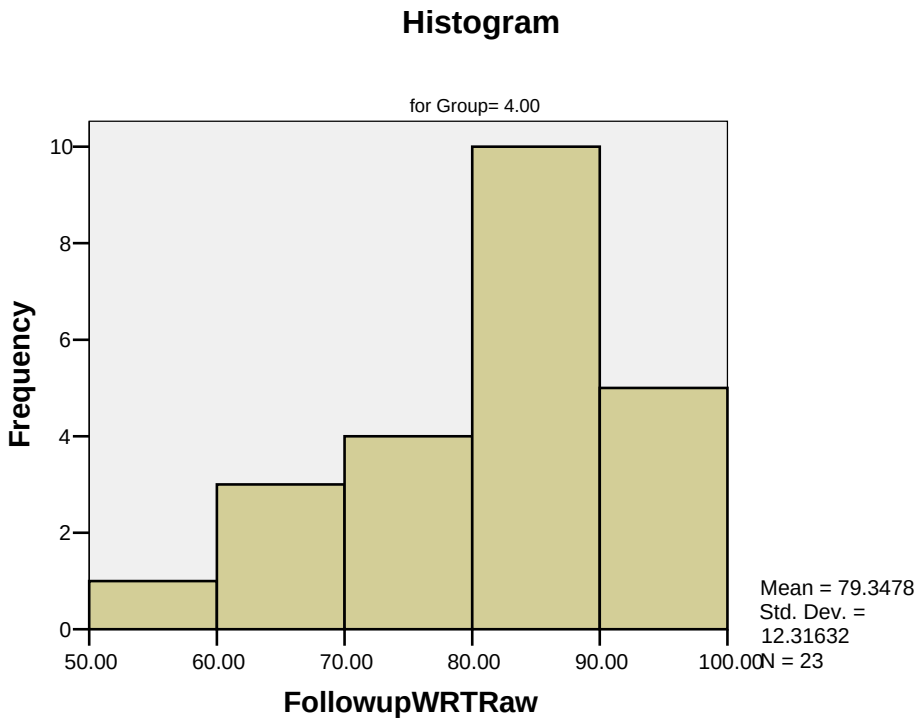


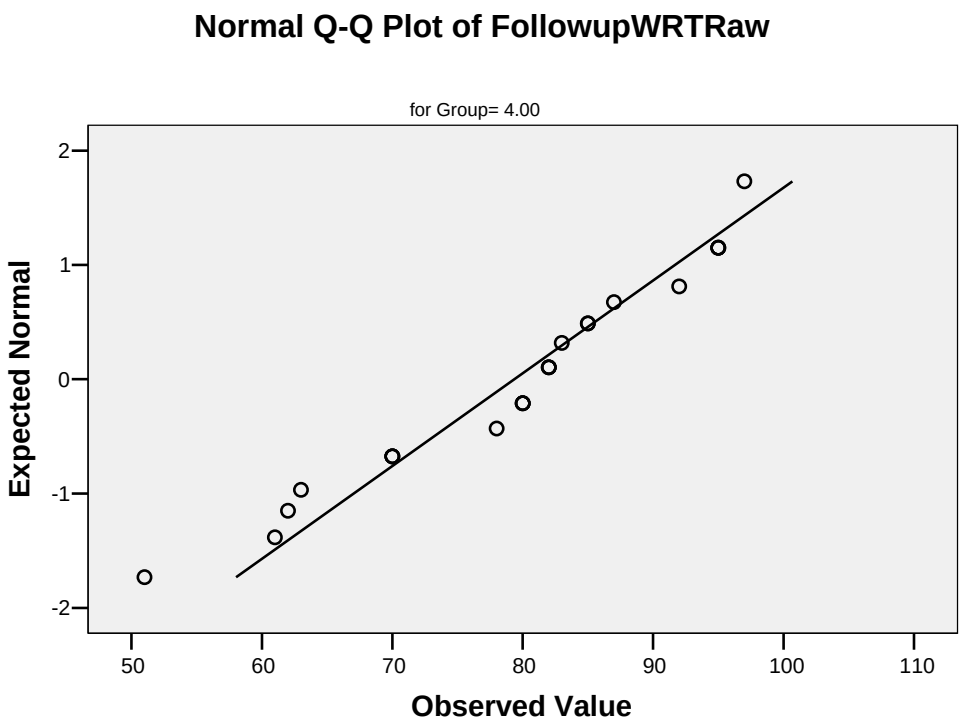

**Normal Q-Q Plot of PostWRTRaw**




Histogram
for Group= 3.00
Frequency
8
6
4
2
0
50.00
60.00
70.00
80.00
90.00
FollowupWRTRaw
Mean = 75.9259
Std. Dev. =
14.38997
N = 27


Normal Q-Q Plot of FollowupWRTRaw
for Group= 3.00
Expected Normal
2
1
0
-1
50
60
70
80
90
100
Observed Value


Histogram
for Group= 4.00
Frequency
10
8
6
4
2
0
50.00
60.00
70.00
80.00
90.00
100.00
FollowupWRTRaw
Mean = 79.3478
Std. Dev. =
12.31632
N = 23


Normal Q-Q Plot of FollowupWRTRaw
for Group= 4.00
Expected Normal
2
1
0
-1
-2
50
60
70
80
90
100
110
Observed Value

**Appendix 4.1.12**

**Statistical Package for the Social Sciences (SPSS) Output for an *Independent groups t-test* comparison of WRT raw-scores (Pre, Mid and Post measures) between groups C and D (cohort 2); *Kolmogorov-Smirnov Z* (K-SZ) test comparison of WRT raw-scores (Follow-up measure) between groups C and D (cohort 2)**

## T-Test

**Group Statistics**

| | Group | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PreWRTRaw | 3.00 | 27 | 67.1852 | 11.76382 | 2.26395 |
| | 4.00 | 23 | 71.3913 | 11.74633 | 2.44928 |
| MidWRTRaw | 3.00 | 27 | 69.3333 | 13.06493 | 2.51435 |
| | 4.00 | 23 | 73.0435 | 10.86896 | 2.26634 |
| PostWRTRaw | 3.00 | 27 | 69.7037 | 13.91406 | 2.67776 |
| | 4.00 | 23 | 75.1304 | 13.40727 | 2.79561 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 95% Confidence Interval of the Difference | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| PreWRTRaw | Equal variances assumed | .000 | .997 | -1.261 | 48 | .213 | -4.20612 | 3.33574 | -10.91307 | 2.50083 |
| | Equal variances not assumed | | | -1.261 | 46.766 | .214 | -4.20612 | 3.33533 | -10.91682 | 2.50459 |
| MidWRTRaw | Equal variances assumed | 2.237 | .141 | -1.080 | 48 | .286 | -3.71014 | 3.43567 | -10.61802 | 3.19773 |
| | Equal variances not assumed | | | -1.096 | 47.980 | .279 | -3.71014 | 3.38500 | -10.51621 | 3.09592 |
| PostWRTRaw | Equal variances assumed | .074 | .786 | -1.398 | 48 | .169 | -5.42673 | 3.88290 | -13.23382 | 2.38036 |
| | Equal variances not assumed | | | -1.402 | 47.240 | .168 | -5.42673 | 3.87116 | -13.21345 | 2.35998 |

# Two-Sample Kolmogorov-Smirnov Test

**Frequencies**

| | Group | N |
|---|---|---|
| FollowupWRTRaw | 3.00 | 27 |
| | 4.00 | 23 |
| | Total | 50 |

**Test Statistics[a]**

| | | Followup WRTRaw |
|---|---|---|
| Most Extreme Differences | Absolute | .179 |
| | Positive | .179 |
| | Negative | -.079 |
| Kolmogorov-Smirnov Z | | .630 |
| Asymp. Sig. (2-tailed) | | .822 |
| Exact Sig. (2-tailed) | | .633 |
| Point Probability | | .008 |

a. Grouping Variable: Group

**Appendix 4.1.12.1**

**Statistical Package for the Social Sciences (SPSS) Output for a dependent groups t-test comparison of WRT raw scores (Pre- Mid-measures and Mid-Post-measures) and *Wilcoxon signed-rank* (WS-R) test (Post-Follow-up-measures) within groups C and D (cohort 2)**

## Group C

### T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | PreWIATRaw | 67.1852 | 27 | 11.76382 | 2.26395 |
| | MidWIATRaw | 69.3333 | 27 | 13.06493 | 2.51435 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | PreWIATRaw & MidWIATRaw | 27 | .915 | .000 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | PreWIATRaw - MidWIATRaw | -2.14815 | 5.26749 | 1.01373 | -4.23190 | -.06440 | -2.119 | 26 | .044 |

## T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | MidWIATRaw | 69.3333 | 27 | 13.06493 | 2.51435 |
| | PostWIATRaw | 69.7037 | 27 | 13.91406 | 2.67776 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | MidWIATRaw & PostWIATRaw | 27 | .988 | .000 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | MidWIATRaw - PostWIATRaw | -.37037 | 2.22137 | .42750 | -1.24911 | .50837 | -.866 | 26 | .394 |

# Wilcoxon Signed Ranks Test

**Ranks**

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| FollowupWIATRaw - PostWIATRaw | Negative Ranks | 7[a] | 9.36 | 65.50 |
| | Positive Ranks | 17[b] | 13.79 | 234.50 |
| | Ties | 3[c] | | |
| | Total | 27 | | |

a. FollowupWIATRaw < PostWIATRaw

b. FollowupWIATRaw > PostWIATRaw

c. FollowupWIATRaw = PostWIATRaw

**Test Statistics[b]**

| | Followup WIATRaw - Post WIATRaw |
|---|---|
| Z | -2.417[a] |
| Asymp. Sig. (2-tailed) | .016 |
| Exact Sig. (2-tailed) | .014 |
| Exact Sig. (1-tailed) | .007 |
| Point Probability | .000 |

## Group D

### T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | PreWIATRaw | 71.3913 | 23 | 11.74633 | 2.44928 |
| | MidWIATRaw | 73.0435 | 23 | 10.86896 | 2.26634 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | PreWIATRaw & MidWIATRaw | 23 | .827 | .000 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | PreWIATRaw - MidWIATRaw | -1.65217 | 6.69877 | 1.39679 | -4.54894 | 1.24459 | -1.183 | 22 | .249 |

### T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | MidWIATRaw | 73.0435 | 23 | 10.86896 | 2.26634 |
| | PostWIATRaw | 75.1304 | 23 | 13.40727 | 2.79561 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | MidWIATRaw & PostWIATRaw | 23 | .728 | .000 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | MidWIATRaw - PostWIATRaw | -2.08696 | 9.26338 | 1.93155 | -6.09274 | 1.91883 | -1.080 | 22 | .292 |

# Wilcoxon Signed Ranks Test

**Ranks**

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| FollowupWIATRaw - PostWIATRaw | Negative Ranks | 4[a] | 10.75 | 43.00 |
| | Positive Ranks | 18[b] | 11.67 | 210.00 |
| | Ties | 1[c] | | |
| | Total | 23 | | |

a. FollowupWIATRaw < PostWIATRaw

b. FollowupWIATRaw > PostWIATRaw

c. FollowupWIATRaw = PostWIATRaw

**Test Statistics[b]**

| | Followup WIATRaw - Post WIATRaw |
|---|---|
| Z | -2.715[a] |
| Asymp. Sig. (2-tailed) | .007 |
| Exact Sig. (2-tailed) | .005 |
| Exact Sig. (1-tailed) | .003 |
| Point Probability | .000 |

**Appendix 4.1.13**

**Statistical Package for the Social Sciences (SPSS) Output for tests of normality within groups in cohort 2 across Pre, Mid, Post and Follow-up WRT reading-ages (including Histograms and Q-Q Plots)**

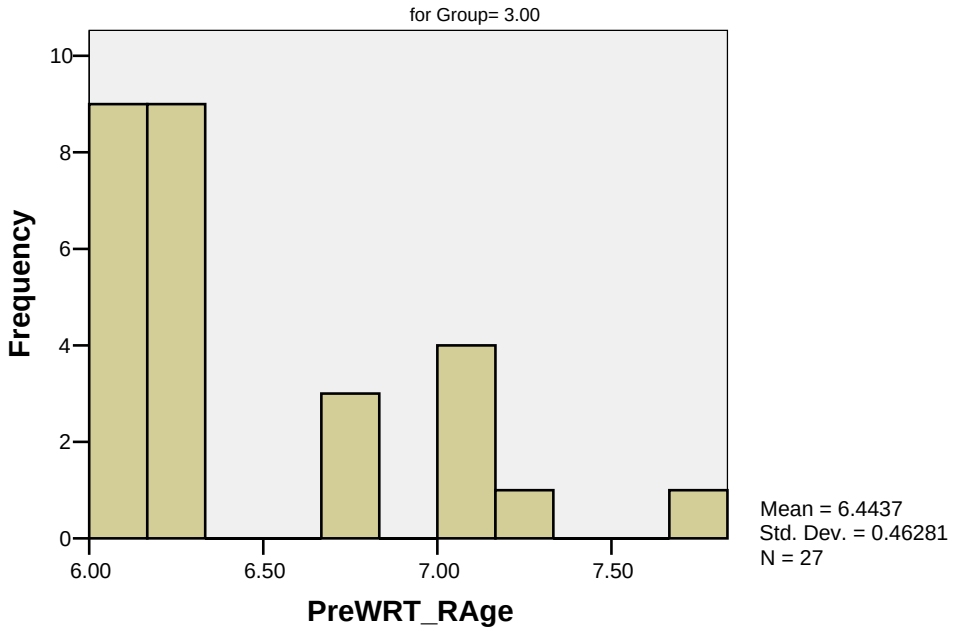
**Tests of Normality**

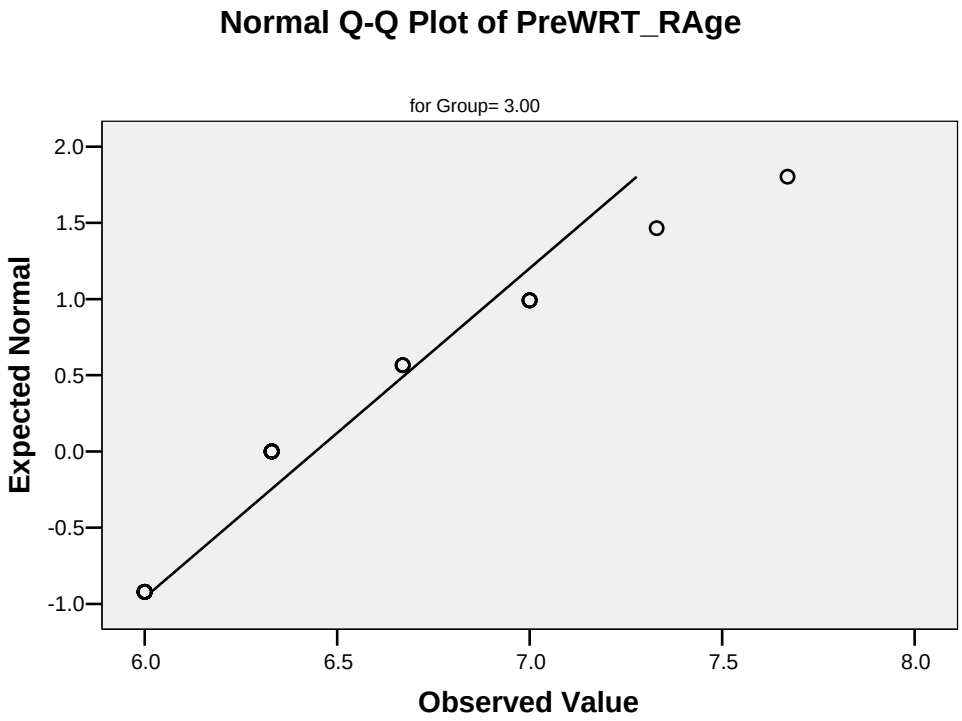
| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Group | Statistic | df | Sig. | Statistic | df | Sig. |
| PreWRT_RAge | 3.00 | .264 | 27 | .000 | .846 | 27 | .001 |
| | 4.00 | .166 | 23 | .100 | .904 | 23 | .030 |
| MidWRT_RAge | 3.00 | .164 | 27 | .060 | .887 | 27 | .007 |
| | 4.00 | .182 | 23 | .046 | .889 | 23 | .015 |
| PostWRT_RAge | 3.00 | .167 | 27 | .050 | .875 | 27 | .004 |
| | 4.00 | .131 | 23 | .200* | .937 | 23 | .157 |
| FollowupWRT_RAge | 3.00 | .172 | 27 | .040 | .894 | 27 | .010 |
| | 4.00 | .269 | 23 | .000 | .867 | 23 | .006 |

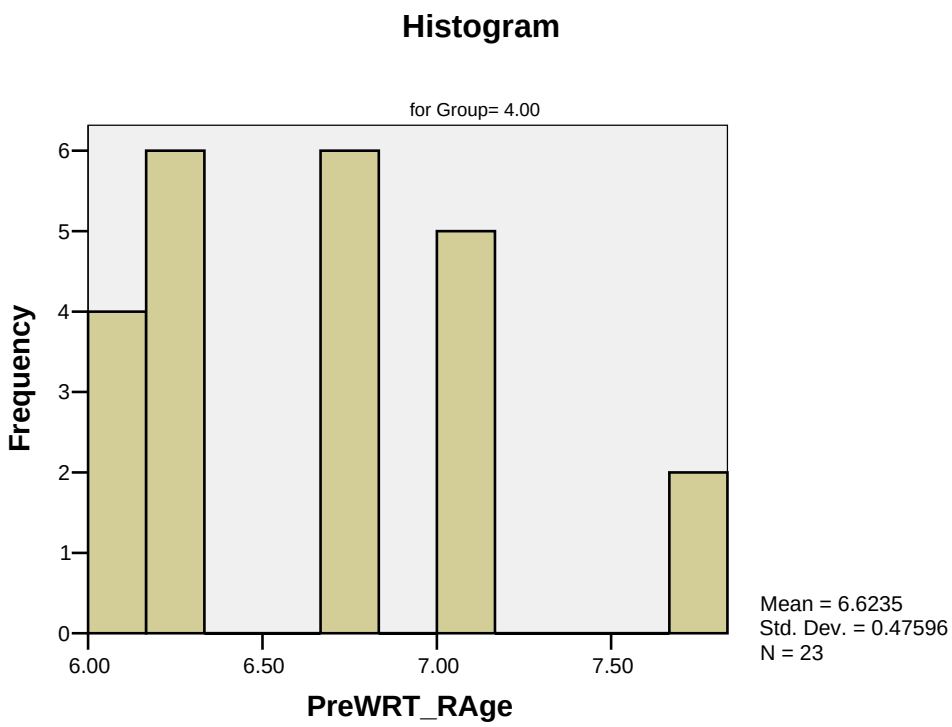
*. This is a lower bound of the true significance.

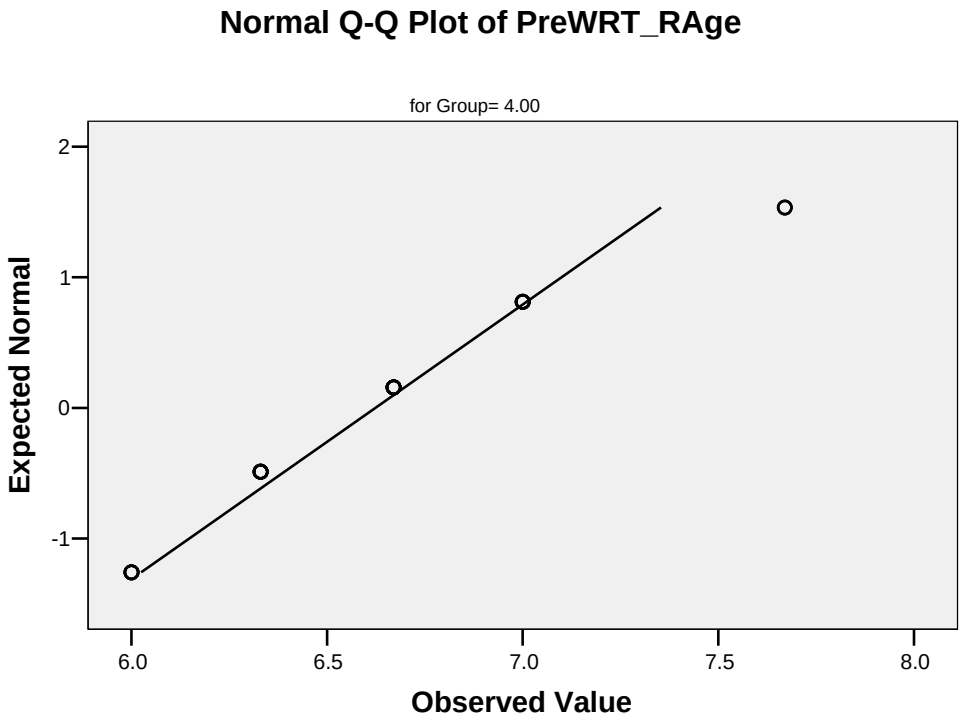
a. Lilliefors Significance Correction

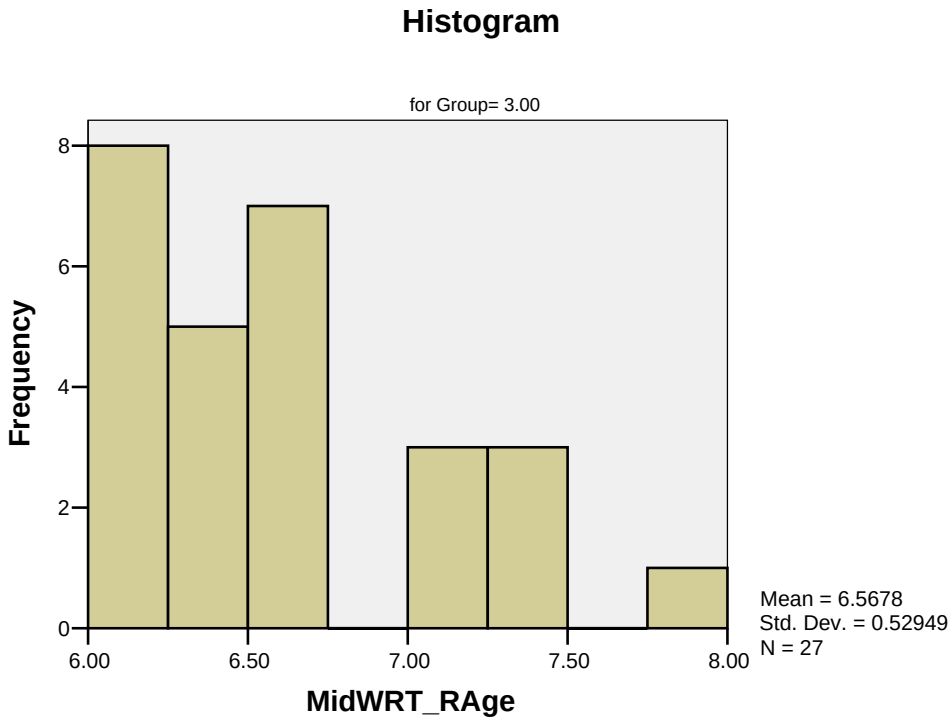
**Histogram**

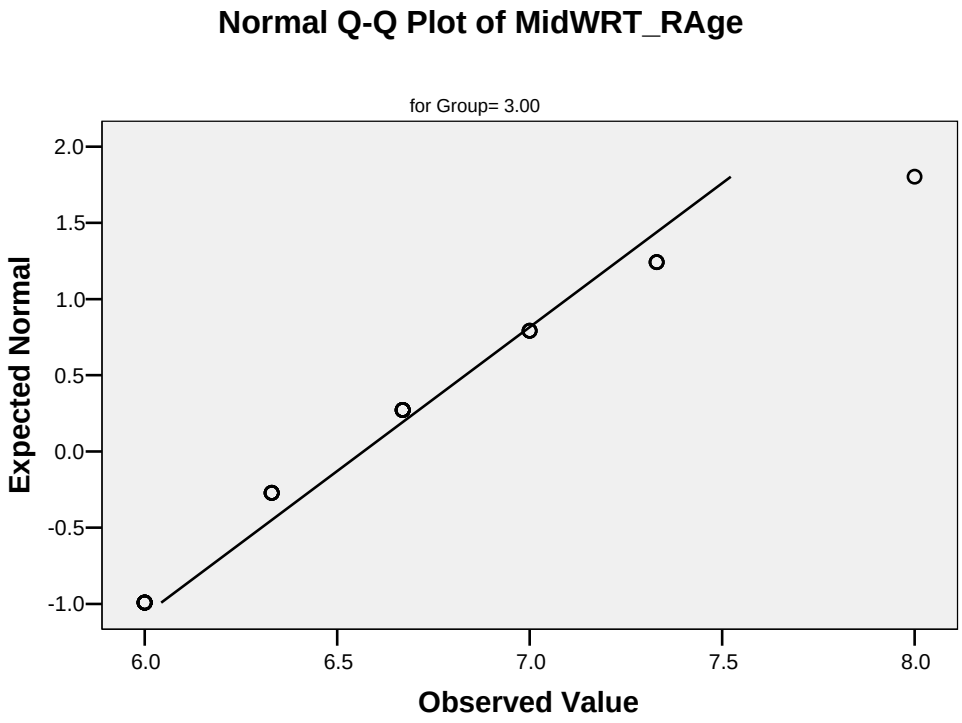


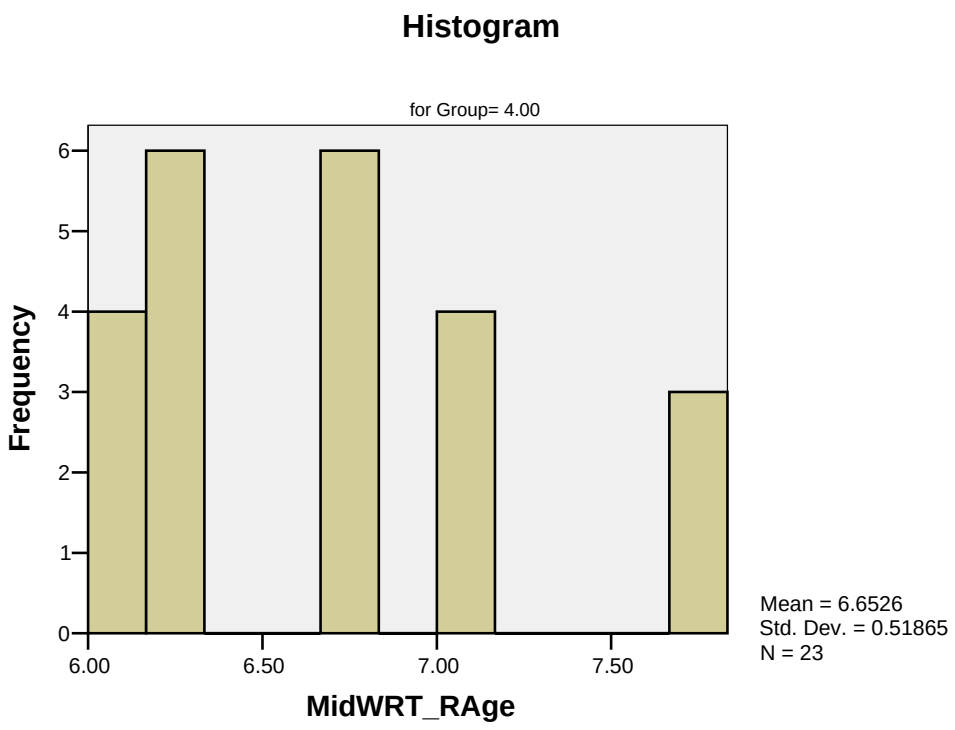

Normal Q-Q Plot of PreWRT_RAge
for Group= 3.00
Expected Normal
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
6.0
6.5
7.0
7.5
8.0
Observed Value

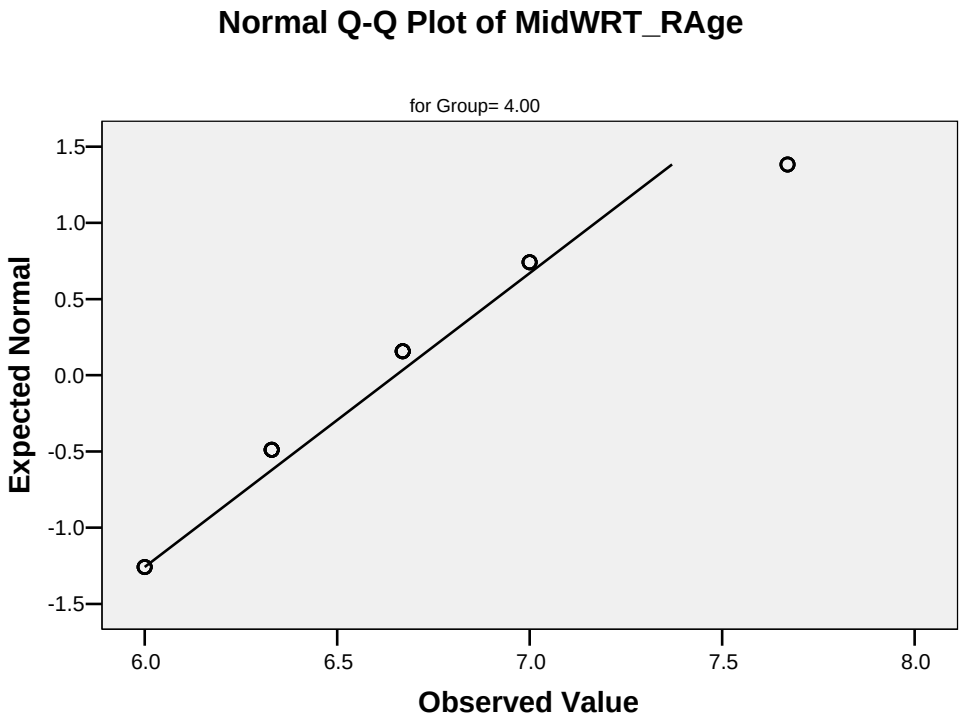

Histogram
for Group= 4.00
Frequency
6
5
4
3
2
1
0
6.00
6.50
7.00
7.50
PreWRT_RAge
Mean = 6.6235
Std. Dev. = 0.47596
N = 23

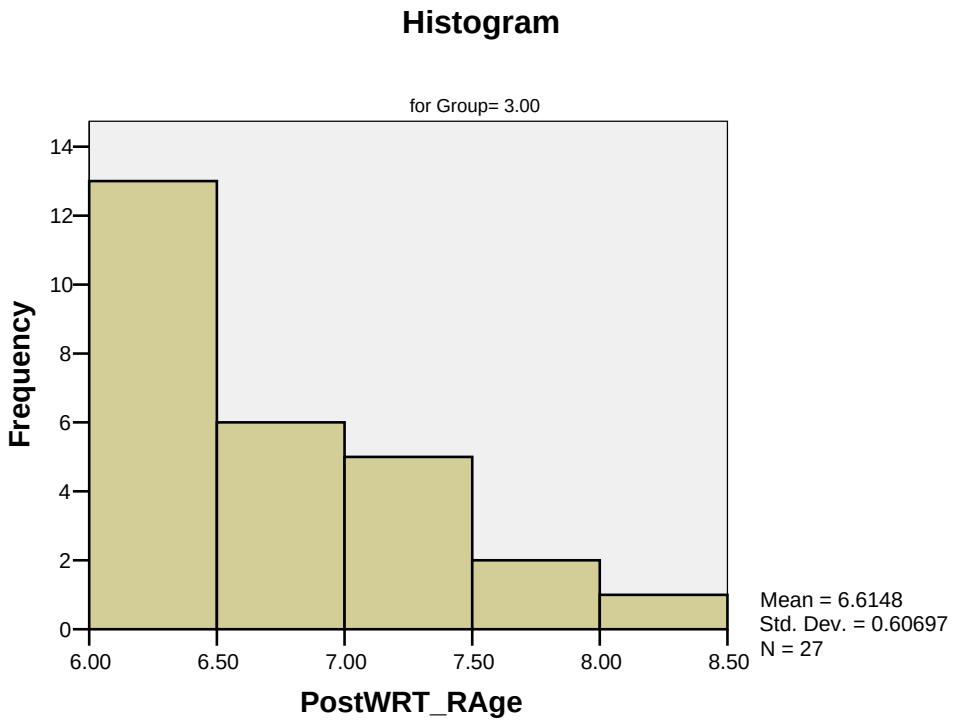

Normal Q-Q Plot of PreWRT_RAge
for Group= 4.00
Expected Normal
2
1
0
-1
6.0
6.5
7.0
7.5
8.0
Observed Value

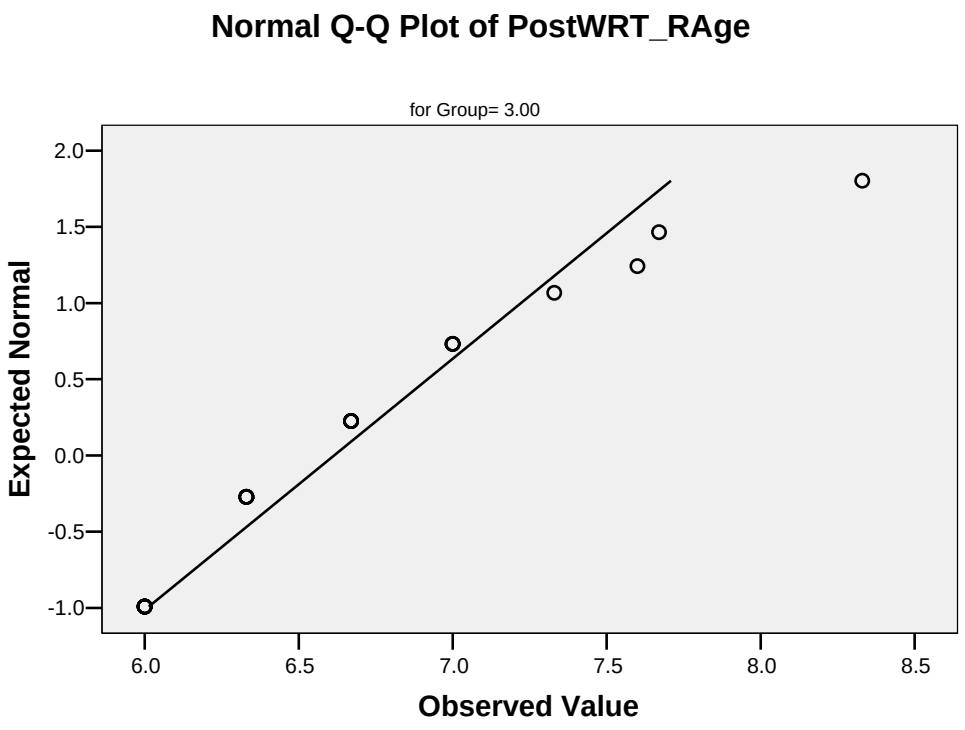

Histogram
for Group= 3.00
Frequency
8
6
4
2
0
6.00
6.50
7.00
7.50
8.00
MidWRT_RAge
Mean = 6.5678
Std. Dev. = 0.52949
N = 27

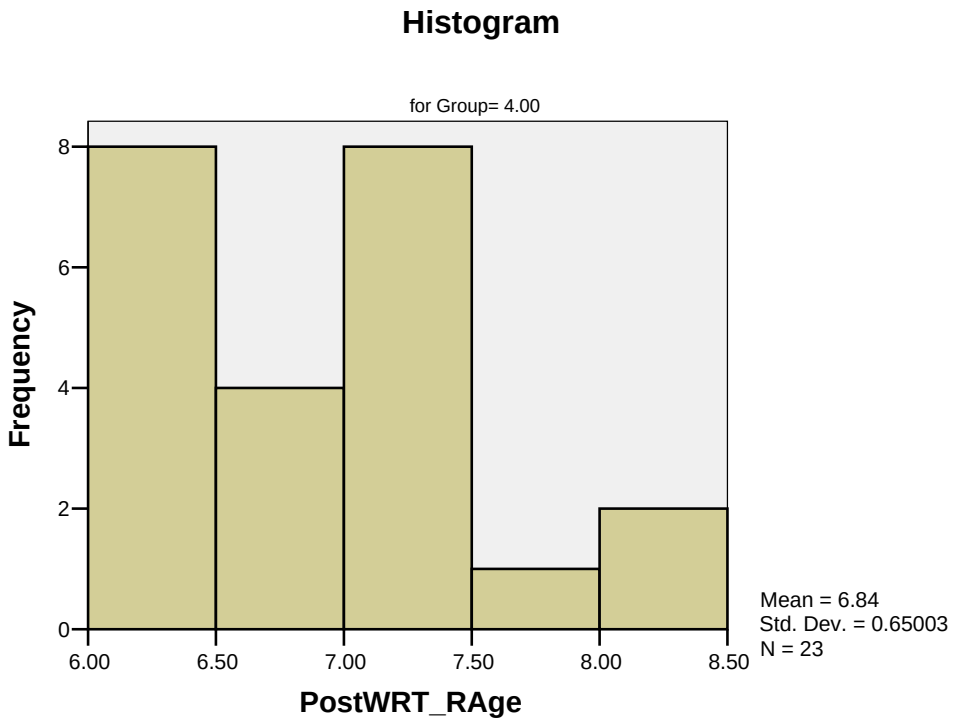

Normal Q-Q Plot of MidWRT_RAge
for Group= 3.00
Expected Normal
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
6.0
6.5
7.0
7.5
8.0
Observed Value

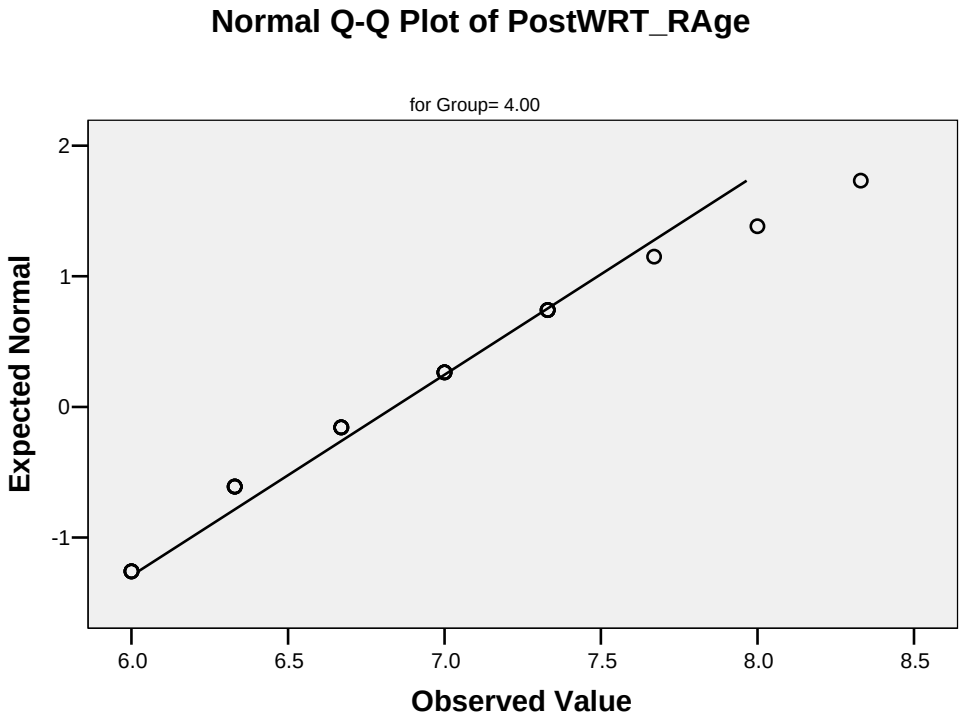

Histogram
for Group= 4.00
Frequency
6
5
4
3
2
1
0
6.00
6.50
7.00
7.50
MidWRT_RAge
Mean = 6.6526
Std. Dev. = 0.51865
N = 23

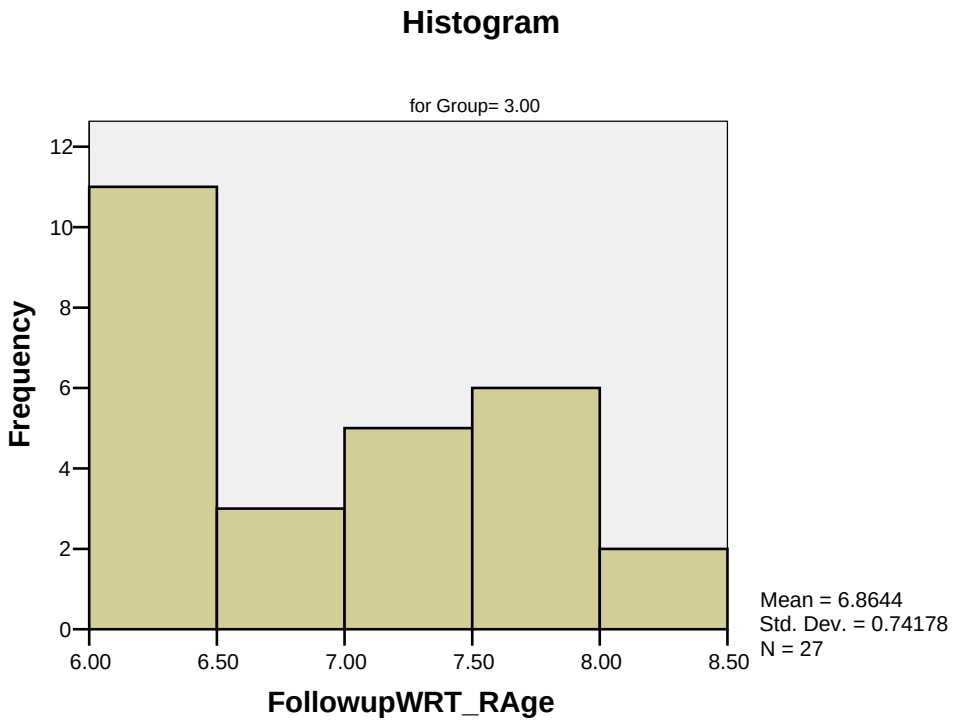

Normal Q-Q Plot of MidWRT_RAge
for Group= 4.00
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
6.0
6.5
7.0
7.5
8.0
Observed Value

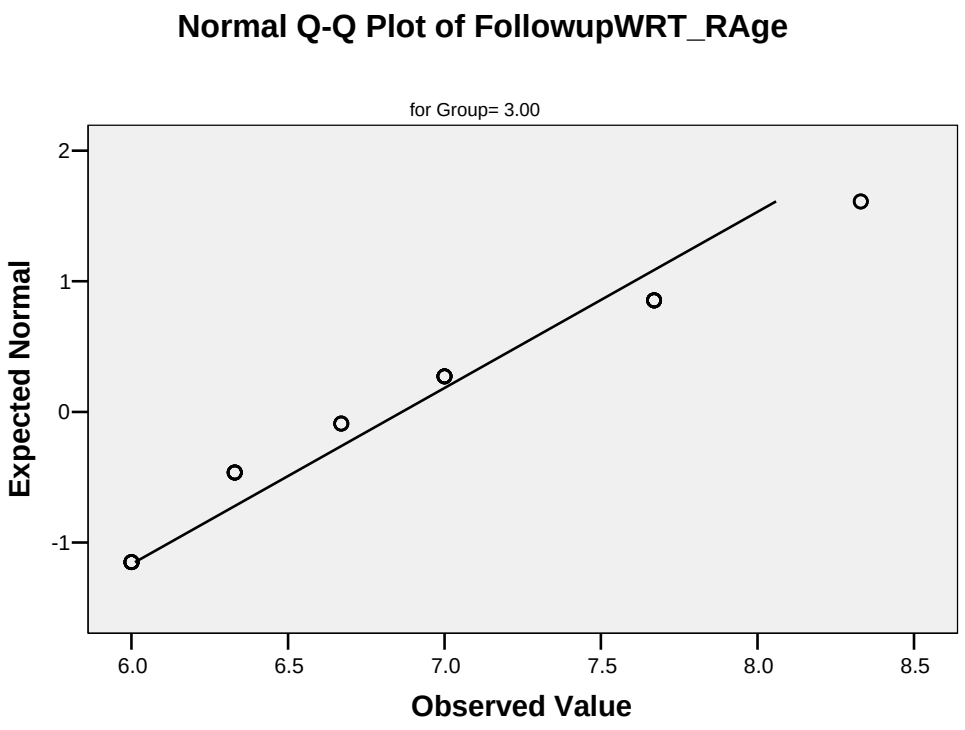

Histogram
for Group= 3.00
Frequency
14
12
10
8
6
4
2
0
6.00
6.50
7.00
7.50
8.00
8.50
PostWRT_RAge
Mean = 6.6148
Std. Dev. = 0.60697
N = 27

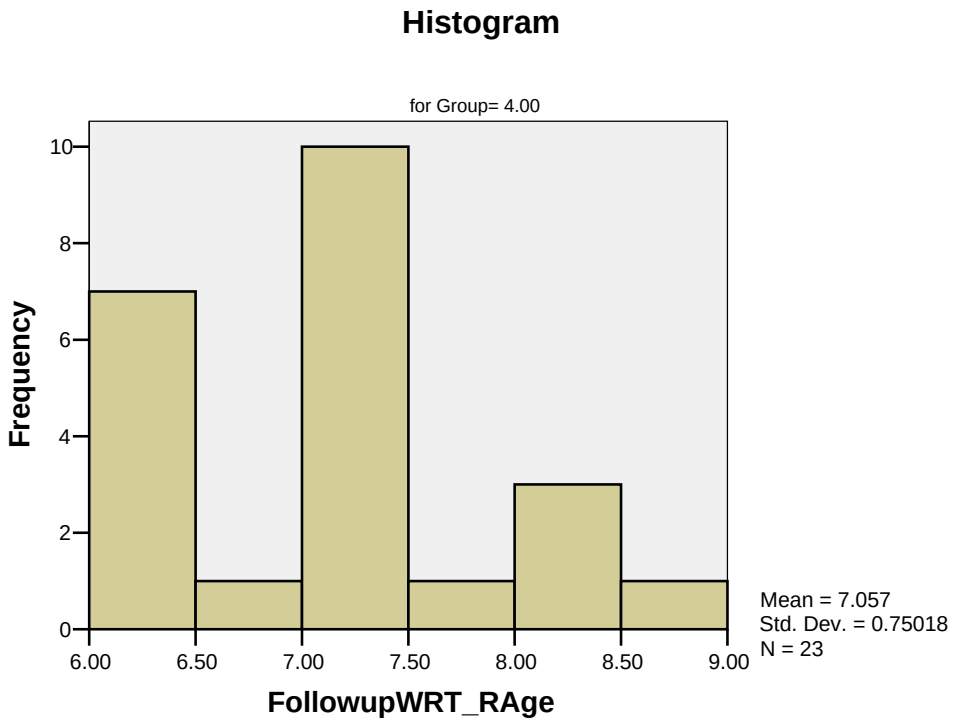

Normal Q-Q Plot of PostWRT_RAge
for Group= 3.00
Expected Normal
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
6.0
6.5
7.0
7.5
8.0
8.5
Observed Value

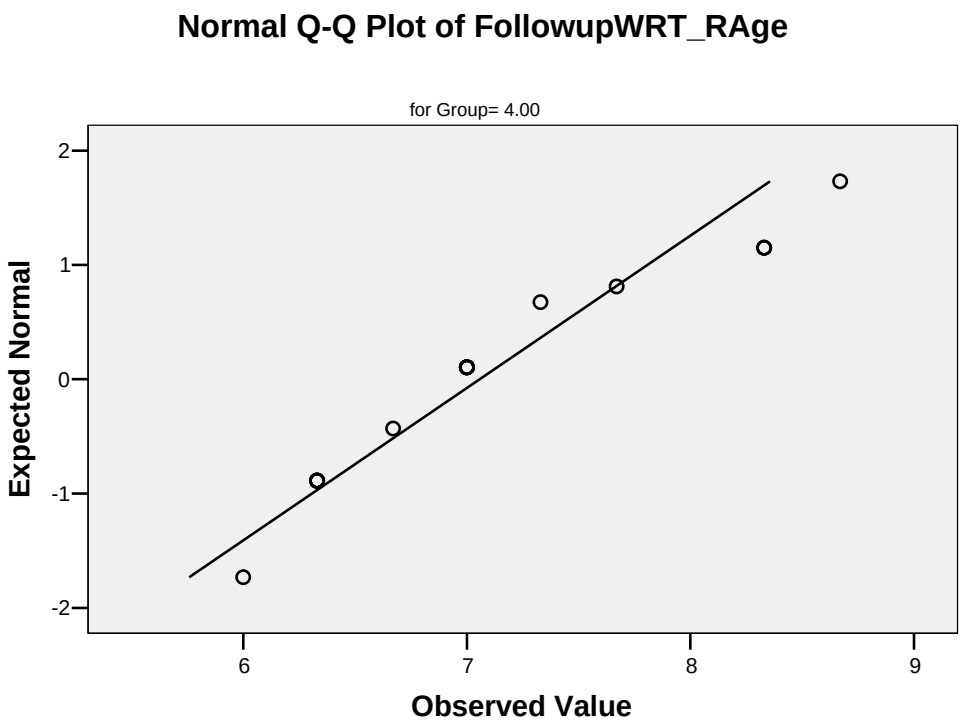

Histogram
for Group= 4.00
Frequency
8
6
4
2
0
6.00
6.50
7.00
7.50
8.00
8.50
PostWRT_RAge
Mean = 6.84
Std. Dev. = 0.65003
N = 23


Normal Q-Q Plot of PostWRT_RAge
for Group= 4.00
Expected Normal
2
1
0
-1
6.0
6.5
7.0
7.5
8.0
8.5
Observed Value


Histogram
for Group= 3.00
Frequency
12
10
8
6
4
2
0
6.00
6.50
7.00
7.50
8.00
8.50
FollowupWRT_RAge
Mean = 6.8644
Std. Dev. = 0.74178
N = 27


Normal Q-Q Plot of FollowupWRT_RAge
for Group= 3.00
Expected Normal
2
1
0
-1
6.0
6.5
7.0
7.5
8.0
8.5
Observed Value


Histogram
for Group= 4.00
Frequency
10
8
6
4
2
0
6.00
6.50
7.00
7.50
8.00
8.50
9.00
FollowupWRT_RAge
Mean = 7.057
Std. Dev. = 0.75018
N = 23


Normal Q-Q Plot of FollowupWRT_RAge
for Group= 4.00
Expected Normal
2
1
0
-1
-2
6
7
8
9
Observed Value

**Appendix 4.1.14**

**Statistical Package for the Social Sciences (SPSS) Output for a *Kolmogorov-Smirnov* Z (K-SZ) test comparison of WRT reading-ages (Pre, Mid, Post and Follow-up measures) between groups C and D (cohort 2).**

## Two-Sample Kolmogorov-Smirnov Test

**Frequencies**

| | Group | N |
|---|---|---|
| PreWRT_RAge | 3.00 | 27 |
| | 4.00 | 23 |
| | Total | 50 |
| MidWRT_RAge | 3.00 | 27 |
| | 4.00 | 23 |
| | Total | 50 |
| PostWRT_RAge | 3.00 | 27 |
| | 4.00 | 23 |
| | Total | 50 |
| FollowupWRT_RAge | 3.00 | 27 |
| | 4.00 | 23 |
| | Total | 50 |

**Test Statistics[a]**

| | | PreWRT_ RAge | MidWRT_ RAge | PostWRT_ RAge | Followup WRT_RAge |
|---|---|---|---|---|---|
| Most Extreme Differences | Absolute | .232 | .122 | .182 | .179 |
| | Positive | .232 | .122 | .182 | .179 |
| | Negative | .000 | -.037 | .000 | -.079 |
| Kolmogorov-Smirnov Z | | .817 | .431 | .641 | .630 |
| Asymp. Sig. (2-tailed) | | .516 | .992 | .805 | .822 |
| Exact Sig. (2-tailed) | | .270 | .736 | .491 | .471 |
| Point Probability | | .038 | .046 | .050 | .028 |

a. Grouping Variable: Group

**Appendix 4.1.14.1**

**Statistical Package for the Social Sciences (SPSS) Output for a *Wilcoxon signed-rank* (WS-R) test comparison of WRT reading-ages (Pre- Mid-measures, Mid-Post-measures and Post-Follow-up-measures) within groups C and D (cohort 2)**

**Group C**

## Wilcoxon Signed Ranks Test

**Ranks**

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| MidWIAT_RAge - PreWIAT_RAge | Negative Ranks | 2[a] | 4.75 | 9.50 |
| | Positive Ranks | 9[b] | 6.28 | 56.50 |
| | Ties | 16[c] | | |
| | Total | 27 | | |

a. MidWIAT_RAge < PreWIAT_RAge

b. MidWIAT_RAge > PreWIAT_RAge

c. MidWIAT_RAge = PreWIAT_RAge

**Test Statistics[b]**

| | MidWIAT_RAge - PreWIAT_RAge |
|---|---|
| Z | -2.121[a] |
| Asymp. Sig. (2-tailed) | .034 |
| Exact Sig. (2-tailed) | .039 |
| Exact Sig. (1-tailed) | .020 |
| Point Probability | .010 |

# Wilcoxon Signed Ranks Test

**Ranks**

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| FollowupWIAT_RAge - PostWIAT_RAge | Negative Ranks | 6[a] | 6.00 | 36.00 |
| | Positive Ranks | 10[b] | 10.00 | 100.00 |
| | Ties | 11[c] | | |
| | Total | 27 | | |

a. FollowupWIAT_RAge < PostWIAT_RAge

b. FollowupWIAT_RAge > PostWIAT_RAge

c. FollowupWIAT_RAge = PostWIAT_RAge

**Test Statistics[b]**

| | Followup WIAT_RAge - PostWIAT_ RAge |
|---|---|
| Z | -1.663[a] |
| Asymp. Sig. (2-tailed) | .096 |
| Exact Sig. (2-tailed) | .102 |
| Exact Sig. (1-tailed) | .051 |
| Point Probability | .005 |

**Group D**

## Wilcoxon Signed Ranks Test

**Ranks**

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| MidWIAT_RAge - PreWIAT_RAge | Negative Ranks | 4[a] | 2.75 | 11.00 |
| | Positive Ranks | 3[b] | 5.67 | 17.00 |
| | Ties | 16[c] | | |
| | Total | 23 | | |

a. MidWIAT_RAge < PreWIAT_RAge

b. MidWIAT_RAge > PreWIAT_RAge

c. MidWIAT_RAge = PreWIAT_RAge

**Test Statistics[b]**

| | MidWIAT_RAge - PreWIAT_RAge |
|---|---|
| Z | -.512[a] |
| Asymp. Sig. (2-tailed) | .609 |
| Exact Sig. (2-tailed) | .656 |
| Exact Sig. (1-tailed) | .328 |
| Point Probability | .047 |

# Wilcoxon Signed Ranks Test

**Ranks**

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| FollowupWIAT_RAge - PostWIAT_RAge | Negative Ranks | 3[a] | 9.33 | 28.00 |
| | Positive Ranks | 13[b] | 8.31 | 108.00 |
| | Ties | 7[c] | | |
| | Total | 23 | | |

a. FollowupWIAT_RAge < PostWIAT_RAge

b. FollowupWIAT_RAge > PostWIAT_RAge

c. FollowupWIAT_RAge = PostWIAT_RAge

**Test Statistics[b]**

| | Followup WIAT_RAge - PostWIAT_ RAge |
|---|---|
| Z | -2.091[a] |
| Asymp. Sig. (2-tailed) | .037 |
| Exact Sig. (2-tailed) | .036 |
| Exact Sig. (1-tailed) | .018 |
| Point Probability | .002 |

**Appendix 4.1.15**

**Individual data for students on Pre, Mid, and Post measures from the MALS assessments**

| Participant (student) number | School | School Type | Cohort | Group | Age | Sex | Pre-MALS | Mid-MALS | Post-MALS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 2 | 1 | 1 | 11:06 | 1 | 48 | 48 | 38 |
| 2 | 2 | 2 | 1 | 1 | 11:05 | 1 | 59 | 50 | 61 |
| 3 | 2 | 2 | 1 | 1 | 12:06 | 1 | 61 | 61 | 65 |
| 4 | 2 | 2 | 1 | 1 | 15:06 | 1 | 44 | 48 | 52 |
| 5 | 2 | 2 | 1 | 2 | 16:02 | 1 | 63 | 55 | 57 |
| 6 | 2 | 2 | 1 | 2 | 14:02 | **1** | 62 | 69 | 75 |
| 9 | 5 | 1 | 1 | 1 | 13:11 | 2 | 53 | 63 | 57 |
| 10 | 5 | 1 | 1 | 1 | 13:03 | 1 | 30 | 38 | 41 |
| 12 | 5 | 1 | 1 | 2 | 11:05 | 1 | 54 | 66 | 67 |
| 13 | 5 | 1 | 1 | 2 | 15:08 | 1 | 74 | 69 | 75 |
| 14 | 5 | 1 | 1 | 2 | 15:04 | 2 | 74 | 66 | 70 |
| 15 | 1 | 1 | 1 | 1 | 13:10 | 2 | 70 | 67 | 87 |
| 16 | 1 | 1 | 1 | 1 | 14:09 | 1 | 53 | 47 | 90 |
| 17 | 1 | 1 | 1 | 1 | 12:05 | 2 | 49 | 46 | 71 |
| 18 | 1 | 1 | 1 | 2 | 12:07 | 1 | 46 | 48 | 44 |
| 19 | 1 | 1 | 1 | 2 | 15:08 | 1 | 54 | 43 | 89 |
| 20 | 1 | 1 | 1 | 2 | 15:06 | 1 | 69 | 84 | 75 |
| 21 | 3 | 2 | 1 | 1 | 15:01 | 2 | 55 | 64 | 52 |
| 22 | 3 | 2 | 1 | 1 | 11:06 | 2 | 75 | 75 | 85 |
| 23 | 3 | 2 | 1 | 1 | 14:01 | 2 | 67 | 62 | 52 |
| 24 | 3 | 2 | 1 | 2 | 13:11 | 2 | 68 | 64 | 65 |
| 25 | 3 | 2 | 1 | 2 | 12:06 | 2 | 62 | 66 | 60 |
| 26 | 3 | 2 | 1 | 2 | 13:06 | 1 | 69 | 66 | 67 |
| 28 | 4 | 1 | 1 | 1 | 14:06 | 2 | 79 | 64 | 70 |
| 29 | 4 | 1 | 1 | 1 | 13:09 | 2 | 60 | 41 | 54 |
| 30 | 4 | 1 | 1 | 2 | 11:11 | 1 | 47 | 61 | 63 |
| 31 | 4 | 1 | 1 | 2 | 14:06 | 1 | 52 | 55 | 53 |
| 33 | 1 | 1 | 2 | 3 | 11:09 | 1 | 59 | 55 | 56 |
| 34 | 1 | 1 | 2 | 3 | 12:01 | 1 | 65 | 66 | 67 |
| 35 | 1 | 1 | 2 | 3 | 14:03 | 1 | 73 | 82 | 76 |
| 36 | 1 | 1 | 2 | 4 | 12:03 | 1 | 56 | 57 | 54 |
| 37 | 1 | 1 | 2 | 4 | 12:02 | 1 | 50 | 63 | 61 |
| 38 | 1 | 1 | 2 | 4 | 11:05 | 2 | 58 | 69 | 63 |
| 39 | 2 | 2 | 2 | 3 | 12:10 | 1 | 62 | 89 | 89 |
| 40 | 2 | 2 | 2 | 3 | 12:01 | 1 | 67 | 61 | 61 |
| 41 | 2 | 2 | 2 | 3 | 11:05 | 1 | 62 | 65 | 76 |
| 42 | 2 | 2 | 2 | 3 | 15:08 | 2 | 57 | 79 | 89 |
| 43 | 2 | 2 | 2 | 4 | 15:04 | 1 | 38 | 63 | 47 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 44 | 2 | 2 | 2 | 3 | 13:10 | 2 | 52 | 57 | 59 |
| 45 | 2 | 2 | 2 | 3 | 14:09 | 1 | 61 | 64 | 77 |
| 46 | 2 | 2 | 2 | 4 | 12:05 | 2 | 75 | 67 | 79 |
| 47 | 3 | 2 | 2 | 3 | 12:07 | 1 | 54 | 53 | 53 |
| 48 | 3 | 2 | 2 | 3 | 15:08 | 2 | 48 | 53 | 58 |
| 49 | 3 | 2 | 2 | 3 | 15:06 | 1 | 62 | 61 | 58 |
| 50 | 3 | 2 | 2 | 3 | 15:01 | 1 | 62 | 71 | 73 |
| 51 | 3 | 2 | 2 | 3 | 14:06 | 2 | 65 | 69 | 58 |
| 52 | 3 | 2 | 2 | 3 | 14:01 | 1 | 76 | 77 | 72 |
| 53 | 3 | 2 | 2 | 3 | 13:11 | 2 | 42 | 52 | 50 |
| 54 | 3 | 2 | 2 | 3 | 12:06 | 1 | 59 | 64 | 76 |
| 55 | 3 | 2 | 2 | 3 | 11:06 | 1 | 64 | 87 | 89 |
| 56 | 3 | 2 | 2 | 3 | 11:05 | 1 | 70 | 80 | 86 |
| 57 | 3 | 2 | 2 | 3 | 12:06 | 2 | 63 | 71 | 67 |
| 58 | 3 | 2 | 2 | 3 | 15:06 | 1 | 59 | 55 | 69 |
| 59 | 3 | 2 | 2 | 3 | 16:02 | 1 | 63 | 67 | 75 |
| 60 | 3 | 2 | 2 | 4 | 14:02 | 1 | 61 | 46 | 87 |
| 61 | 3 | 2 | 2 | 4 | 13:11 | 2 | 72 | 80 | 70 |
| 62 | 3 | 2 | 2 | 4 | 13:03 | 2 | 67 | 64 | 79 |
| 63 | 3 | 2 | 2 | 4 | 13:01 | 1 | 92 | 86 | 94 |
| 64 | 3 | 2 | 2 | 4 | 16:01 | 1 | 58 | 77 | 71 |
| 65 | 3 | 2 | 2 | 4 | 16:00 | 1 | 71 | 71 | 94 |
| 66 | 3 | 2 | 2 | 4 | 15:01 | 1 | 80 | 68 | 70 |
| 67 | 3 | 2 | 2 | 4 | 14:04 | 1 | 65 | 64 | 69 |
| 68 | 3 | 2 | 2 | 4 | 12:07 | 1 | 85 | 79 | 94 |
| 69 | 3 | 2 | 2 | 4 | 12:01 | 1 | 82 | 78 | 86 |
| 70 | 3 | 2 | 2 | 4 | 11:05 | 1 | 90 | 68 | 100 |
| 71 | 3 | 2 | 2 | 4 | 14:01 | 1 | 51 | 48 | 56 |
| 72 | 3 | 2 | 2 | 4 | 12:10 | 1 | 81 | 81 | 78 |
| 73 | 4 | 1 | 2 | 3 | 13:08 | 1 | 42 | 51 | 39 |
| 74 | 4 | 1 | 2 | 3 | 13:07 | 2 | 60 | 62 | 48 |
| 75 | 4 | 1 | 2 | 4 | 11:06 | 1 | 45 | 37 | 40 |
| 76 | 4 | 1 | 2 | 4 | 11:04 | 1 | 52 | 53 | 47 |
| 77 | 4 | 1 | 2 | 4 | 11:08 | 1 | 36 | 22 | 34 |
| 78 | 5 | 1 | 2 | 3 | 12:10 | 2 | 84 | 86 | 71 |
| 79 | 5 | 1 | 2 | 3 | 13:00 | 2 | 61 | 71 | 69 |
| 80 | 5 | 1 | 2 | 3 | 15:01 | 1 | 38 | 86 | 97 |
| 81 | 5 | 1 | 2 | 4 | 12:06 | 1 | 49 | 53 | 61 |
| 82 | 5 | 1 | 2 | 4 | 13:03 | 1 | 97 | 97 | 97 |

**Notes to table above**

**Note 1:** School Type codes - 1 denotes mainstream school; 2 denotes Special school.
**Note 2**: Group codes - 1 is group A; 2 is group B; 3 is group C; 4 is group D.

**Note 3:** Sex codes – 1 denotes male participant; 2 denotes female.
**Note 4:** Cells shaded yellow denotes Cohort 1. Cells shaded green denotes Cohort 2.
**Note 5:** Maximum MALS score is 100, minimum is 20.

| **MALS Assessment dates** | |
|---|---|
| Cohort 1 Pre-MALS | Sep-07 |
| Cohort 1 Mid-MALS | Oct or Nov-07 |
| Cohort 1 Post-MALS | Dec-07 |
| Cohort 2 Pre-MALS | Jan-08 |
| Cohort 2 Mid-MALS | Feb-08 |
| Cohort 2 Post-MALS | Apr-08 |

**Appendix 4.1.16**

**Statistical Package for the Social Sciences (SPSS) Output for tests of normality within groups for cohort 1 across Pre, Mid and Post measures for MALS assessments (including Histograms and Q-Q Plots)**

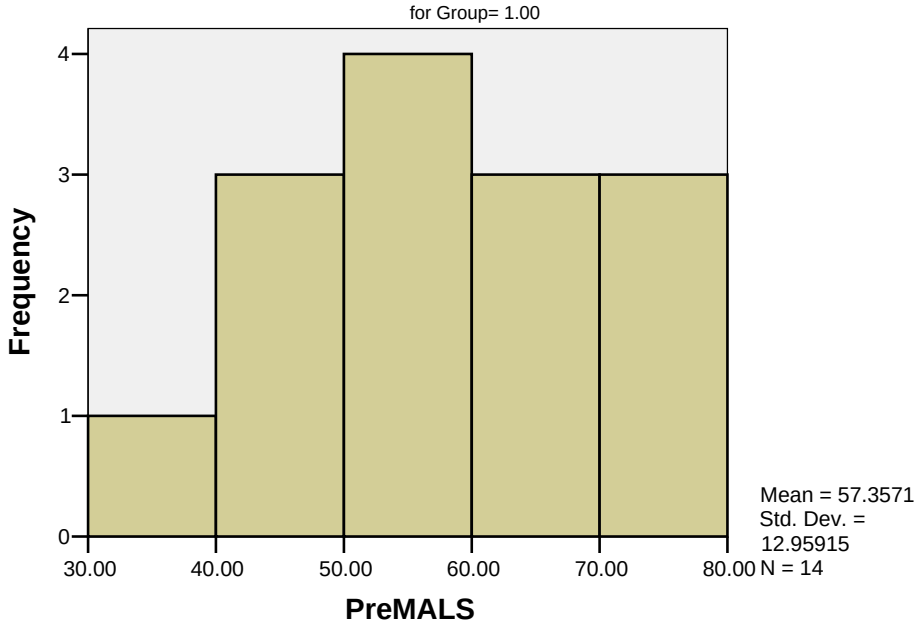
**Tests of Normality**

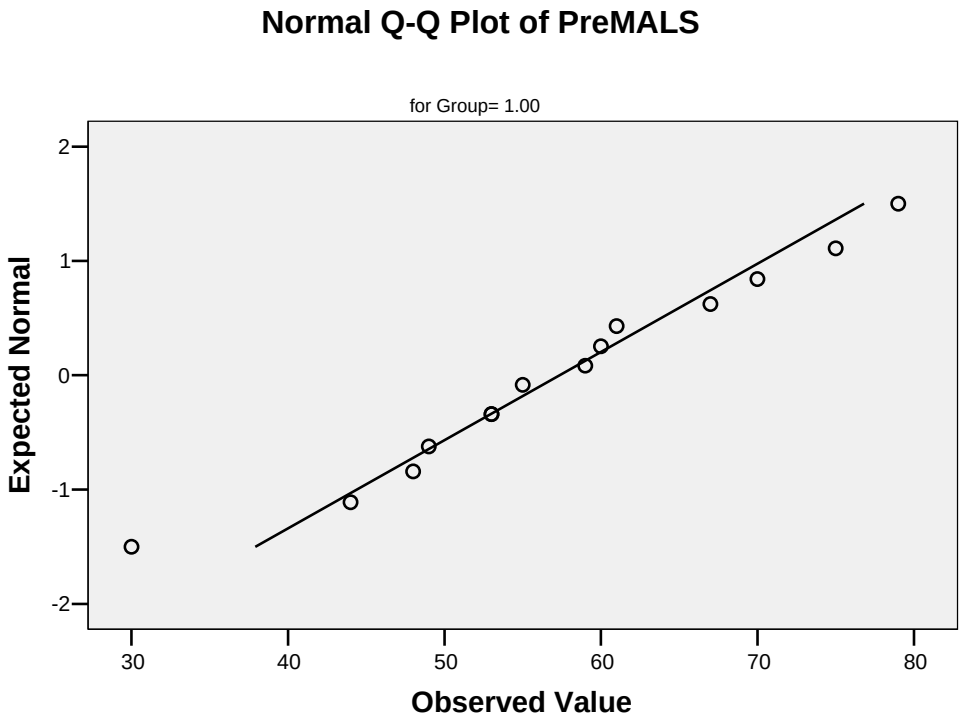
| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Group | Statistic | df | Sig. | Statistic | df | Sig. |
| PreMALS | 1.00 | .104 | 14 | .200* | .980 | 14 | .977 |
| | 2.00 | .153 | 13 | .200* | .927 | 13 | .313 |
| MidMALS | 1.00 | .196 | 14 | .149 | .932 | 14 | .322 |
| | 2.00 | .188 | 13 | .200* | .933 | 13 | .369 |
| PostMALS | 1.00 | .131 | 14 | .200* | .937 | 14 | .384 |
| | 2.00 | .143 | 13 | .200* | .979 | 13 | .976 |

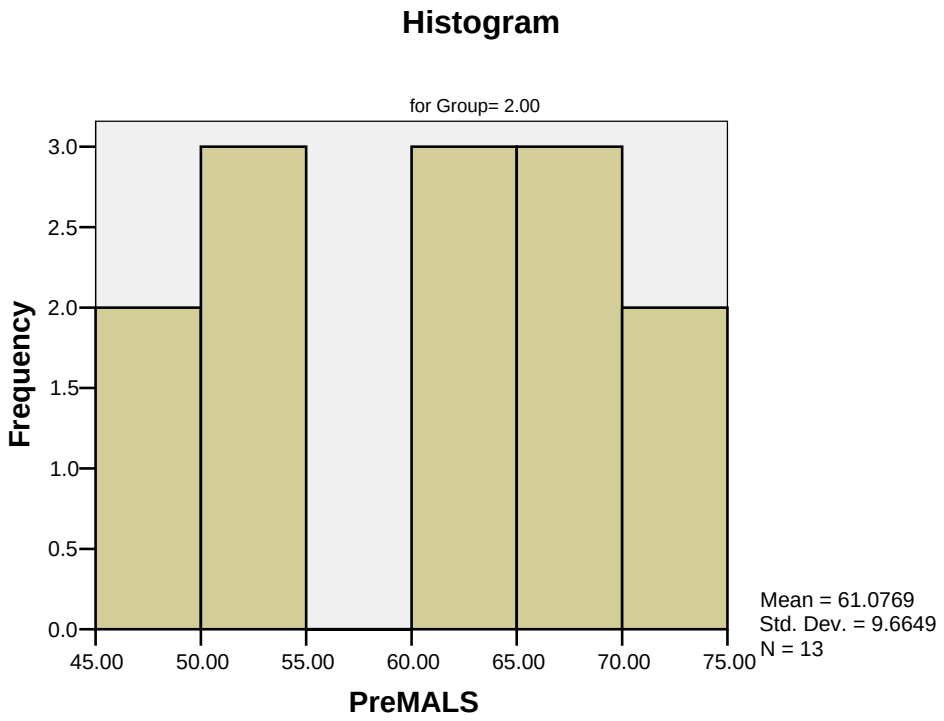
*. This is a lower bound of the true significance.

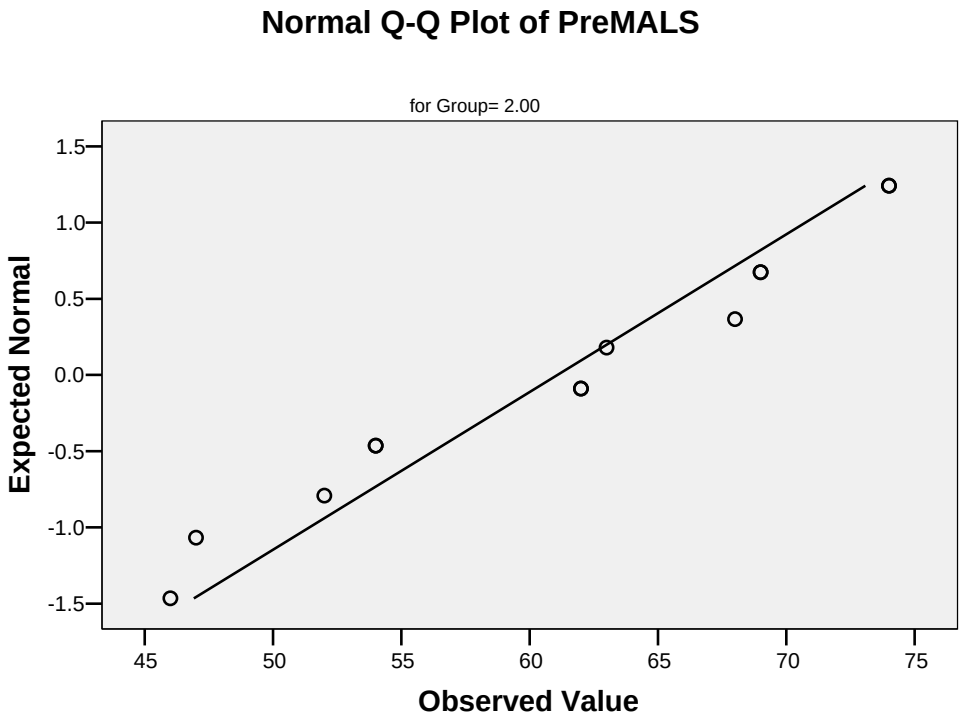
a. Lilliefors Significance Correction

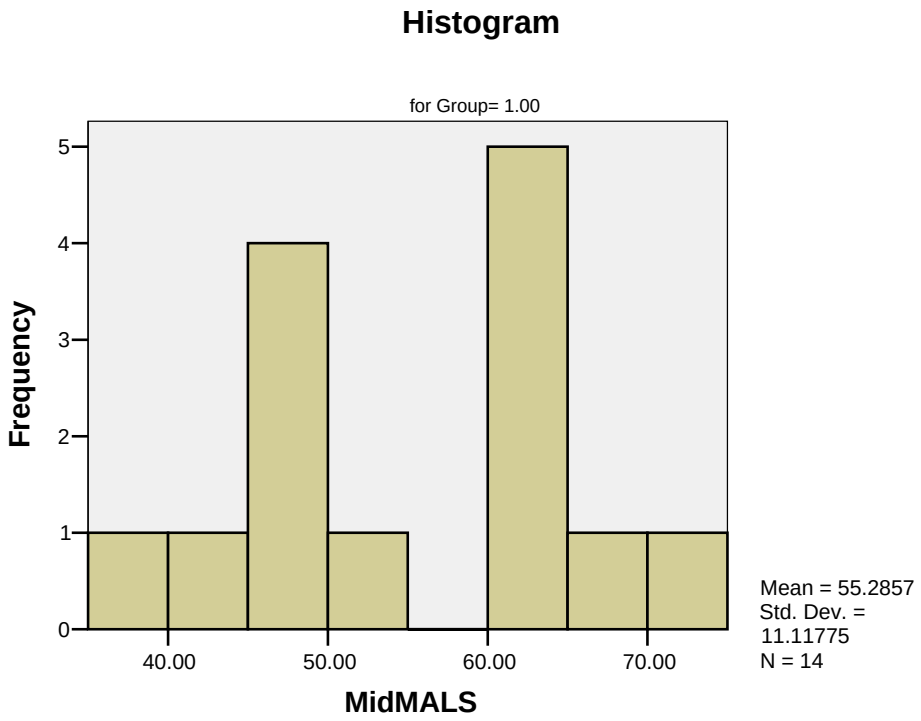
**Histogram**



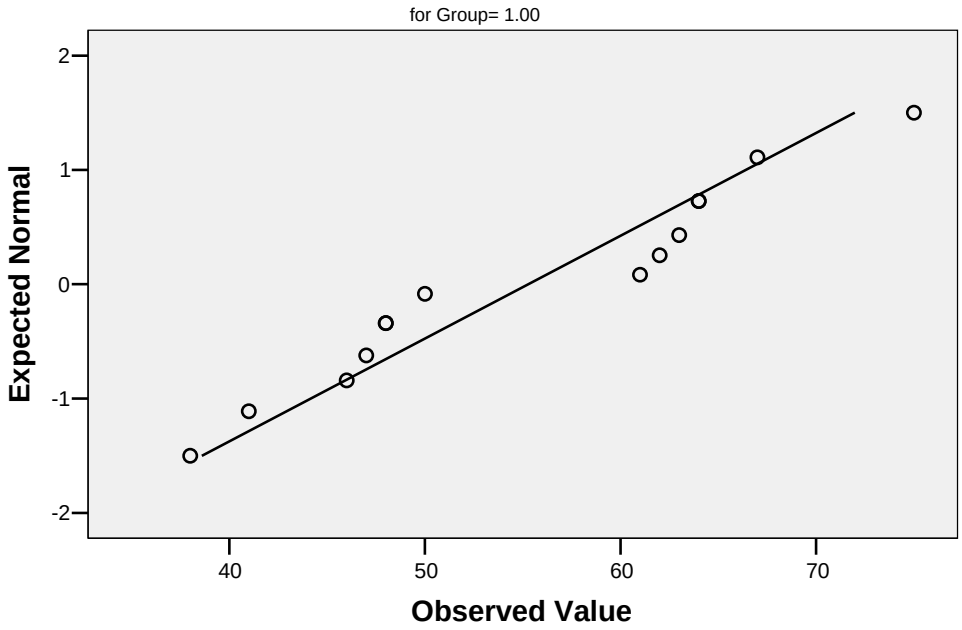

Normal Q-Q Plot of PreMALS
for Group= 1.00
Expected Normal
2
1
0
-1
-2
30
40
50
60
70
80
Observed Value


Histogram
for Group= 2.00
Frequency
3.0
2.5
2.0
1.5
1.0
0.5
0.0
45.00
50.00
55.00
60.00
65.00
70.00
75.00
PreMALS
Mean = 61.0769
Std. Dev. = 9.6649
N = 13

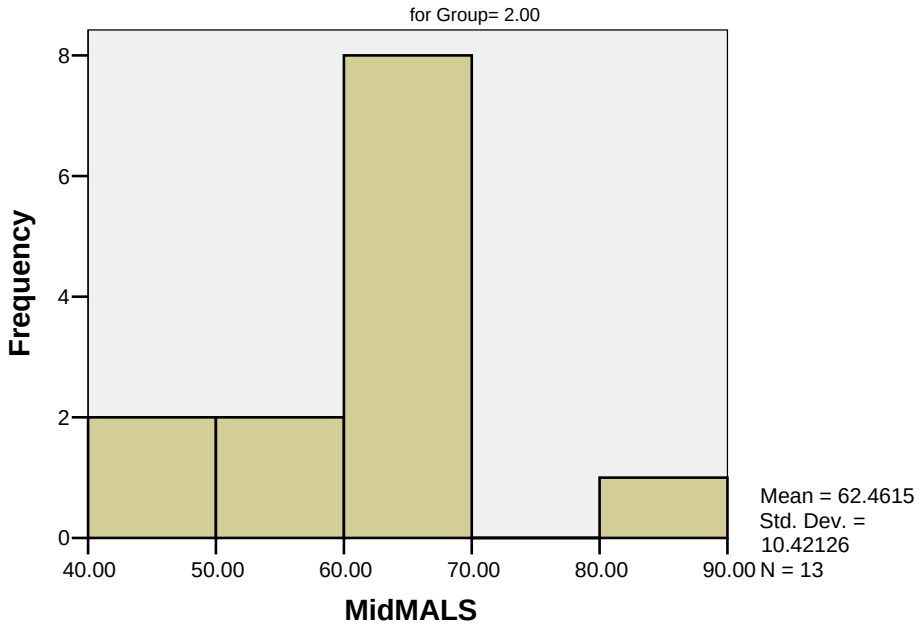

Normal Q-Q Plot of PreMALS
for Group= 2.00
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
45
50
55
60
65
70
75
Observed Value

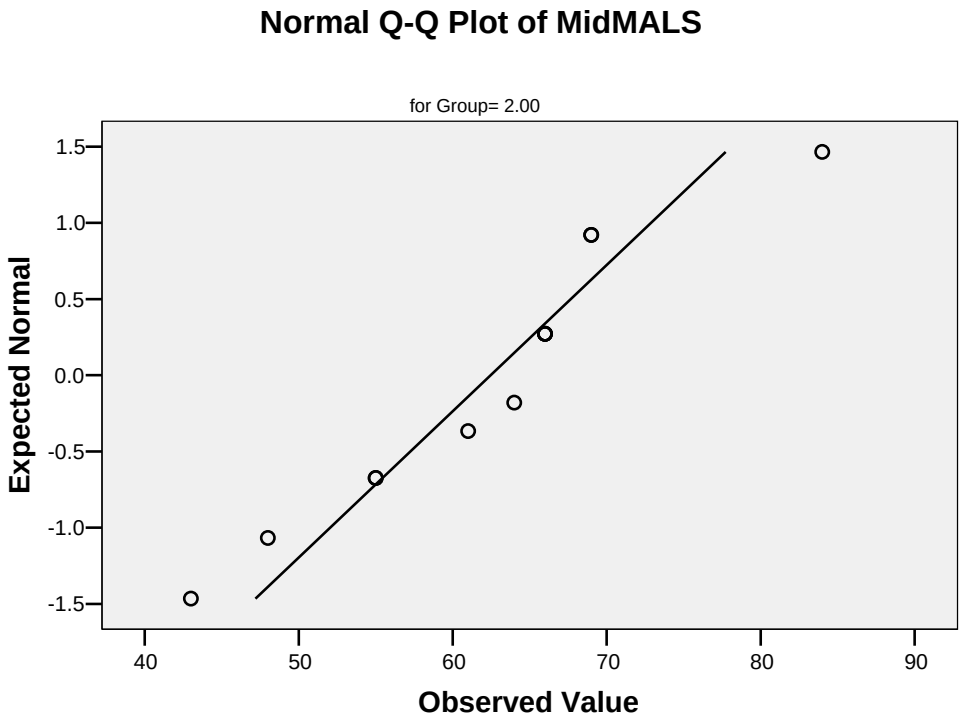

Histogram
for Group= 1.00
Frequency
5
4
3
2
1
0
40.00
50.00
60.00
70.00
MidMALS
Mean = 55.2857
Std. Dev. =
11.11775
N = 14

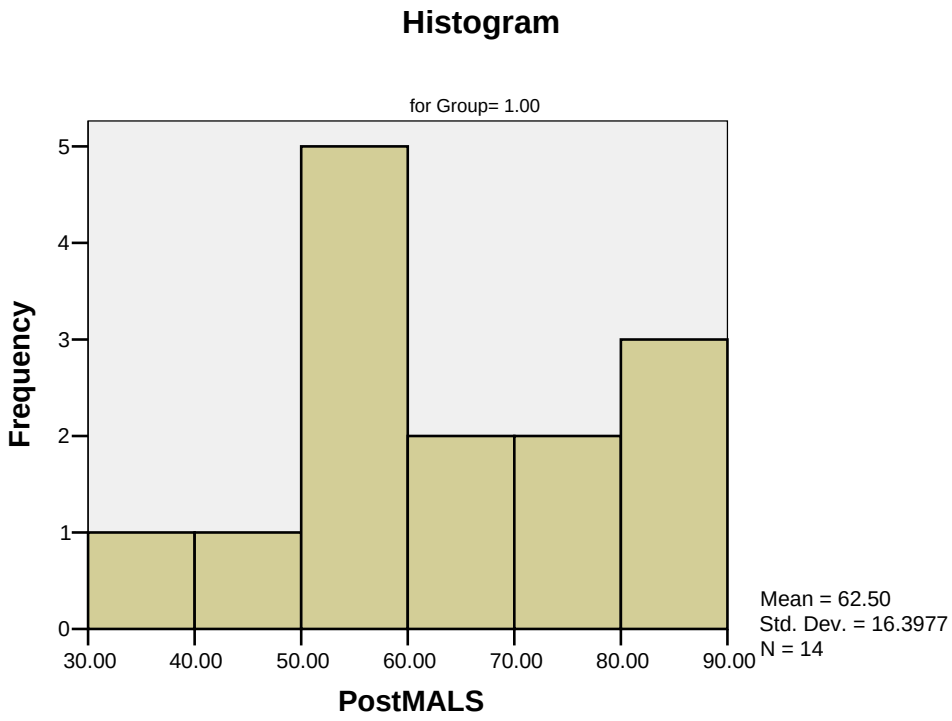
**Normal Q-Q Plot of MidMALS**

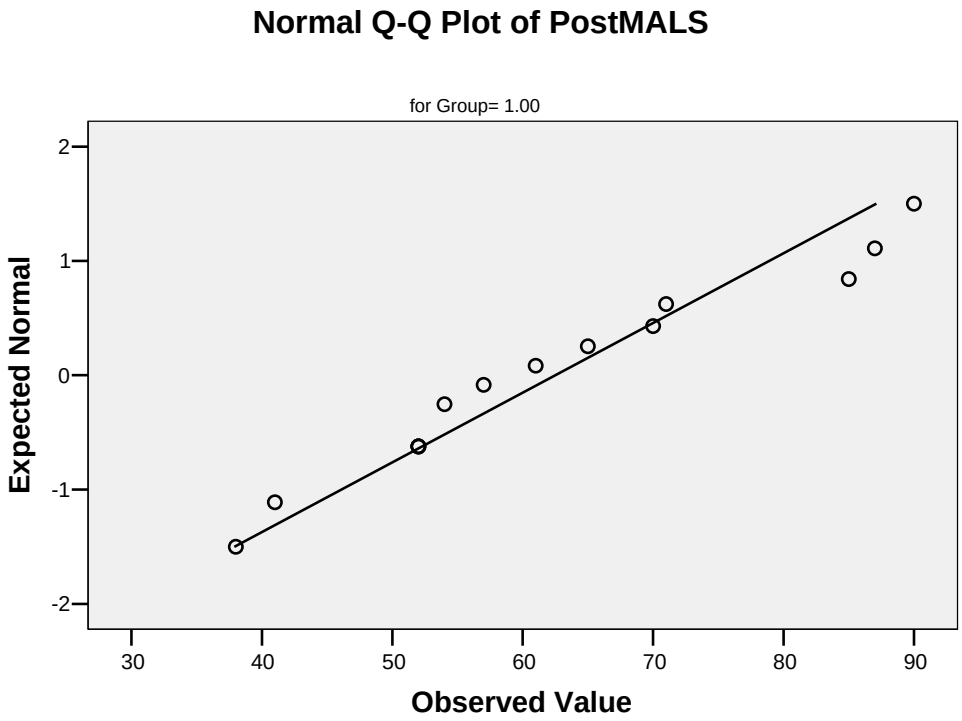


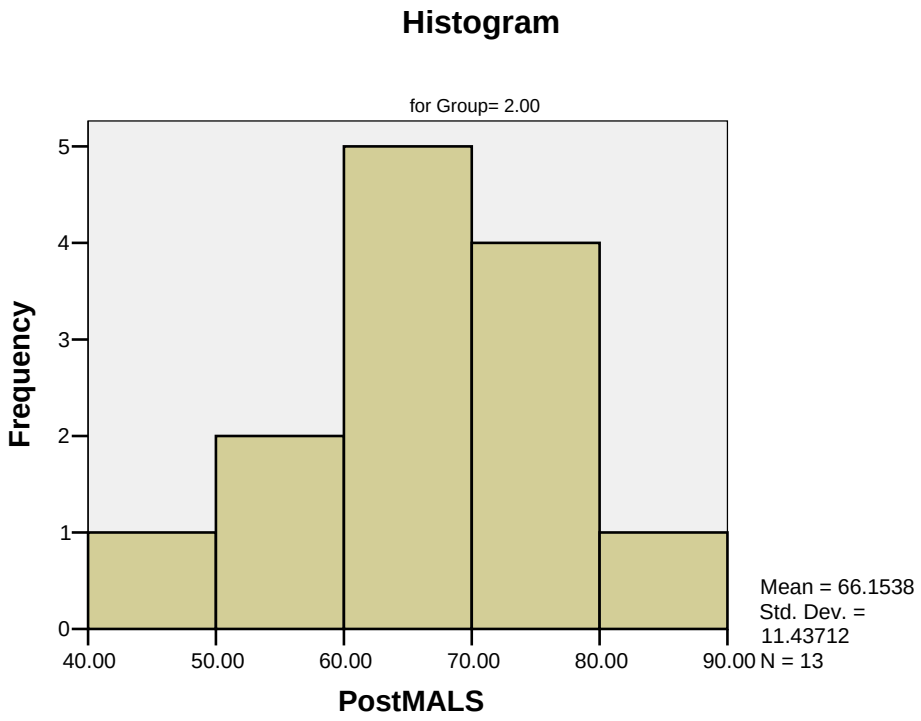

**Histogram**

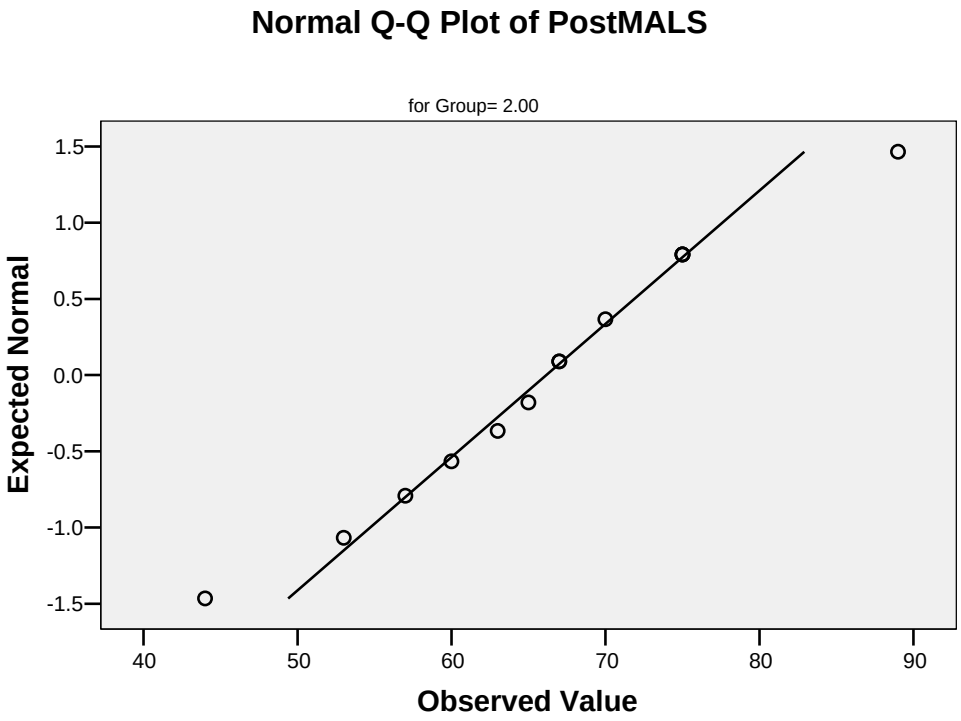



Normal Q-Q Plot of MidMALS
for Group= 2.00
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
40
50
60
70
80
90
Observed Value


Histogram
for Group= 1.00
Frequency
5
4
3
2
1
0
30.00
40.00
50.00
60.00
70.00
80.00
90.00
PostMALS
Mean = 62.50
Std. Dev. = 16.3977
N = 14


Normal Q-Q Plot of PostMALS
for Group= 1.00
Expected Normal
Observed Value
2
1
0
-1
-2
30
40
50
60
70
80
90


Histogram
for Group= 2.00
Frequency
PostMALS
5
4
3
2
1
0
40.00
50.00
60.00
70.00
80.00
90.00
Mean = 66.1538
Std. Dev. =
11.43712
N = 13


Normal Q-Q Plot of PostMALS
for Group= 2.00
Expected Normal
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
40
50
60
70
80
90
Observed Value

**Appendix 4.1.17**

**Statistical Package for the Social Sciences (SPSS) Output for an *Independent groups t-test* comparison of MALS scores (Pre, Mid and Post) between groups A and B (cohort 2).**

## T-Test

**Group Statistics**

| | Group | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PreMALS | 1.00 | 14 | 57.3571 | 12.95915 | 3.46348 |
| | 2.00 | 13 | 61.0769 | 9.66490 | 2.68056 |
| MidMALS | 1.00 | 14 | 55.2857 | 11.11775 | 2.97134 |
| | 2.00 | 13 | 62.4615 | 10.42126 | 2.89034 |
| PostMALS | 1.00 | 14 | 62.5000 | 16.39770 | 4.38247 |
| | 2.00 | 13 | 66.1538 | 11.43712 | 3.17209 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 95% Confidence Interval of the Difference | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| PreMALS | Equal variances assumed | .545 | .467 | -.840 | 25 | .409 | -3.71978 | 4.42798 | -12.83937 | 5.39981 |
| | Equal variances not assumed | | | -.849 | 23.935 | .404 | -3.71978 | 4.37962 | -12.76018 | 5.32062 |
| MidMALS | Equal variances assumed | .980 | .332 | -1.727 | 25 | .097 | -7.17582 | 4.15556 | -15.73435 | 1.38271 |
| | Equal variances not assumed | | | -1.731 | 24.996 | .096 | -7.17582 | 4.14523 | -15.71315 | 1.36150 |
| PostMALS | Equal variances assumed | 2.366 | .137 | -.666 | 25 | .511 | -3.65385 | 5.48244 | -14.94515 | 7.63746 |
| | Equal variances not assumed | | | -.675 | 23.270 | .506 | -3.65385 | 5.41001 | -14.83811 | 7.53042 |

**Appendix 4.1.17.1**

**Statistical Package for the Social Sciences (SPSS) Output for a dependent groups t-test comparison of MALS scores (Pre- Mid-measures, Mid-Post-measures and Pre-Post measures) within groups A and B (cohort 1)**

## Group A

### T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | PreMALS | 57.3571 | 14 | 12.95915 | 3.46348 |
| | MidMALS | 55.2857 | 14 | 11.11775 | 2.97134 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | PreMALS & MidMALS | 14 | .759 | .002 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |
| Pair 1 | PreMALS - MidMALS | 2.07143 | 8.53467 | 2.28099 | -2.85635 | 6.99920 | .908 | 13 | .380 |

### T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | MidMALS | 55.2857 | 14 | 11.11775 | 2.97134 |
| | PostMALS | 62.5000 | 14 | 16.39770 | 4.38247 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | MidMALS & PostMALS | 14 | .445 | .111 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |
| Pair 1 | MidMALS - PostMALS | -7.21429 | 15.17173 | 4.05481 | -15.97418 | 1.54561 | -1.779 | 13 | .099 |

## T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | PreMALS | 57.3571 | 14 | 12.95915 | 3.46348 |
| | PostMALS | 62.5000 | 14 | 16.39770 | 4.38247 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | PreMALS & PostMALS | 14 | .567 | .034 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | PreMALS - PostMALS | -5.14286 | 13.98822 | 3.73851 | -13.21942 | 2.93370 | -1.376 | 13 | .192 |

# Group B

## T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | PreMALS | 61.0769 | 13 | 9.66490 | 2.68056 |
| | MidMALS | 62.4615 | 13 | 10.42126 | 2.89034 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | PreMALS & MidMALS | 13 | .623 | .023 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | PreMALS - MidMALS | -1.38462 | 8.74203 | 2.42460 | -6.66737 | 3.89814 | -.571 | 12 | .578 |

## T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | MidMALS | 62.4615 | 13 | 10.42126 | 2.89034 |
| | PostMALS | 66.1538 | 13 | 11.43712 | 3.17209 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | MidMALS & PostMALS | 13 | .244 | .422 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | MidMALS - PostMALS | -3.69231 | 13.46220 | 3.73374 | -11.82743 | 4.44282 | -.989 | 12 | .342 |

## T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | PreMALS | 61.0769 | 13 | 9.66490 | 2.68056 |
| | PostMALS | 66.1538 | 13 | 11.43712 | 3.17209 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | PreMALS & PostMALS | 13 | .413 | .161 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | PreMALS - PostMALS | -5.07692 | 11.52867 | 3.19748 | -12.04363 | 1.88978 | -1.588 | 12 | .138 |

**Appendix 4.1.18**

**Statistical Package for the Social Sciences (SPSS) Output for tests of normality within groups for cohort 2 across Pre, Mid and Post measures for MALS assessments (including Histograms and Q-Q Plots)**

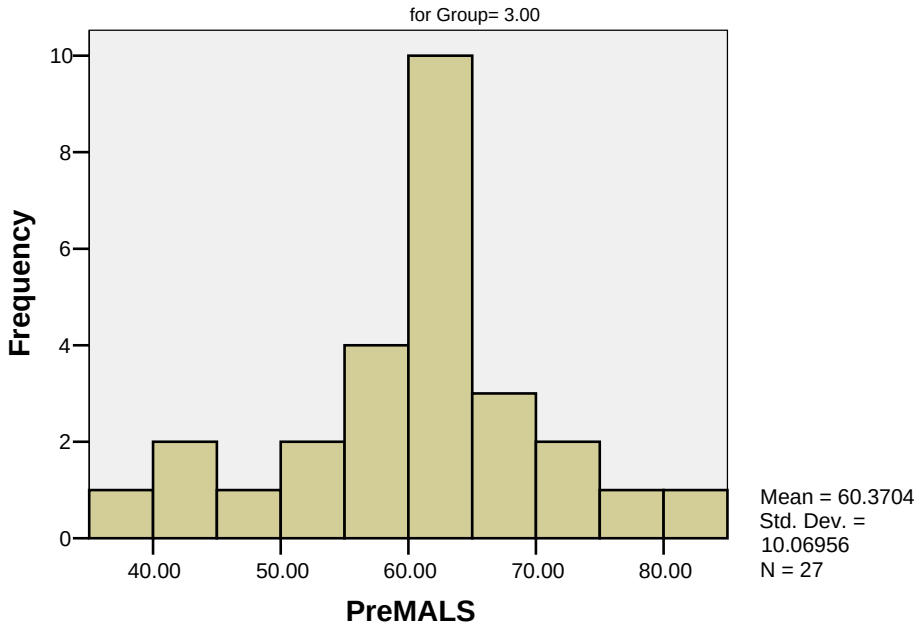
**Tests of Normality**

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Group | Statistic | df | Sig. | Statistic | df | Sig. |
| PreMALS | 3.00 | .187 | 27 | .017 | .943 | 27 | .145 |
| | 4.00 | .105 | 23 | .200* | .970 | 23 | .690 |
| MidMALS | 3.00 | .101 | 27 | .200* | .938 | 27 | .111 |
| | 4.00 | .152 | 23 | .180 | .970 | 23 | .694 |
| PostMALS | 3.00 | .096 | 27 | .200* | .979 | 27 | .847 |
| | 4.00 | .104 | 23 | .200* | .962 | 23 | .502 |

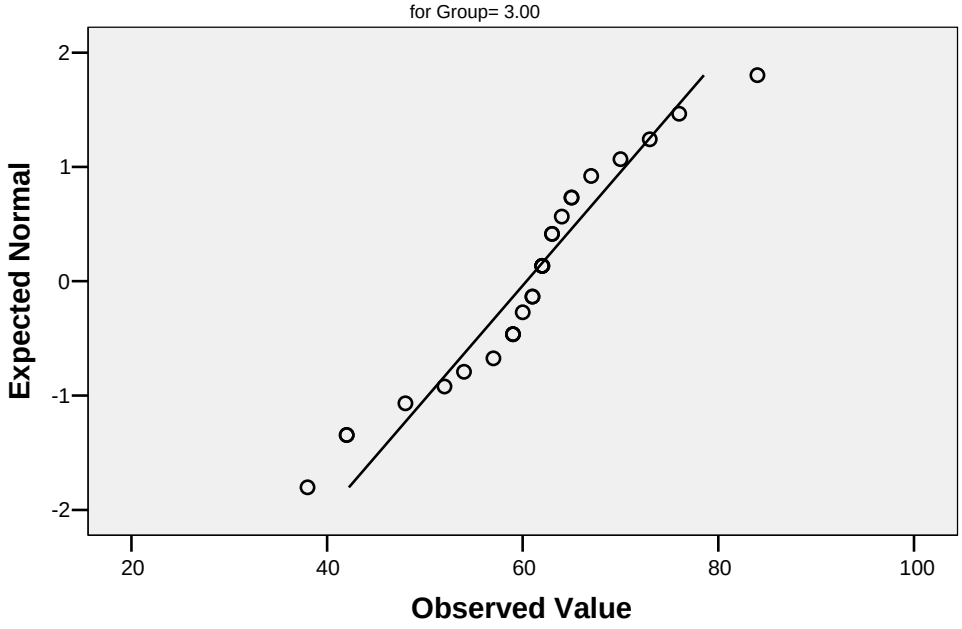
*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

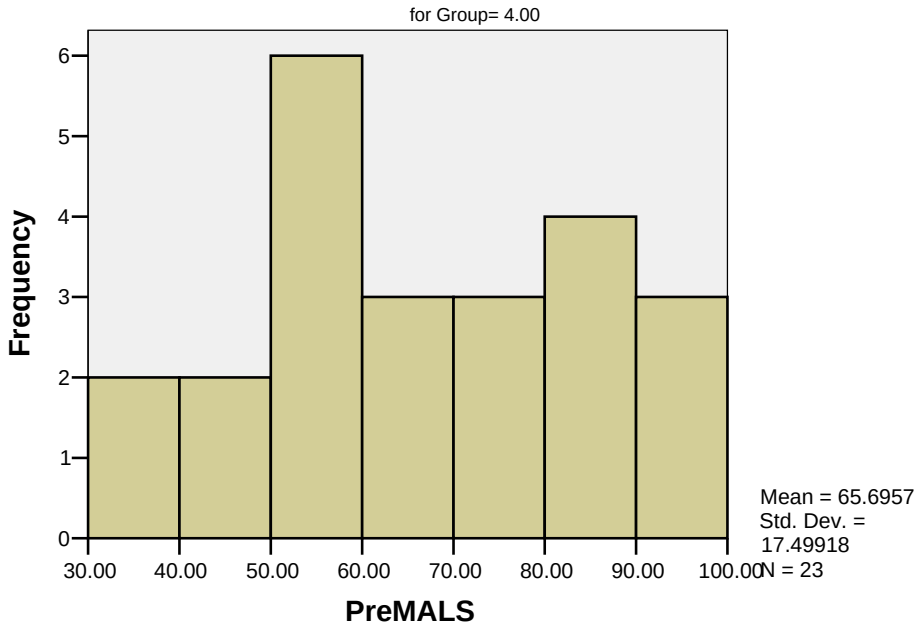
**Histogram**



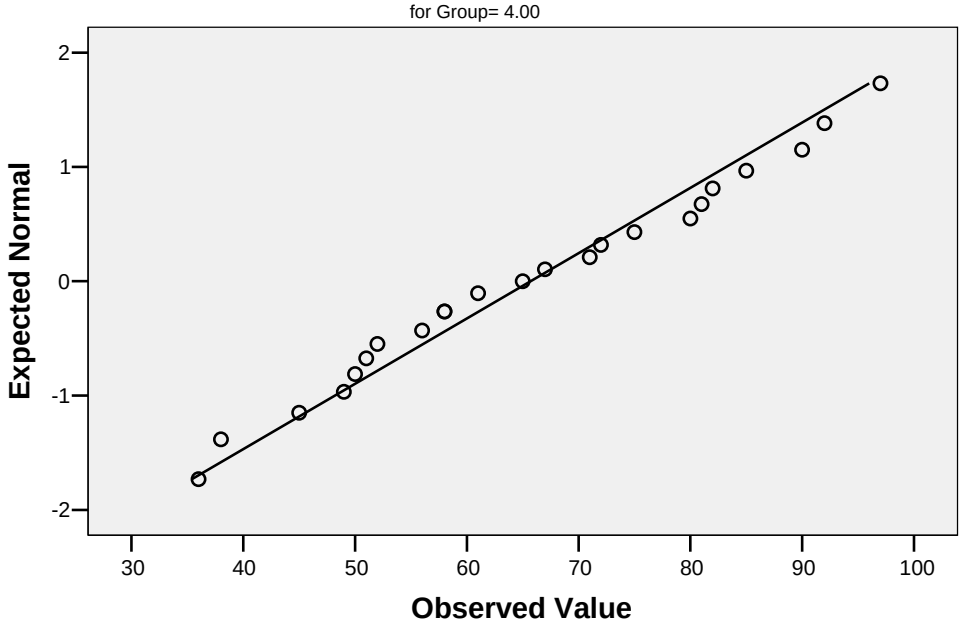

**Normal Q-Q Plot of PreMALS**

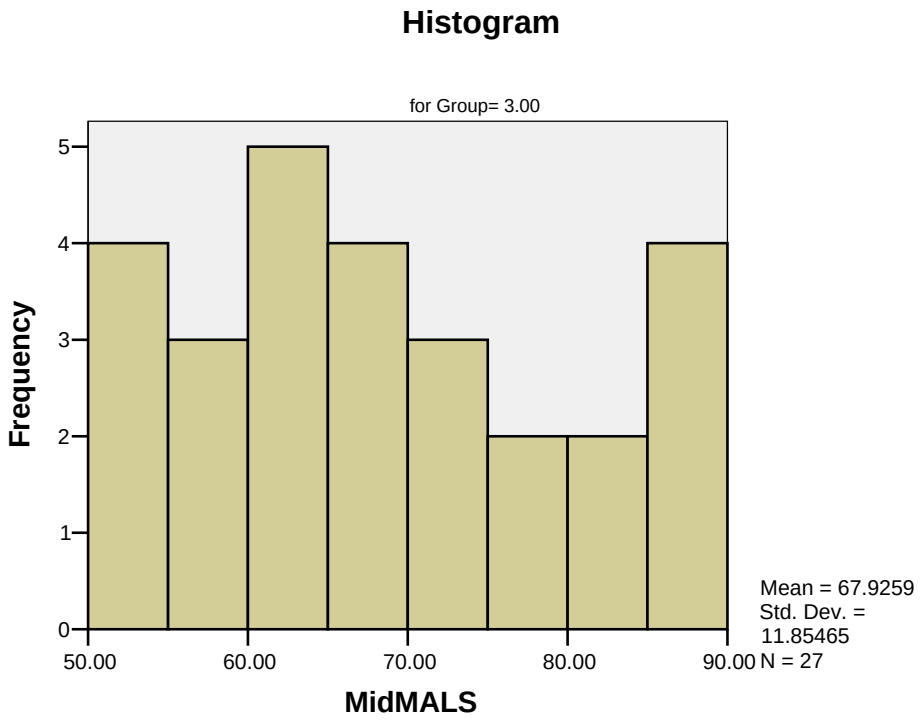


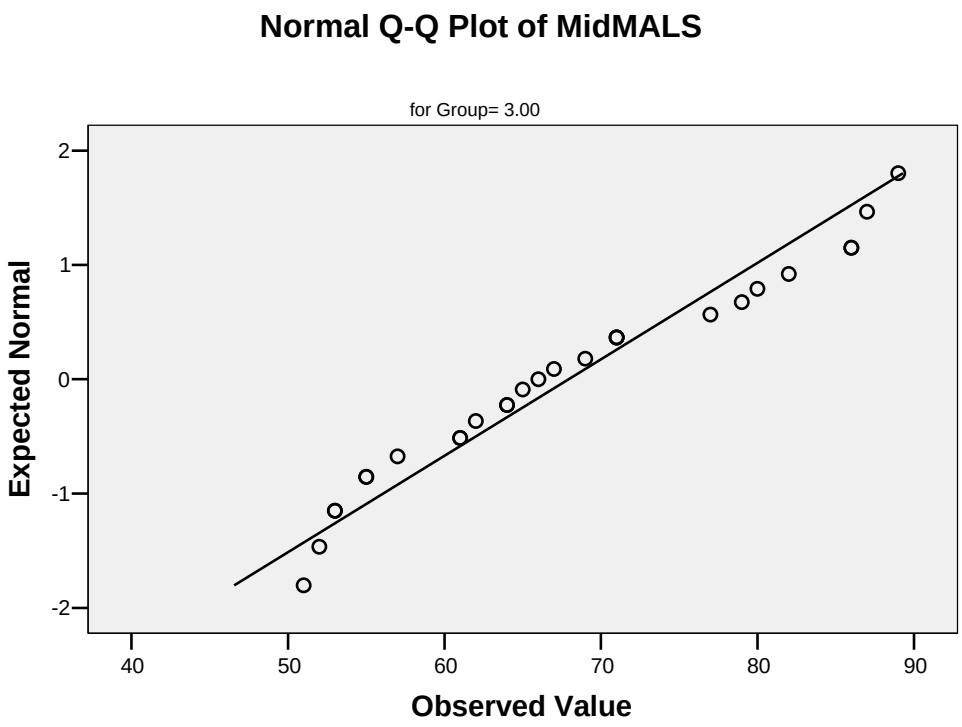
## Histogram

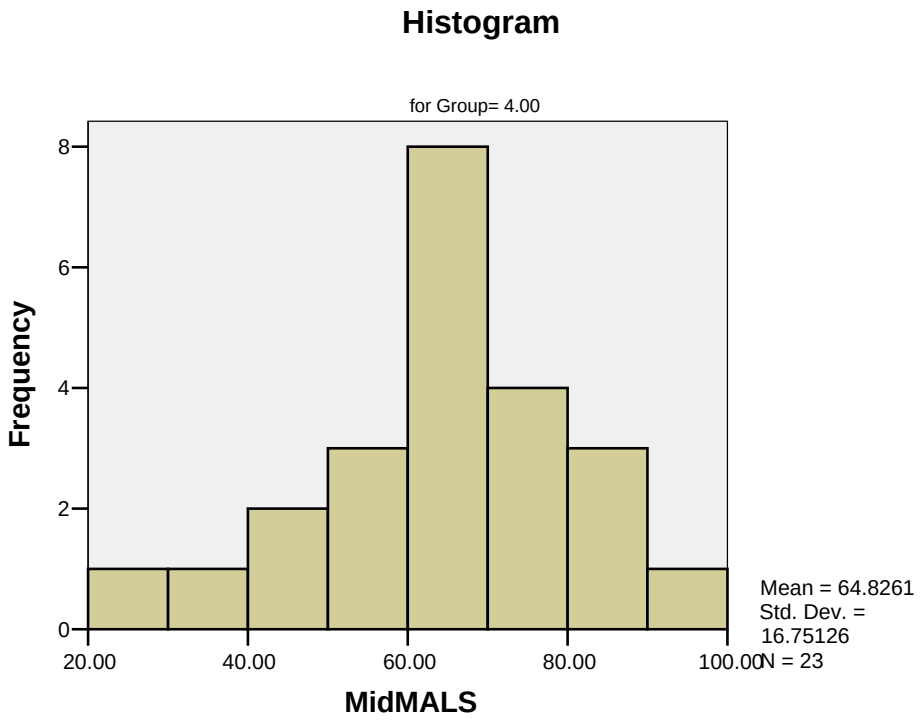


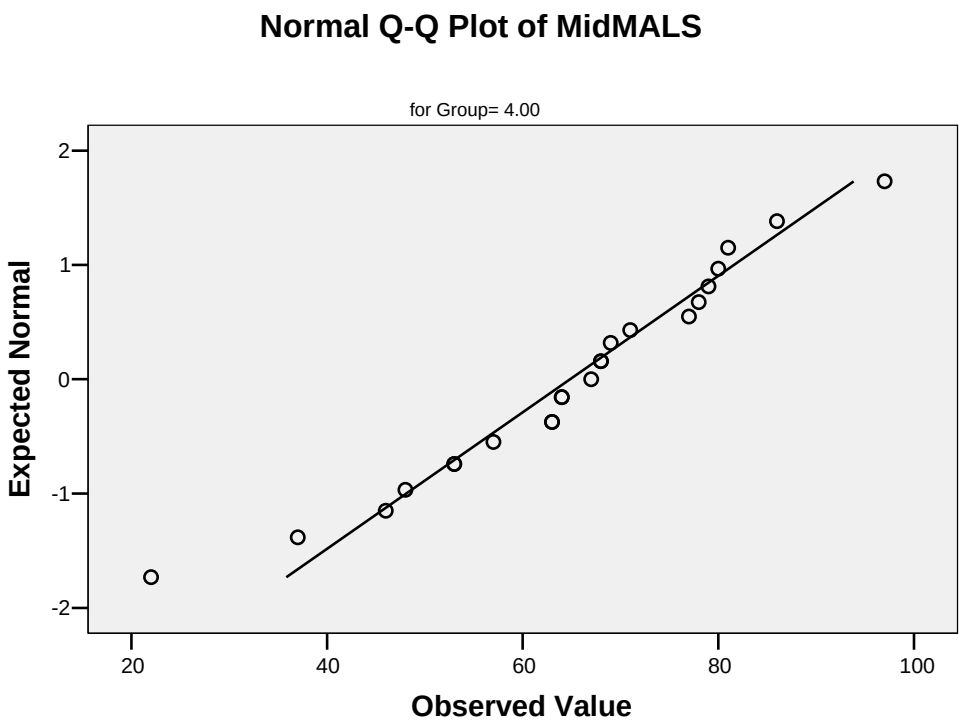

## Normal Q-Q Plot of PreMALS

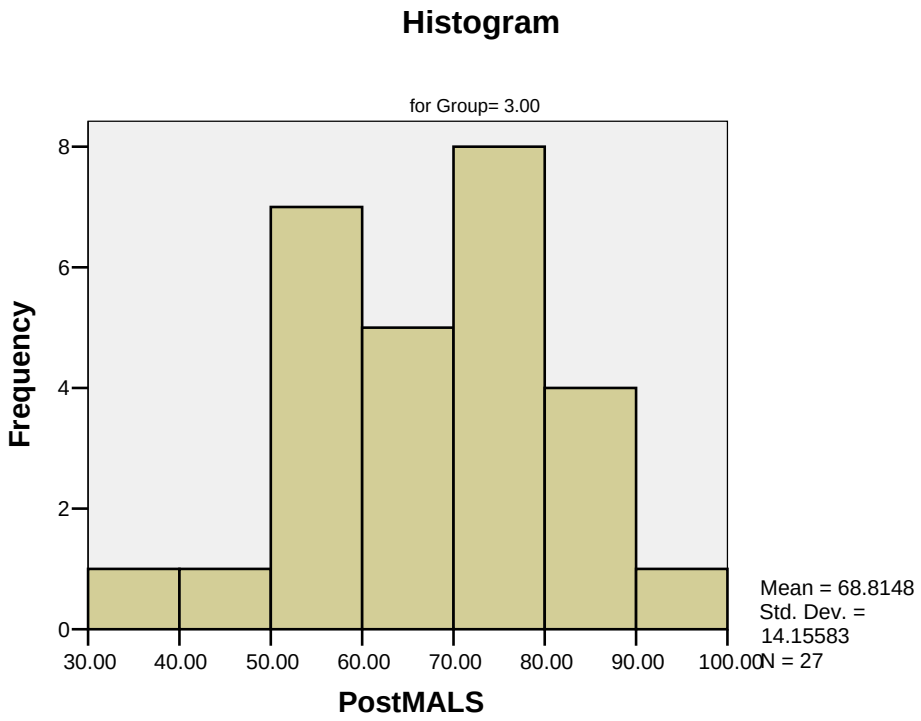


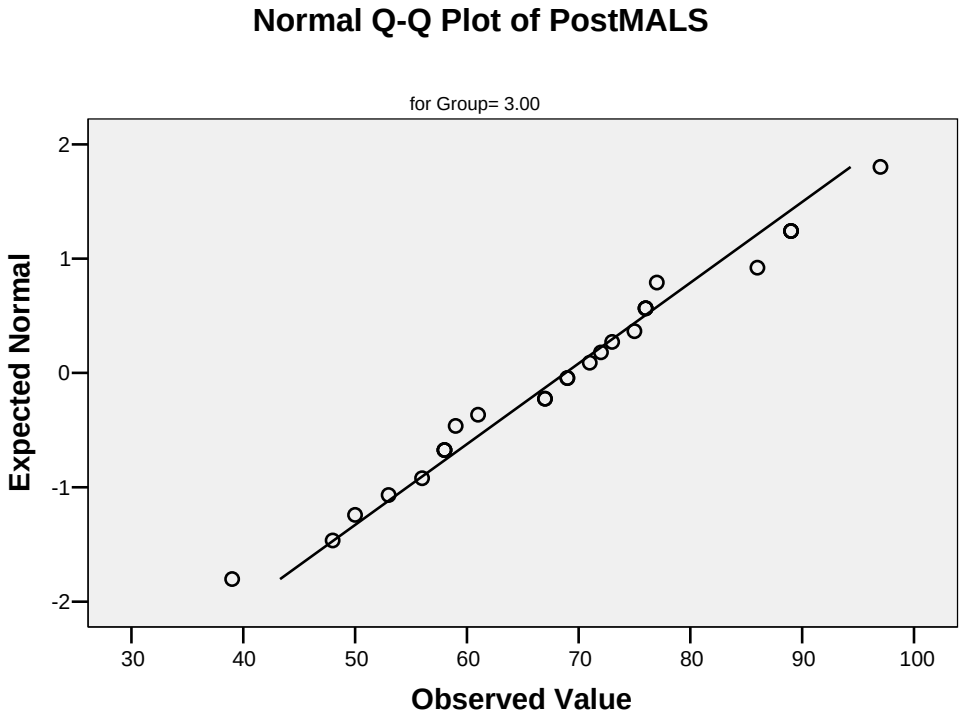

Histogram
for Group= 3.00
Frequency
5
4
3
2
1
0
50.00
60.00
70.00
80.00
90.00
MidMALS
Mean = 67.9259
Std. Dev. =
11.85465
N = 27

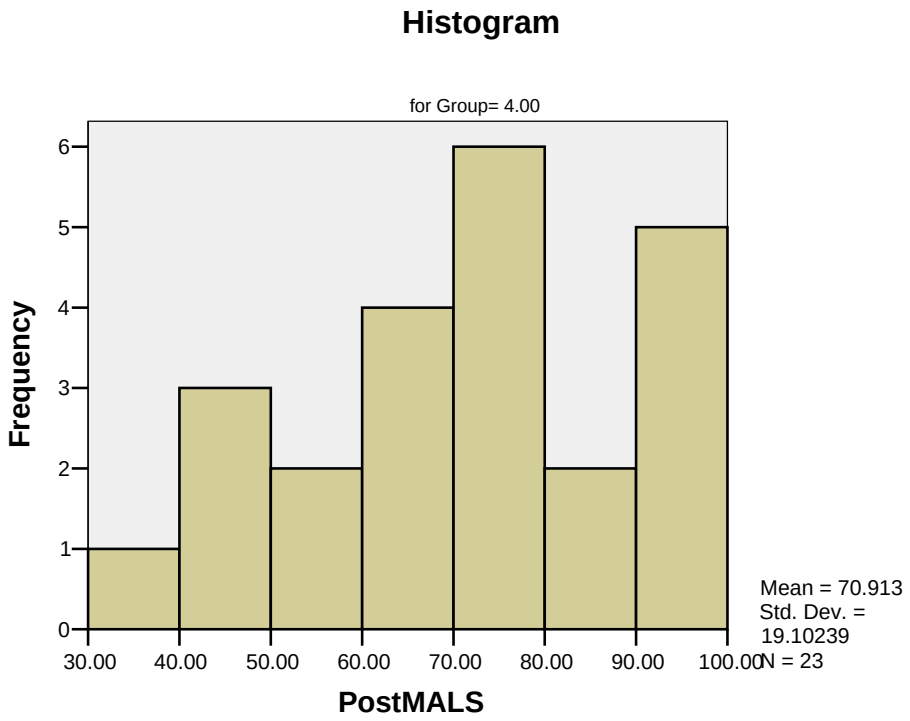

Normal Q-Q Plot of MidMALS
for Group= 3.00
Expected Normal
2
1
0
-1
-2
40
50
60
70
80
90
Observed Value

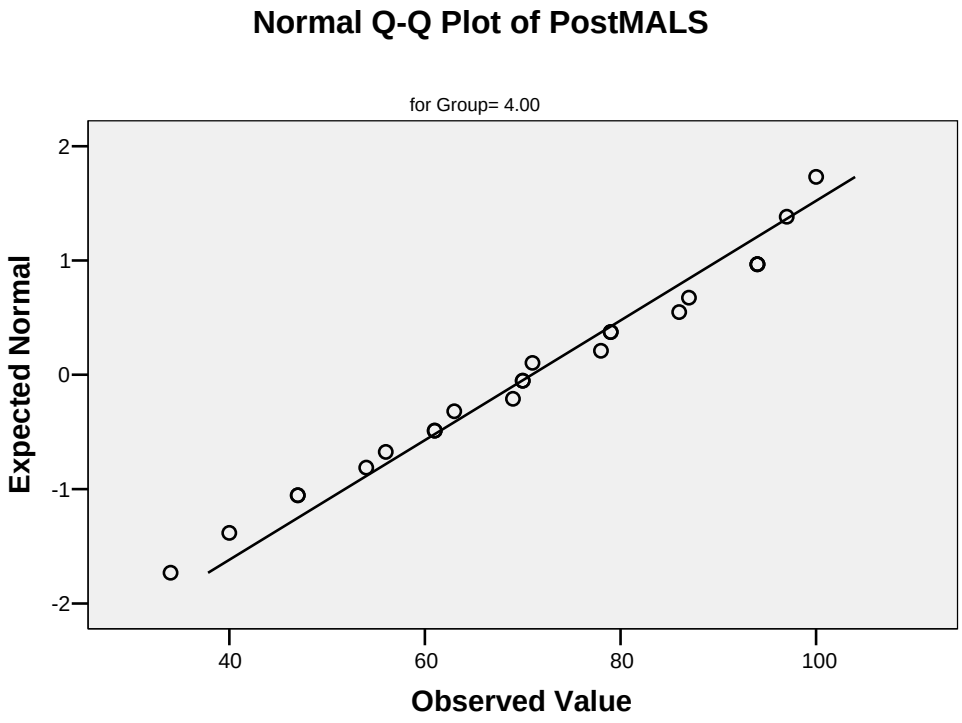

Histogram
for Group= 4.00
Frequency
8
6
4
2
0
20.00
40.00
60.00
80.00
100.00
MidMALS
Mean = 64.8261
Std. Dev. =
16.75126
N = 23


Normal Q-Q Plot of MidMALS
for Group= 4.00
Expected Normal
2
1
0
-1
-2
20
40
60
80
100
Observed Value


Histogram
for Group= 3.00
Frequency
8
6
4
2
0
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
PostMALS
Mean = 68.8148
Std. Dev. =
14.15583
N = 27


Normal Q-Q Plot of PostMALS
for Group= 3.00
Expected Normal
2
1
0
-1
-2
30
40
50
60
70
80
90
100
Observed Value


Histogram
for Group= 4.00
Frequency
6
5
4
3
2
1
0
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
PostMALS
Mean = 70.913
Std. Dev. =
19.10239
N = 23


Normal Q-Q Plot of PostMALS
for Group= 4.00
Expected Normal
2
1
0
-1
-2
40
60
80
100
Observed Value

**Appendix 4.1.19**

**Statistical Package for the Social Sciences (SPSS) Output for an *Independent groups t-test* comparison of MALS scores (Pre, Mid and Post) between groups C and D (cohort 2).**

# T-Test

**Group Statistics**

| | Group | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PreMALS | 3.00 | 27 | 60.3704 | 10.06956 | 1.93789 |
| | 4.00 | 23 | 65.6957 | 17.49918 | 3.64883 |
| MidMALS | 3.00 | 27 | 67.9259 | 11.85465 | 2.28143 |
| | 4.00 | 23 | 64.8261 | 16.75126 | 3.49288 |
| PostMALS | 3.00 | 27 | 68.8148 | 14.15583 | 2.72429 |
| | 4.00 | 23 | 70.9130 | 19.10239 | 3.98312 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 95% Confidence Interval of the Difference | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| PreMALS | Equal variances assumed | 11.669 | .001 | -1.343 | 48 | .186 | -5.32528 | 3.96517 | -13.29779 | 2.64723 |
| | Equal variances not assumed | | | -1.289 | 33.880 | .206 | -5.32528 | 4.13151 | -13.72261 | 3.07205 |
| MidMALS | Equal variances assumed | 1.103 | .299 | .763 | 48 | .449 | 3.09984 | 4.06006 | -5.06346 | 11.26314 |
| | Equal variances not assumed | | | .743 | 38.800 | .462 | 3.09984 | 4.17194 | -5.34011 | 11.53978 |
| PostMALS | Equal variances assumed | 2.613 | .113 | -.445 | 48 | .658 | -2.09823 | 4.71225 | -11.57284 | 7.37638 |
| | Equal variances not assumed | | | -.435 | 39.992 | .666 | -2.09823 | 4.82566 | -11.85132 | 7.65486 |

**Appendix 4.1.19.1**

**Statistical Package for the Social Sciences (SPSS) Output for a dependent groups t-test comparison of MALS scores (Pre- Mid-measures, Mid-Post-measures and Pre-Post -measures) within groups C and D (cohort 2)**

## Group C

### T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | PreMALS | 60.3704 | 27 | 10.06956 | 1.93789 |
| | MidMALS | 67.9259 | 27 | 11.85465 | 2.28143 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | PreMALS & MidMALS | 27 | .479 | .011 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | PreMALS - MidMALS | -7.55556 | 11.29443 | 2.17361 | -12.02348 | -3.08763 | -3.476 | 26 | .002 |

### T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | MidMALS | 67.9259 | 27 | 11.85465 | 2.28143 |
| | PostMALS | 68.8148 | 27 | 14.15583 | 2.72429 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | MidMALS & PostMALS | 27 | .815 | .000 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | MidMALS - PostMALS | -.88889 | 8.20100 | 1.57828 | -4.13310 | 2.35532 | -.563 | 26 | .578 |

## T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | PreMALS | 60.3704 | 27 | 10.06956 | 1.93789 |
| | PostMALS | 68.8148 | 27 | 14.15583 | 2.72429 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | PreMALS & PostMALS | 27 | .242 | .223 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | PreMALS - PostMALS | -8.44444 | 15.25510 | 2.93584 | -14.47916 | -2.40973 | -2.876 | 26 | .008 |

# Group D

## T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | PreMALS | 65.6957 | 23 | 17.49918 | 3.64883 |
| | MidMALS | 64.8261 | 23 | 16.75126 | 3.49288 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | PreMALS & MidMALS | 23 | .797 | .000 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | PreMALS - MidMALS | .86957 | 10.92247 | 2.27749 | -3.85367 | 5.59280 | .382 | 22 | .706 |

## T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | MidMALS | 64.8261 | 23 | 16.75126 | 3.49288 |
| | PostMALS | 70.9130 | 23 | 19.10239 | 3.98312 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | MidMALS & PostMALS | 23 | .732 | .000 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | MidMALS - PostMALS | -6.08696 | 13.31408 | 2.77618 | -11.84440 | -.32952 | -2.193 | 22 | .039 |

## T-Test

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | PreMALS | 65.6957 | 23 | 17.49918 | 3.64883 |
| | PostMALS | 70.9130 | 23 | 19.10239 | 3.98312 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | PreMALS & PostMALS | 23 | .889 | .000 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | Lower | Upper | | | |
| Pair 1 | PreMALS - PostMALS | -5.21739 | 8.76956 | 1.82858 | -9.00963 | -1.42515 | -2.853 | 22 | .009 |

**Appendix 4.1.20**

## Terms used in main body of text and corresponding terms under SPSS

Readers are advised to take note of these corresponding terms presented in the table when viewing the 'outputs' from SPSS in the appendices.

| Item/variable | Terminology used in main text | Terms used under SPSS |
|---|---|---|
| **Sex** | Male | 1 |
| | Female | 2 |
| **Cohort** | 1 | 1 |
| | 2 | 2 |
| **Group** | A | 1 |
| | B | 2 |
| | C | 3 |
| | D | 4 |
| **School** | 1 | 1 |
| | 2 | 2 |
| | 3 | 3 |
| | 4 | 4 |
| | 5 | 5 |
| **School type** | Mainstream school | 1 |
| | Special school | 2 |
| **Measures – Reading Accuracy Measure or RAM** | Pre-measure for RAM | PreRAM |
| | Mid-measure for RAM | MidRAM |
| | Post-measure for RAM | PostRAM |
| | Follow-up-measure for RAM | FollowupRAM |
| **Measures – Myself as a Learner Scale or MALS** | Pre-measure for MALS | PreMALS |
| | Mid-measure for MALS | MidMALS |
| | Post-measure for MALS | PostMALS |
| **Measures – Word reading test or WRT (raw-score)** | Pre-measure for WRT raw-score | PreWRTRaw |
| | Mid-measure for WRT raw-score | MidWRTRaw |
| | Post-measure for WRT raw-score | PostWRTRaw |
| | Follow-up-measure for WRT raw-score | FollowupWRTRaw |
| **Measures – Word reading test or WRT (reading age)** | Pre-measure for WRT reading-age | PreWRT_RAge |
| | Mid-measure for WRT reading-age | MidWRT_RAge |
| | Post-measure for WRT reading-age | PostWRT_Rage |
| | Follow-up-measure for WRT reading-age | FollowupWRT_Rage |

**Appendix 4.2.1**

**Precision Teaching Record Sheet**

**Name of Student: …….**

**Precision Teacher: ……**

**Programme & Skill/Task: ……**

**Target Levels:**

**Accuracy**: .3 or less errors. **Fluency**: …50 wpm…**Mastery**: 3 consecutive sessions.

| Date | Teaching Approach | Change? (None, Code, Other) | Number Correct (o) | Number Incorrect (x) | Programme end? (Yes or No) |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**Changing the programme? Use the following codes:**

**Code 1 – Changes to the Sequence of Tasks or Skills**
**Code 2 – Changes to the Task or Skill Slices**
**Code 3 – Changes the Instructional Approach**
**Code 4 - Increasing Motivation**
*Others? – please note yourself*

**Appendix 4.2.2**

## Plymouth Precision Teaching Project 07-08
## Term 2 TA Interview Structure

### Procedure, timing & materials

Prior to each interview a preliminary analysis of each TAs Record sheets will be conducted. This analysis will primarily focus on:

- The frequency of different teaching adaptations made within each programme
- The sequence of different teaching adaptations made within each programme

Each interview will last approximately 45 minutes and will require the record sheets completed by each TA to be accessible for discussion. Formal introductions and questions are set-out below, though it is anticipated further prompts, re-wording and commentary may be necessary to facilitate the interview process: these will be recorded in the full transcripts.

### Introductions & Instructions

*A. 'In this interview we will have looking at the work you have been doing for PPTP. I am interested in your views on the work you have done and look over the coded changes you have made to the PT programmes you have implemented. To do this we will look over the Record sheets you have completed and consider some questions that may help me understand more about what you have done. I will record our interview using a tape recorder so I don't miss anything you say.'*

Record sheets are made available for TAs to look over as an aide-memoire.

*B. 'Is this okay?'.* If not, a re-explanation of *A* is issued.

*C. 'What I am hoping to do is to use all of the information you and all the other TAs give me to develop a framework to help you when you are carrying out PT programmes after the Christmas break. Is that okay?'*

If not, a re-explanation of *C* is issued.

**<u>Formal Interview Structure</u>**

**Questions 1 & 2 (Utility of Record sheet and Codes)**

*1a). First, looking at the Record sheets you used, how helpful were they in recording your changes?*

*1b). Have you looked back at the sheets and thought about what they might show / mean?*

*2a). Were the codes (1, 2, 3, 4) suitable for recording the changes you made?*

*2b). Are there any changes you can suggest?*

**Question 3 (Deciding on making a change)**

*3a). How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?*

*b). What kinds of changes did you consider?*

*c). And where did these options come from?(experience, talking to others, reading etc)*

**Question 4 & 5 (Types and order of changes)**

*4a). Looking at your record sheets you appeared to* ***(insert type of change/s most frequently implemented****) most of the time. Why was this?*

*b).Ok, so can you remember a particular example of this change ? – how did you think about what was going on?*

*5. When you implemented more than one change within a single programme you tended to try* ***(insert type of change most frequently implemented first),*** *then* ***(insert type of change/s most frequently implemented latterly)****. Why was this?*

**Question 6 (Most efficacious change)**

*6a). Overall what do you feel is the single most effective change you could make to improve student performance on a PT programme?*

*b). Can you please explain why you said this.*

**Question 7 (other comments)**

*7. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?*

*'Thanks for your time XXXXXX. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please feel free to contact me in the usual way via email or telephone'.*

**Appendix 4.2.3**

**Interview 2**

**Formal Interview with TA 2 at School 1 on 05/11/07**

**Questions 1 & 2 (Utility of Record sheet and Codes)**

*1a). First, looking at the record sheets you used, how helpful were they in recording your changes?*

Using the record sheet to support the child was very **helpful**. **I was able to look back and review what I had done previously** and build on strengths for the student. For example, he preferred flash cards/ snap games instead of MLTR.

*I see. That's clear for me.*

Emerging theme/s: '…**helpful'**
**(Links to primary theme: 'Helpful')**

*Elaborative commentary:* **I was able to look back and review what I had done previously**
**(Links to elaborative theme: 'Helpful for future work')**

*b). So, have you looked back at the sheets and thought about what they might show / mean?*

Yeah, **I think they highlight how I built in successes and the student's preferences- he wanted it more visual and active**. The MLTR wasn't needed because he had practised accuracy at home with him mum. She was delighted with the results.

Emerging theme/s: '**I think they highlight how I built in successes and the student's preferences'**
**(Links to primary theme: 'Highlights the effectiveness of changes in terms of . . .')**

*Elaborative commentary:* '**and the student's preferences- he wanted it more visual and active'**
**(Links to elaborative theme: 'Finding out what works best')**

*2a). Were the codes (1,2,3,4) suitable for recording the changes you made?*

**The codes were fine** and he only really needed to improve fluency via a code 3 change. He was getting faster and intrinsically motivated to take part. Although I did use a weekly

sticker for attending on time each week. This was different to doing well on the task, about giving up tutor time and being there on time- school arrangements really.

Emerging theme/s: '**The codes were fine'**
**(Links to primary theme: 'Yes')**

*2b). Are there any changes you can suggest?*

No, not really, apart from maybe **extending the teaching code to show more variations, like when, where, how I made the changes I guess**. That would be more helpful: **there was only a little box to record the detail in**, though I could remember most times.

Emerging theme/s: '**extending the teaching code'**
**(Links to primary theme: 'Yes')**

*Elaborative commentary:* '**to show more variations, like when, where, how I made the changes I guess'** and **'there was only a little box to record the detail in'**
**(Links to elaborative themes: 'Greater specificity within codes'** and **'More space for detail in columns')**

**Question 3 (Deciding on making a change)**

*3a). How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?*

**I looked at previous days results and discussed it with him. 'What if we try this tomorrow?' I involved him at all times really- it was a partnership**.

Emerging theme/s: '**I looked at previous days results and discussed it with him. 'What if we try this tomorrow?' I involved him at all times really- it was a partnership'**
**(Links to primary theme: 'Both - Social and emotional presentation and technical aspects')**

*b).Ok, so what kinds of changes did you consider?*

**Mainly changes to increase speed and stimulate the student**. That was quite enjoyable for him- he would end up in fits of laughter – I always made it fun.

Emerging theme/s: '**Mainly changes to increase speed and stimulate the student**'
**(Links to primary theme: 'Instructional changes')**

*c). Where did these options come from?(experience, talking to others, reading etc)*

**Experience of working with adolescents and what works with them**; having fun, keeping it engaging , including them all along the way-that is important.

Emerging theme/s: '**Experience'**
**(Links to primary theme: 'Experience')**

*Elaborative commentary:* **'of working with adolescents and what works with them'**
**(Links to elaborative theme: 'Working with adolescents')**

**Question 4 & 5 (Types and order of changes)**

*4a). Looking at your record sheets you appeared to* ***change the teaching or instruction*** *most of the time. Why was this?*

**This was about fluency and engagement/concentration**. **I was keen to not make it boring, he enjoyed a variety of teaching games, all with the aim of building speed**.

Emerging theme/s: '**This was about fluency and engagement/concentration'**
**(Links to primary theme: 'To improve student performance')**

*Elaborative commentary:* **'I was keen to not make it boring, he enjoyed a variety of teaching games, all with the aim of building speed'**
**(Links to elaborative theme**: **'Both task performance and engagement')**

*b). Can you remember a particular example of this change ? – how did you think about what was going on?*

Yes, as I said earlier I made changes to how I taught in terms of presentation, like different games, **this was to keep him engaged**. This was it really. I know him, and that was the most important thing really, how to keep him with me.

Emerging theme/s: '**this was to keep him engaged'**
**(Links to primary theme: 'Promoting task engagement')**

*5. When you implemented more than one change within a single programme you tended to try* ***changing the teaching*** *then* ***increase his motivation****? Why was this?*

**He was easy to engage if I got the teaching right with a variety. I then used rewards and lots of praise to help him when he was on the right track**, though I used praise all the time really: as effort is important, even on a bad day. **Increasing praise towards the end seemed to give him a lift I suppose.** I didn't know it went like that, but the records do show it. I work in a way that I think will work best, and for him I think it worked well.

Emerging theme/s: **'He was easy to engage if I got the teaching right with a variety. I then used rewards and lots of praise to help him when he was on the right track'**
**(Links to primary theme: 'Student performance')**

*Elaborative commentary:* **'Increasing praise towards the end seemed to give him a lift I suppose'**
**(Links to elaborative theme**: **'Confidence')**

**Question 6 (Most efficacious change)**

*6a). Overall what do you feel is the single most effective change you could make to improve student performance on a PT programme?*

**It was critical he got feedback visually through the chart**. This was vital for him – a very important part. **He was obviously a very visual learner**. For him that was the most important change or intervention, and I did it a lot: it may be different for others though.

Emerging theme/s: **'It was critical he got feedback'**
**(Links to primary theme: 'Increasing motivation')**

*Elaborative commentary:* **'…visually through the chart',** and **'He was obviously a very visual learner'**
**(Links to elaborative theme**: **'Visual feedback')**

*b). Can you explain why you said this?*

**My knowledge of him I guess.** He expected it and was so keen to know how he was progressing: he also wanted to take copies of his chart home to his mum, **he got quite proud about it I think**.

*That sounds really positive?*

Without a doubt, I don't think we could have been quite so successful without this.

Emerging theme/s: **'he got quite proud about it I think'**
**(Links to primary theme: 'Social / Emotional support')**

*Elaborative commentary:* **'My knowledge of him I guess'**
**(Links to elaborative theme: 'Personal understanding')**

**Question 7 (other comments)**

*7. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?*

**We built up a very strong relationship; we also do work together in class which strengthened this**. **Trust was built up and he was proud and would tell other students in the class**, 'I do special learning in the morning, so I can do this'. It has made his confidence boom!

I felt it was really good- I have the initiative to make my changes that affect learning. I am really proud about what I have done. It's reciprocal- they learn and so do I. It would be good to continue the whole programme longer- 6 weeks is not enough, as he was doing so well and engaged within programmes.

Emerging theme/s: **'Trust was built up and he was proud and would tell other students in the class'**
**(Links to primary theme: 'Social and Emotional aspects')**

*Elaborative commentary:* **'We built up a very strong relationship; we also do work together in class which strengthened this'**
**(Links to elaborative theme: 'Building a relationship')**

*‘Thank you  for participating in this discussion. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please feel free to contact me in the usual way via email or telephone’.*

**Appendix 4.2.4**

**Programme duration and individual changes (raw 'coded' data) made for each programme across all schools for group A**

| School (code) | TA (code) | PPTP Programme number | No. of sessions to meet criteria* | Changes recorded on daily session (DS) by code 1, 2, 3 or 4 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | DS 1 | DS 2 | DS 3 | DS 4 | DS 5 | DS 6 | DS 7 | DS 8 | DS 9 | DS1 0 | DS1 1 | DS1 2 | DS1 3 |
| 1 | 1 | 1 | 4 | | 3 | 3, 4 | 4 | | | | | | | | | |
| 1 | 1 | 2 | 4 | | 3 | 3, 4 | | | | | | | | | | |
| 1 | 1 | 3 | 3 | | 3 | 4 | | | | | | | | | | |
| 1 | 1 | 4 | 7 | 3 | 4 | | 2** | | | 4 | | | | | | |
| 1 | 1 | 5 | 4 | 3 | 4 | 3 | 4 | | | | | | | | | |
| 1 | 1 | 6 | 7 | | 3 | 4 | 2** | 3 | | 4 | | | | | | |
| 1 | 1 | 7 | 7 | | 3 | 4 | 2** | 3 | | 4 | | | | | | |
| 1 | 2 | 8 | 3 | | 3 | | | | | | | | | | | |
| 1 | 2 | 9 | 3 | | 3 | | | | | | | | | | | |
| 1 | 2 | 10 | 7 | | 3 | 4 | 2** | 4 | | 4 | | | | | | |
| 1 | 2 | 11 | 3 | | 3 | 4 | | | | | | | | | | |
| 1 | 2 | 12 | 4 | | 3 | | 4 | | | | | | | | | |
| 1 | 2 | 13 | 7 | | | | 2** | | | 4 | | | | | | |
| 1 | 2 | 14 | 3 | | 3 | 4 | | | | | | | | | | |
| 2 | 3 | 15 | 7 | | 3 | | 2** | | | | | | | | | |
| 2 | 3 | 16 | 5 | | 3 | | | 4 | | | | | | | | |
| 2 | 3 | 17 | 7 | | 3 | | 2** | | | | | | | | | |
| 2 | 3 | 18 | 4 | 4 | | 3 | 4 | | | | | | | | | |
| 2 | 3 | 19 | 3 | | 3 | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 3 | 20 | 7 | | 3 | 4 | 2** | | 3 | | | | | | | |
| 2 | 3 | 21 | 3 | 4 | | 3 | | | | | | | | | | |
| 2 | 3 | 22 | 6 | | 3 | | 3 | 3 | | | | | | | | |
| 2 | 3 | 23 | 5 | | 3 | 3 | | 4 | | | | | | | | |
| 2 | 3 | 24 | 4 | | 3 | | 4 | | | | | | | | | |
| 3 | 4 | 25 | 10 | | 3 | 4 | 4 | | | 1 | | | 4 | | | |
| 3 | 4 | 26 | 11 | | 3 | | 2** | | 3 | 1 | | | 3 | 4 | | |
| 3 | 4 | 27 | 12 | | 3 | | 2** | | 3 | 2** | | | 3 | | 4 | |
| 3 | 5 | 28 | 3 | | 3 | 4 | | | | | | | | | | |
| 3 | 5 | 29 | 13 | | | 3 | 2** | | 3 | 2** | 3 | | 2** | | 3 | 4 |
| 3 | 5 | 30 | 7 | | 3 | 4 | 2** | 3 | 4 | | | | | | | |
| 3 | 6 | 31 | 6 | | | | 3 | | 4 | | | | | | | |
| 3 | 6 | 32 | 11 | | | 3 | 2** | 3 | | 1 | 3 | 4 | | 4 | | |
| 3 | 6 | 33 | 10 | | | 3 | 2** | | 3 | 1 | | | 4 | | | |
| 4 | 7 | 34 | 3 | | | 4 | | | | | | | | | | |
| 4 | 7 | 35 | 4 | 4 | | | 4 | | | | | | | | | |
| 4 | 7 | 36 | 3 | 4 | | 4 | | | | | | | | | | |
| 4 | 7 | 37 | 3 | 4 | 4 | | | | | | | | | | | |
| 4 | 7 | 38 | 3 | 4 | 4 | | | | | | | | | | | |
| 4 | 7 | 39 | 3 | | 3 | | | | | | | | | | | |
| 4 | 7 | 40 | 7 | | | | 2** | | | | | | | | | |
| 4 | 7 | 41 | 3 | | 3 | 4 | | | | | | | | | | |
| 4 | 7 | 42 | 4 | | | | 4 | | | | | | | | | |
| 4 | 7 | 43 | 3 | 4 | | 4 | | | | | | | | | | |
| 4 | 7 | 44 | 7 | | | | 2** | | | | | | | | | |
| 4 | 7 | 45 | 3 | | 4 | | | | | | | | | | | |
| 4 | 7 | 46 | 4 | 4 | | | 4 | | | | | | | | | |
| 5 | 8 | 47 | 5 | | 3 | | | 4 | | | | | | | | |
| 5 | 8 | 48 | 3 | | 3 | 4 | | | | | | | | | | |
| 5 | 8 | 49 | 3 | | 3 | 4 | | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 8 | 50 | 7 | | 3 | | 2** | | | | | | | | | |
| 5 | 8 | 51 | 10 | | 3 | | 2** | | 3 | 1 | | | | | | |
| 5 | 8 | 52 | 11 | | 3 | | 4 | | 3 | 1 | | | | | | |
| 5 | 8 | 53 | 11 | | | | 2** | | | 1 | | | | | | |
| 5 | 8 | 54 | 7 | | | 3 | 2** | | 3 | 4 | | | | | | |
| 5 | 8 | 55 | 7 | | | 3 | 2** | 3 | | 4 | | | | | | |

**Key to table in Appendix 4.2.4 (above)**

(solid grey cell) programme ceased
(empty cell) no change recorded

**Note 1.** The success criteria* requires the student to achieve at least fifty correct responses per minute with three or less errors over three consecutive sessions on their current list of words.
**Note 2. '**2**' refers to 'change to task size' (not 'slice') employed as noted on PT record sheets.
**Note 3.** All TAs recorded that they began teaching new programmes using the model-lead-test-review (MLTR) teaching procedure on their record sheets.

**Appendix 4.2.5**

**Plymouth Precision Teaching Project 07-08**

**Term 2 TA Interview Structure**

**Interview 1**

**Formal Interview with TA 1 at School 1 on 05/11/07**

**Questions 1 & 2 (Utility of Record sheet and Codes)**

*1a). First, looking at the Record sheets you used, how helpful were they in recording your changes?*

First it was about being clear about the 4 codes of change and using them fluently. That took some time to be clear about changes to task or teaching; that took some time to be clear about, changes to task or teaching- initially I was tentative – am I actually a lot clearer now. I referred to the guide a lot which helped. I could then refer back for changes to other programmes too. It was helpful really I guess.

*b). Ok then, have you looked back at the sheets and thought about what they might show or mean?*

As I said I used them to give me ideas later on. I make changes so it doesn't get boring. Also time is important as we only have 10-15 minutes to do certain things. I also picked up changes according to what he was enjoying. It was often led by the student, but also what worked. Do this make sense to you/

*Yeah, that's helpful.*

*2a). So, were the codes (1,2,3,4) suitable for recording the changes you made?*

They seemed suitable, and saved time- I needed to get used to them; over time I tended to do most changes on the second day, because he often did so well over the first day actually. I often increased the size of the task and the words; becoming more difficult-that helped a lot. I also talked through the curriculum with him to make sure he was clear- this helped preserve his self esteem, so he was aware about our goals together. I don't know

whether the codes covered this kind of discussion though: that was a change I think from one day to the next.

*2b). Are there any changes you can suggest?*
No – all covered – it is the discussion bit really.

**Question 3 (Deciding on making a change)**
*3a). How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?*
His confidence. Boredom or interest. You are recording and noticing the emotional situation and being led by pupils. As I said looking for the student and how they were, as well as the data of course, how they were doing with accuracy and fluency. Time was also important-so I might make the change the next day if we didn't have time: sometimes we were late for the session.

*b). And what kinds of changes did you consider?*
I often changed the task I think, to keep it varied and sped things up when we needed to. Talking things through was an important change of course, I said that earlier I think.

*c). And where did these options come from?(experience, talking to others, reading etc)*
Experience of work in class really – knowing your student is the most important thing. When you know how he is, you can pick up on things to change.

*Great*.

**Question 4 & 5 (Types and order of changes)**
*4a). Looking at your record sheets you appeared to change your instruction or teaching most of the time. Why was this?*
When he did so well previously I changed the task size, but most of the time teaching was the most important change by building up speed. More latterly needed to model on the 1st day-then go for speed on day 2 and keep with that. This seemed to work with him. He

was a quick learner, so I just built on that and his confidence by making time to talk and reassure him too.

*b).Ok, so can you remember a particular example of this change ? – how did you think about what was going on?*

As I said, knowing him after a few programmes, fluency was all important really. As long a s he was clear about the expectations. I first realised after the first programme and went with that – I guessed and went with that. We talked it through and this helped a lot. It confirmed my thoughts and results came along really well.

*5. When you implemented more than one change within a single programme you tended to try changing the instruction then increasing motivation? Why was this?*

Well rewarding him for his progress made a lot of sense really: I do this anyway in class. I noted it down at the end most of the time as a way of noting a reward, but I give out praise all the time, just coming to the sessions should be acknowledged I think. It wasn't a problem for him, cos he enjoyed it though I suppose I tried to keep his motivation up all the way through really.

**Question 6 (Most efficacious change)**

*6a). Overall what do you feel is the single most effective change you could make to improve student performance on a PT programme?*

I think that using a 'warm-up' session by introducing the words without a test made a great start and this was a change to the process I think– then there was no added pressure at the very beginning. Then continue as normal. So this is a change to procedure on the whole looking at mutual understanding, a kinda get to know the task session. The whole point is about building up confidence and readiness and to learn a new challenge.

*b). Can you please explain why you said this.*

Well, I made lots of changes really, and I think all helped but by doing this we started on the right footing. He could be a bit anxious and having a bit of flexibility at the start went

down well. He liked it and took away a bit of the anxiety and stress for him. I talked it through with him, it was my idea, he liked it, and we agreed to do it every time.

*That was really important then?*

Definitely.

**Question 7 (other comments)**

*7. Finally, are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?*

No, but this programme is really working. I remember you said that getting high levels of fluency will encourage generalisation in other place and its working. I think it is important he notices it class too, and staff have said they notice a difference in him. RML is doing really well he seems to be more confident, he will now read out loud in class: that is big for him. I have really enjoyed it so far, and am looking forward to my next student, though I wish I could also carry on with him too.

*'Thanks for your time L. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please feel free to contact me in the usual way via email or telephone'.*

**Plymouth Precision Teaching Project 07-08**

**Term 2 TA Interview Structure**

**Interview 2**

**Formal Interview with TA 2 at School 1 on 05/11/07**

**Questions 1 & 2 (Utility of Record sheet and Codes)**

*1a). First, looking at the Record sheets you used, how helpful were they in recording your changes?*

Using the record sheet to support the child was very helpful. I was able to look back and review what I had done previously and build on strengths for the student. For example, he preferred flash cards/ snap games instead of MLTR.

*I see. That's clear for me.*

*b). So, have you looked back at the sheets and thought about what they might show / mean?*

Yeah, I think they highlight how I built in successes and the student's preferences- he wanted more visual and active. The MLTR wasn't needed because he had practised accuracy at home with him mum. She was delighted with the results.

*2a). Were the codes (1,2,3,4) suitable for recording the changes you made?*

The codes were fine and he only really needed to improve fluency via a code 3 change. He was getting faster and intrinsically motivated to take part. Although I did use a weekly sticker for attending on time each week. This was different to doing well on the task, about giving up tutor time and being there on time- school arrangements really.

*2b). Are there any changes you can suggest?*

No, not really, apart from maybe extending the instruction code to show more variations, like when, where, how I made the changes I guess. That would be more helpful: there was only a little box to record the detail in, though I could remember most times.

**Question 3 (Deciding on making a change)**

*3a). How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?*

I looked at previous days results and discussed it with him. 'What if we try this tomorrow?' I involved him at all times really- it was a partnership.

*b).Ok, so what kinds of changes did you consider?*

Mainly changes to increase speed and stimulate the student. That was quite enjoyable for him- he would end up in fits of laughter – I always made it fun.

*c). Where did these options come from?(experience, talking to others, reading etc)*

Experience of working with adolescents and what works with them; having fun, keeping it engaging , including them all along the way-that is important.

**Question 4 & 5 (Types and order of changes)**

*4a). Looking at your record sheets you appeared to changing the teaching most of the time. Why was this?*

This was about fluency and engagement/concentration. I was keen to not make it boring, he enjoyed a variety of teaching games, all with the aim of building speed.

*b). can you remember a particular example of this change ? – how did you think about what was going on?*

Yes, as I said earlier I made changes to how I taught in terms of presentation, like different games, this was to keep him engaged. This was it really. I know him, and that was the most important thing really, how to keep him with me.

*5. When you implemented more than one change within a single programme you tended to try changing the instruction then increasing motivation? Why was this?*

He was easy to engage if I got the teaching right with a variety. I then used rewards and lots of praise to help him when he was on the right track, though I used praise all the time really: as effort is important, even on a bad day. Increasing praise towards the end seemed

to give him a lift I suppose. I didn't know it went like that, but the records do show it. I work in a way that I think will work best, and for him I think it worked well.

**Question 6 (Most efficacious change)**

*6a). Overall what do you feel is the single most effective change you could make to improve student performance on a PT programme?*

It was critical he got feedback verbally and visually through the chart. This was vital for him – a very important part. He was obviously a very visual learner. For him that was the most important change or intervention, and I did it a lot: it may be different for others though.

*b). Can you explain why you said this?*

My knowledge of him I guess. He expected it and was so keen to know how he was progressing: he also wanted to take copies of his chart home to his mum, he got quite proud about it I think.

*That sounds really positive?*

Without a doubt, I don't think we could have been quite so successful without this.

**Question 7 (other comments)**

*7. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?*

We built up a very strong relationship; we also do work together in class which strengthened this. Trust was built up and he was proud and would tell other students in the class. 'I do special learning in the morning, so I can do this'. It has made his confidence boom! I felt it was really good- I have the initiative to make my changes that affect learning. I am really proud about what I have done. Its reciprocal- they learn and so do I. It would be good to continue the whole programme longer- 6weeks is not enough, as he was doing so well and engaged within programmes.

*‘Thank you R  for participating in this discussion. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please feel free to contact me in the usual way via email or telephone’.*

**Plymouth Precision Teaching Project 07-08**

**Term 2 TA Interview Structure**

**Interview 3**

**Formal Interview with TA 3 at School 2 on 06.11.07**

**Questions 1 & 2 (Utility of Record sheet and Codes)**

*1a). First, looking at the Record sheets you used, how helpful were they in recording your changes?*

To be quite honest I used them at the end of week from my notes. The kids liked the feedback from the probes on the data (no. correct and incorrect). The teaching bit I completed at the end of the week. They were fine though.

*b). Have you looked back at the sheets and thought about what they might show / mean?*

I am thinking that I could have done more games or activities. The students like the flashcards or probe sheet and then do the probe straight away- the probe test is teaching in a way.

*2a). Were the codes (1,2,3,4) suitable for recording the changes you made?*

I had to work so fast I didn't focus on them enough. Thinking about them now, they certainly covered the changes I made though.

*2b). Are there any changes you can suggest?*

You could have a tick box to do this, above focusing on the codes . I am always conscious of the fact to return to class, so this would have made it quicker for me..

**Question 3 (Deciding on making a change)**

*3a). How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?*

Normally it's the student themselves and not so much the specific task we are on - I have to look for their behaviour, are they playful or not? I sometimes have to play-act and be very flexible, they can be quite disruptive. I make changes to instruction by at least

ensuring accuracy and moving on to the test. The students mood is my priority- I know when they have had a bad weekend and need to talk, so I go slow with the teaching.

*b). what kinds of changes did you consider?*

I am quite swift with some youngsters, and go to the probe test quickly, so I am adapting the procedure a bit. Sometimes I hone in on one word and teach to their errors the next day.

*c). Where did these options come from?(experience, talking to others, reading etc)*

These changes are from my experience of working in this school. Their moods can be so different.

**Question 4 & 5 (Types and order of changes)**

*4a). Looking at your record sheets you appeared to change the teaching most of the time. Why was this?*

I change the instruction, because if I reduce the number of words they may think that I feel they can't cope with the larger groups of words. They sometimes get cross and think that I don't believe in them, by making it smaller, I have to be careful, its like a knife edge sometimes!

*b). can you remember a particular example of this change ? – how did you think about what was going on?*

What I do is focus on the instruction, by practicing extra on some words- to their errors. The message here is that I have every faith that they can do it. I did this when TS and AK came into the session and was causing a major disruption. Giving him confidence through me is crucial. Another example is TS when he got stuck on one word- I gave him lots of practice outside too, just naturally during the school day.

*5. When you implemented more than one change within a single programme you tended to try changing the instruction, then increasing motivation or changing the task? Why was this?*

I sometimes use extra words; this boosts their confidence, (AR) and reduces boredom. Increasing the task is seen as a positive thing. So combined with this I try to boost their confidence by giving really specific praise. These boys don't believe in themselves so I have to praise for effort, like the specific things they do through the session. Saying, *'well done TS'*, isn't enough, they need clear feedback, and you need to show you mean it.

**Question 6 (Most efficacious change)**

*6a). Overall what do you feel is the single most effective change you could make to improve student performance on a PT programme?*

The crucial thing is to give them confidence by giving praise and being flexible to them in lots of ways, e.g. teaching during the school day/focusing on errors. The point is instruction changes not the task- taking the word out would make them upset, but sometimes making it harder is okay.

*b). Okay R, please can you explain why you said this.*

It is just how these kids are. They have all had difficulties in their lives, and find it hard to trust people, so being sincere is key. There is a culture about doing 'grown-up things', and the words themselves may be seen as a bit babyish, and so doing this privately is important, but making it even easier is hard for some of them by being seen to reduce the number of words. Helping through teaching and careful praise seems to work the best.

**Question 7 (other comments)**

*7. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?*

My decisions were based on two things performance on the previous day's probe, and most importantly their mood and disposition. I need to be totally flexible. I sometimes

need to have discussions all the time and pick up on their mood. Like their tone of voice, body language. Sometimes they are bouncy, other times slopped in their chair.

*‘Thank you R  for participating in this discussion. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please feel free to contact me in the usual way via email or telephone’.*

**Plymouth Precision Teaching Project 07-08**

**Term 2 TA Interview Structure**

**Interview 4**

**Formal Interview with TA 4 at School 3 on 08.11.07**

**Questions 1 & 2 (Utility of Record sheet and Codes)**

*1a). First, looking at the Record sheets you used, how helpful were they in recording your changes?*

Sometimes there wasn't enough space to accommodate the detail of the changes, although we were supposed to be putting the codes down: I wanted to put more as an aide memoire. I also noted down changes I couldn't obviously put in the codes elsewhere, like using organizational influences like when and where we did it. A column for more detail would be helpful. I suppose it was sometimes 'another thing' to do when you are so busy. But I can see how it helped, and was well worth it.

*b). Okay, so have you looked back at the sheets and thought about what they might show / mean?*

Obviously the detail tells me about the programme changes themselves. The first record sheet on teaching changes should be a baseline programme of changes where I have tried to work out what works best. The latter ones tend to highlight any progress with teaching. I guess the first ones were the most powerful in that way.

*2a). Were the codes (1,2,3,4) suitable for recording the changes you made?*

I think so and I got used to them quickly. I used code 4, using stickers and a prize for improvements in fluency. They were fine though overall, I would just have like more space to detail broader changes, about the instruction arrangements I suppose. It was fine though as I did make other notes.

*2b). Are there any changes you can suggest?*

They were all fine but maybe more space for detail- as I said before.

**Question 3 (Deciding on making a change)**

*3a). How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?*

I was a bit slow to start with; I worked to see her programme settle down. I was always monitoring the probe scores so needed to make teaching changes around fluency really- her accuracy was very good.

*b). what kinds of changes did you consider?*

Mainly teaching focusing on fluency, and we also changed the teaching place. Time and materials like the size of the font and probe size overall to keep her interested. We also did a practice probe to get her familiar with the process and less anxious. Practicing the test format was very important – this helped her concentrate more- a sense of preparedness.

*c). Where did these options come from?(experience, talking to others, reading etc)*

Largely through consultation with you I think and some learning from each other in the school. I talked through with my colleague who also had some great ideas. Most importantly I talked through with Sarah the student to make sure she was okay with it.

**Question 4 & 5 (Types and order of changes)**

*4a).Okay then T, looking at your record sheets you appeared to change the teaching most of the time. Why was this?*

I changed the teaching the most because this is the first port of call. I wanted to see if it was me causing the problem.

*b). Interesting. So, can you remember a particular example of this change ? – how did you think about what was going on?*

Well I believe in the philosophy of the approach: we are here to think about getting it right for the student. Just like we covered in the training. Its about taking responsibility and fine tuning things, whatever that might be. I start with myself, and think about the teaching first, if I talk this through with the student it helps clarify my plans.

*5. When you implemented more than one change within a single programme you tended to try changing the instruction, then increasing motivation or the task itself? Why was this?*

After seeing how the student is doing following teaching changes, when more changes are needed, I have a wider choice of changes in my mind to talk through. Giving her feedback positively and maybe changing the task were options I used though it varied from programme to programme. My principle was to start with the teaching to build accuracy and fluency and discuss other options later on.

**Question 6 (Most efficacious change)**

*6a). Overall what do you feel is the single most effective change you could make to improve student performance on a PT programme?*

Yes, I think I answered that in question 4a: changing the teaching I think is the most important, you have lots of options there I think.

*b). Ok, please explain why you said this.*

In my opinion it is always so specific to the student although instruction changes seem the most helpful, just talking out loud makes me think it is the relationship that is so important too. I would often notice if she wasn't settled, she was so excited, I needed to calm her down- I used the flashcards to calm her down. Being prepared was important by talking through targets and charts and talking about last time. Other days she was calmer and it did vary- it depended on her mood really.

**Question 7 (other comments)**

*7. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?*

No thanks, I have covered everything.

*'Thank you T for taking part in this discussion. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions*

*about this interview please feel free to contact me in the usual way via email or telephone'*.

**Plymouth Precision Teaching Project 07-08**

**Term 2 TA Interview Structure**

**Interview 5**

**Formal Interview with TA 5 at School 3 on 7.11.07**

**Questions 1 & 2 (Utility of Record sheet and Codes)**

*1a). First, looking at the Record sheets you used, how helpful were they in recording your changes?*

It was fine as there was little to write, so the size made it successful. It was fit for purpose after I got used to using the right codes.

*b). Have you looked back at the sheets and thought about what they might show / mean?*

I didn't think I had to make many changes. But looking at the sheets I did really. It shows how I had to do things sensitively and mix the changes up for him. They show my learning about him, as I recall looking over the old programmes to see what worked. Also it was the data side of things that reminds me how powerful the record sheet was.

*2a). Were the codes (1,2,3,4) suitable for recording the changes you made?*

They were fine for my purpose. I used them as principles to think about changes.

*2b). Are there any changes you can suggest?*

No, they made perfect sense. I used to focus on errors a lot through instruction. Like 'On' read as No', the teaching change was critical here.

**Question 3 (Deciding on making a change)**

*3a). How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?*

I was lively with CL – he was motivated, I only needed to make minor, but important changes. It was his face visually, I used to see fluctuations in his mood and body language. We would talk things through and agree on a teaching- this was always negotiated with Cooper. Without it I would never change a thing.

*b). what kinds of changes did you consider?*

I used teaching changes including changing the materials I taught with. Motivation was critical by building on success, by giving him praise, I didn't note them down because I do them naturally. He got a treat at the end of the programmes; this was to make up for missing good lessons (E.g. P.E.) as well as achievement. In fact, he didn't even want the rewards really, success on PT was enough.

*c). Where did these options come from?(experience, talking to others, reading etc)*

Talking to myself and to other colleagues like yourself and other teaching assistants. But the most important was CL himself, he helped a lot.

**Question 4 & 5 (Types and order of changes)**

*4a). Looking at your record sheets you appeared to change the instruction most of the time. Why was this?*

I changed teaching most because that was what worked. The task seemed fine and he was always progressing- this made the most sense. I would have only changed the task if it wasn't right for him.

*b). can you remember a particular example of this change ? – how did you think about what was going on?*

I was always thinking about the relationship with CL. Change to the programme were always agreed with him, and this was important as much as the change itself. Sometimes you need to tweak the teaching materials to move him on.

*5. When you implemented more than one change within a single programme you tended to try changing the teaching then changing the task. Why was this?*

This was the next thing that made sense. I tended to change the teaching quite early on, then if that didn't work I thought about the task size. By making things less demanding, like having less words, and so less pressure, early on. He seemed to prefer changing teaching first too and persevere a bit before changing things.

**Question 6 (Most efficacious change)**

*6a). Overall what do you feel is the single most effective change you could make to improve student performance on a PT programme?*

Understanding the teaching method or materials and the student. This, worked to help boost fluency throughout the programmes, but only in agreement with the student. Accuracy was the key. Keeping the student fully participating is paramount- I didn't do it to him, we did the PT programme together- That's what makes this different I think.

*b).OK L, can you explain why you said this.*
Well talking about it had helped me realise I think that it's the student's involvement is critical. I just did it naturally, cos we really believe it that here – its part of the way we do things round here. Pupil participation has been a core value for us. This is a microcosm of what goes on in class, but even more intense I think.

**Question 7 (other comments)**
*7. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?*
None. The relationship is the most important factor, without it PT programmes are non-starters.

*'Thank you L for taking part in this discussion. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please feel free to contact me in the usual way via email or telephone'.*

**Plymouth Precision Teaching Project 07-08**

**Term 2 TA Interview Structure**

**Interview 6**

**Formal Interview with TA 6 at School 3 on 07.11.07**

**Questions 1 & 2 (Utility of Record sheet and Codes)**

*1a). First, looking at the Record sheets you used, how helpful were they in recording your changes?*

They were fine and good for the kids; they can see their scores again as well on the chart by putting the stars by scores when they met accuracy and fluency targets. It was another way of showing them there progress – it was fine for me to record the changes too and helped me remember good things we had done before.

*b). Have you looked back at the sheets and thought about what they might show / mean?*

Changes show improvement because I change activities to help him become more fluent. At the start I just used flashcards when he has got the hang of it- but do it slowly. I then mix up the activities when they improve fluency. I use games like sentence completion, find the word, a wordsearch, matching and read game and also he takes the words home. I also get them to make their own probe sheets and read them back to me. It is important to mix it up sometimes and stop them getting bored. When he got confused I moved the word out to re-shape the programme when I was sure that the teaching, even slightly, isn't working, it was crucial to keep it achievable because it affects his confidence greatly.

*2a). Were the codes (1,2,3,4) suitable for recording the changes you made?*

I needed some help to get them right. I think mainly have smaller spaces for the codes in a more defined area – like tick boxes. I think that we could be more specific about the changes too by having a greater change especially around teaching changes. With motivation, I also gave reward stickers everyday if they got improved accuracy with fluency from the previous day- this was just about the task, not about them turning up or

anything: others do that to and the record sheets might not show this difference. But I didn't write this down because this seemed like such a natural aspect of the session.

*2b). Are there any changes you can suggest?*

As I just said really: more specific codes or options and definitions about types of praise. What you are praising.

**Question 3 (Deciding on making a change)**

*3a). How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?*

Because his motivation was going down. He was getting reluctant. It is a combination between the data, the scores and how he is. He would huff and slouch in his chair and wouldn't want to leave. When he was reluctant or it wasn't achievable or he is being unsuccessful I made a change.

*b). what kinds of changes did you consider?*

Mainly teaching and motivation with stickers. L always had a choice about what to do for teaching, actually once he had gone through accuracy we then used flashcards which he liked a lot. I instinctively use praise and probably didn't record it under code, err….(*pause*) code 4 as I should have.

*c). Where did these options come from?(experience, talking to others, reading etc)*

My experience of working with children with learning and behavioural needs- you need to be flexible and keep it positive or you might lose them-it is so important to involve them to you know.

**Question 4 & 5 (Types and order of changes)**

*4a). Looking at your record sheets you appeared to change the instruction most of the time. Why was this?*

Teaching was changed to keep interest up. By asking him too I kept him involved. There were things he liked and responded well to himself and improved on the probe bit.

*b). can you remember a particular example of this change ? – how did you think about what was going on?*

I thought about his motivation and interest if I carried on doing the activities myself without talking to him and thinking about his mood it would put him off. The motivation aspect was vital. I don't think I can really stress that bit enough. Getting motivation up isn't just about using praise and rewards, making him part of it is really important for the whole thing to work well.

*5. When you implemented more than one change within a single programme you tended to try changing the instruction, then the task, sequence or motivation? Why was this?*

I thought it was best to change teaching first, because that might be the problem. The task was my next option, even though I was using stickers too. In some cases I would think about the order to and introduce some early words he knew to build up confidence. I used some information about his response to the task within the context of my instruction. It felt like a combined effort sometimes.

**Question 6 (Most efficacious change)**

*6a). Overall what do you feel is the single most effective change you could make to improve student performance on a PT programme?*

Teaching variety was the key, usually it worked in most cases. Asking him too was always top of my agenda to keep him interested and part of the whole programme.

*b). please explain why you said this.*

This was about motivation for the student. You have to keep them going- without it, you have nothing to go on.

**Question 7 (other comments)**

*7. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?*

No, I think I have said it all now. Thanks for the chance to talk this through.

*‘Thank you T  for taking part in this discussion. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please feel free to contact me in the usual way via email or telephone’.*

**Plymouth Precision Teaching Project 07-08**

**Term 2 TA Interview Structure**

**Interview 7**

**Formal Interview with TA 7 at School 4 on 5.11.07**

**Questions 1 & 2 (Utility of Record sheet and Codes)**

*1a). First, looking at the Record sheets you used, how helpful were they in recording your changes?*

The score column and teaching one was fine, but the changes column was difficult- it was an additional thing to think about. You could have a tick box to record the codes- this would reduce writing. I am often so busy with 3 students that that would make it more do-able I think.

*b). Have you looked back at the sheets and thought about what they might show / mean?*

It has been a long time. Thinking about it now it shows you how the kids have done but we need more in the teaching column to help make sense of it. It doesn't show you about their motivation for getting on, if there was a space to show motivation to joining in that may tell us more. Do you see?

*Say a bit more if you can*

Well I think it's about recording my strategies for motivating them I think. It happens all the time, and I haven't really shown that in the record sheets except at the end. Giving positivity out was crucial for them all. The way I have recorded it doesn't show how much they needed, and whether it is different for each student in terms of how much they needed. I can think that my first student each day needed more but I cant be sure.

*2a). Were the codes (1,2,3,4) suitable for recording the changes you made?*

They were fine, but a tick box would help. But there could be new ones, and a way of easy recording the praise you give as a matter of course. But you cant record everything, you wouldn't do the programmes! May be a video recorder would help, it depends on what detail you want I suppose, looking at it all would talk forever!

*Probably!*

*2b). So,  are there any specific changes you can suggest?*
Yeah, as I said. Perhaps a motivation code not for the task, but for actually coming and turning up, being there. A merit for actually being there is good for them- especially year 7 and year 8. I would give them out at the end of the week each week- it's to reward consistency. A new code for this might be helpful. Also you could have a code for more testing I wasn't quite sure where this would go.

**Question 3 (Deciding on making a change)**
*3a). Ok, so how did you go about deciding on making a change to the teaching you carried out, or what things did you look for?*
If they turn up regularly then they might get a merit- some have tutor bases further away. It was mainly about code 4 I guess, though I didn't record all of these, I gave them an end of week reward or at the end of the programme for completing it and being committed.

*b). what kinds of changes did you consider?*
So, yeah, as I said, merits for commitment, increasing, or making sure of progress by extra reviews and also making the task harder by moving words in earlier, like a code 2 change.

*c). Where did these options come from?(experience, talking to others, reading etc)*
Experience really, I am the only one who does it- these things have worked in the past. I keep with things that work, and that's the point of all this isn't it?

*I see, I think it is really.*

**Question 4 & 5 (Types and order of changes)**

*4a). Looking at your record sheets you appeared to increase motivation most of the time. Why was this?*
As I have said before really. That works best. Is that okay?

*b).So, can you remember a particular example of this change ? – how did you think about what was going on?*
Just building on their successes is my thinking. If the bond is good between you and the student they know when you mean the praise. It is really and that's why I use it. I only used other tweaks and changes a bit, may be I was lucky? But, acknowledging attendance and commitment for the younger ones is really important. They get lost easily in this big place. So I wanted to recognise that as much as doing well at the end.

*5. We wont do question number 5 as most of the time one change was enough. The next one kinda answers itself really.*

**Question 6 (Most efficacious change)**
*6a). So, overall what do you feel is the single most effective change you could make to improve student performance on a PT programme?*
Change only when required. I tend to stick to what I know if it is showing that it works. Although increasing the size of the task, adding new words or more of them maybe helpful I didn't need to do this here really, apart from once I think. Good fun activities and praise works well for me and them!

*b). please explain why you said this.*
Just as I have said then. Experience shows this seems to work the best: the numbers cant be wrong, can they?

*Probably not.*

**Question 7 (other comments)**

*7. So, lastly are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?*

It is important to make the learning fun and introduce competition in the teaching like using snap. Relationships are important- Adam says 'I will beat you tomorrow' – this is vital or they won't be engaged, some of them just love the competition. Sometimes they are in a bad mood and I have to ask them about what is going on outside life- you need to give time to talk to them. One of the students used to just chat, chat, chat and liked to talk this in part of the experience. Some are a lot quieter and it is procedural. So a change here is happening to do with helping the relationship, being positive and optimistic but adds to the whole programme. This is a change isn't it! Sorry I didn't put it down.

*You just did (laughs)!*

*Thank you T for taking part in this discussion. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please feel free to contact me in the usual way via email or telephone'.*

**Plymouth Precision Teaching Project 07-08**

**Term 2 TA Interview Structure**

**Interview 8**

**Formal Interview with TA 8 at School 5 on 08.11.07**

**Questions 1 & 2 (Utility of Record sheet and Codes)**

*1a). First, looking at the Record sheets you used, how helpful were they in recording your changes?*

It was good for me because I didn't want to structure it too much- I wanted it to come from her so it prompted flexibility with the 4 codes and all. I used them to pick up on specific issues like in the first programme; I noticed problems with words with medial vowels. I had to address this and used my tactics to improve this again when it came up in later programmes. It also helped when I got to more difficult words- I was aware of things to look for, and also her performance was variable, so I needed to be flexible. The sheets prompted me to record things that I could use later on.

*b). Ok thanks. Have you looked back at the sheets and thought about what they might show / mean?*

As I said , they helped highlight patterns in learning and teaching I guess.

*2a). Were the codes (1,2,3,4) suitable for recording the changes you made?*

They were, I was first a bit worried, but I did find it quite simple. I just made changes and it was really obvious most of the time. I didn't use the sequence of task/skills code at all, the teaching of fluency was the key change I made, always thinking about the student and what helped them. Talking it through was part of this decision too.

*2b). Are there any changes you can suggest?*

I am happy with the coding, but sometimes there wasn't enough space to record it specifically- I need a log to make sure it was definite about what exactly helped. The coded weren't specific enough sometimes, the teaching one could mean loads of things.

*I see.*

**Question 3 (Deciding on making a change)**

*3a). So, how did you go about deciding on making a change to the teaching you carried out, or what things did you look for?*

A lot of it wasn't so much about the numbers or the data. It was about what N was saying, doing or responding to the task or just meeting with her. On one occasion I remember we looked at one word that she was not clear about and she appeared angered about it – I then changed the teaching based on her emotions, how she looked and things. It all came from her really. I always looked at her- it was looking for the subtle changes in her. It is hard to articulate it really- sometimes often just something little. I needed to keep up my understanding of her so I am sensitive towards her so she is thoroughly part of it. The programme should never be done to the student. The processes is fine but you must engage and understand the student in terms of the curriculum and how they are. I always talk things through with them before we start to look at expectations and the task, words themselves, this gets her settled.

*b). what kinds of changes did you consider?*

I always thought about her feelings a lot. But the codes didn't allow for interventions for emotional support, if you know what I mean.

*I think so, say a bit more if you can,*

Well, there are subtle events that keep the student settled and make sure clear about the task. Its like a jigsaw puzzle, the mechanics of the programme, everything else is the backdrop to that how they will do or how they have done. You have to empathize with them and truly get to grip with how the students are in themselves. You need more freedom than the codes and the structure of PT programme, what the emotional

interventions tell you about how they are is critical. It is crucial you avoid a negative cycle – nothing beats success.

*c). So, where did these options come from?(experience, talking to others, reading etc)*
Experience. I think it would be easy to be mechanical about this approach. Being open and flexible is crucial, you need to be willing to be open minded about it. Understanding children in the beginning and understanding that things may be different from how they are is important to the whole picture.

**Question 4 & 5 (Types and order of changes)**
*4a). Looking at your record sheets you appeared to change the instruction most of the time. Why was this?*
I have needed to be flexible about things and use a variety of teaching approaches, and that is important for success. Changes here were about stopping boredom and stimulating them as part of this.

*b).So H, can you remember a particular example of this change ? – how did you think about what was going on?*
The example of a word she was fixed on. The word 'Tuesday' was an example. I had to emphasise the use of it and generalise it in different ways. All the way through I am problem solving in with student, thinking at possible changes she may consider. Thinking about a word out of context is really helpful I'm putting into a sentence so it was meaningful to her.

*5. When you implemented more than one change within a single programme you tended to try changing the instruction then the task or the motivational aspect. Why was this?*
I was always looking at the action of teaching first. So she was increasingly clear about the task aspect, but we would change this if we needed to. The motivation was a 'safety net' to be increased when needed to boost her up to higher levels of fluency. If this didn't quite go so right this would always be there to help her across the line. The reason that I

feel motivation should come all the way through, but sometimes I pronounce it and add to it. This is when I have recorded it.

**Question 6 (Most efficacious change)**

*6a). Overall what do you feel is the single most effective change you could make to improve student performance on a PT programme?*

Honestly I don't think you can focus on one thing and that it is a number of things that you would pick up and choose in line with each student. Structure is critical, but the motivation is usually the flesh to the bones of this programme process.

*b). please explain why you said this.*

Well I think the process and procedures are the backdrop to what is really going on about how you get on with the student and how responsive you are to them. Natalie has always found reading hard, but she believed I believed in her and that made the biggest difference I think. She could see I could tell how she was and I would always look at that first.

**Question 7 (other comments)**

*7. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?*

I think you need to be open-minded so you can build a strong relationship. You must include flexible options that look beyond routines and are receptive to how the students are. When we build on this we build a relationship that can grow which allows an open dialogue about how they are really feeling about the work.

*That's great, well done.*

*Thank you H  for taking part in this discussion. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please feel free to contact me in the usual way via email or telephone'.*

**Appendix 4.2.5.1**

## Summary of key findings from TA Interviews 1-8

Overview to table

Each key, primary theme (the most frequently recorded) is emboldened with its' frequency of reference noted in brackets beside. The emerging primary themes are ranked in terms of frequency of expression (1st, 2nd and so on), and any elaborative comments relating to these primary themes are noted below in italics with a reference to their frequency in brackets alongside. Where more than one elaborative theme emerged the most commonly referenced is italicised and emboldened. Lastly, where one interviewee made reference to two separate themes an interview number reference is made (e.g. int. 1).

| ***Question*** | **Emerging primary themes** | | |
|---|---|---|---|
| ***1a). First, looking at the record sheets you used, how helpful were they in recording your changes?*** | **Rank 1**<br><br>**Helpful (6)**<br>*Elaborative themes:*<br>***-Helpful for future work (4)***<br>*-Size was appropriate (1)* | **Rank =2**<br><br>**Not helpful (1)**<br>*Elaborative themes:*<br>*-Size of columns was too small (1)* | **Rank =2**<br><br>**Part helpful (1)**<br>*Elaborative themes:*<br>*- Changes column seen as 'another thing to do' (1)* |
| ***b). Have you looked back at the sheets and thought about what they might show / mean?*** | **Rank 1**<br><br>**Highlights the effectiveness of changes in terms of . . .(7)**<br>*Elaborative themes:*<br>*-Preventing boredom (2)*<br>*-Using discussions (1)*<br>*-Being sensitive (1)*<br>***-Finding out what works best (3)***<br>***-Promoting performance (3)*** | **Rank =2**<br><br>**Highlights student performance (1)** (int. 7) | **Rank =2**<br><br>**Highlights the need for increased column size on the record sheet (1)** (int. 7) |
| ***2a). Were the codes (1,2,3,4) suitable for recording the changes you made?*** | **Rank 1**<br><br>**Yes (4)** | **Rank 2**<br><br>**Partially (3)**<br>*Elaborative themes:*<br>-Detail changes more specifically (e.g. code 3 and 4) | **Rank 3**<br><br>**No (1)**<br><br>*Elaborative themes:*<br>-Detail changes more specifically |
| ***2b). Are there any changes you can suggest?*** | **Rank 1**<br><br>**Yes (7)**<br>*Elaborative themes:*<br>*-Highlight discussions with pupils (1)*<br>*-Using a tick-box (1)*<br>*-More space for detail in columns (2)*<br>***-Greater specificity within codes (4)*** | **Rank 2**<br><br>**No (1)** | |
| ***3a). How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?*** | **Rank 1**<br><br>**Social and emotional presentation (4)** | **Rank =2**<br><br>**Responses to technical aspects (2)** | **Rank =2**<br><br>**Both - Social and emotional presentation and technical aspects (2)** |
| ***3b)What kinds of changes did you consider?*** | **Rank 1**<br><br>**Instructional changes (5)** | **Rank 2**<br><br>**Social/emotional interventions (3)** | **Rank 3**<br><br>**Task changes (1)** |

| | | | |
|---|---|---|---|
| ***3c) Where did these options come from?(experience, talking to others, reading etc)*** | **Rank 1**<br><br>**Experience (6)**<br><br>*Elaborative themes:*<br>*-Working with adolescents (2)*<br>*-Working with adolescents with specific needs (2)* | **Rank 2**<br><br>**Talking to others (2)**<br><br>*Elaborative themes:*<br>*-Colleagues and students (2)* | |
| ***4a)Looking at your record sheets you appeared to (insert type of change/s most frequently implemented) most of the time. Why was this?*** | **Rank 1**<br><br>**To improve student performance (7)**<br><br>*Elaborative themes:*<br>***-Task performance (4)***<br>*-Increasing engagement (2)*<br>*-Both task performance and engagement (1)* | **Rank 2**<br><br>**To demonstrate 'responsibility' (1)** | |
| ***4b) Can you remember a particular example of this change ? – how did you think about what was going on?*** | **Rank 1**<br><br>**Promoting student – teacher relationship (5)** | **Rank 2**<br><br>**Promoting task engagement (3)** | |
| ***5. When you implemented more than one change within a single programme you tended to try (insert type of change most frequently implemented first), then (insert type of change/s most frequently implemented latterly). Why was this?*** | **Rank 1**<br><br>**Student performance (7)**<br>*Elaborative themes:*<br>***-Task performance (5)***<br>*-Concentration (1)*<br>*-Confidence (1)* | | |
| ***6a) Overall what do you feel is the single most effective change you could make to improve student performance on a PT programme?*** | **Rank 1**<br><br>**Instructional changes (4)**<br><br>*Elaborative themes:*<br>***-Teaching variety (2)***<br>*-Introducing a 'warm-up' session (1)* | **Rank 2**<br><br>**Increasing motivation (3)**<br><br>*Elaborative themes:*<br>*-Visual feedback (1)*<br>*-Verbal feedback (1)*<br>*-Student discussion (1)* | **Rank 3**<br><br>**No single change (1)** |
| ***6b) Can you please explain why you said this.*** | **Rank 1**<br><br>**Social / Emotional support (7)**<br><br>*Elaborative themes:*<br>***-Personal understanding (5)***<br>*-Student participation (1)*<br>*-Building relationships (1)* | **Rank 2**<br><br>**Task performance (1)** | |

| | | | |
|---|---|---|---|
| ***7. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?*** | **Rank 1**<br><br>**Social and Emotional aspects (5)**<br><br>*Elaborative themes:*<br>*-Interaction between presentation and performance (1)*<br>*-Making sessions 'fun' (1) (int. 7)*<br>***-Building a relationship (4)*** *(int. 7) (int. 8)* | **Rank 2**<br><br>**Generalisation of skills (1)** | |

**Appendix 4.2.6**

**Framework for the systematic adaptation of teaching interventions (FSATI*)***

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**Guidance Document**

**Record Sheet**

**Flowchart**

~

**Developed by:**
**Will Roberts (Senior Educational Psychologist)**

-

**December 2007**

**(under evaluation through Plymouth Precision Teaching Project 07-08)**

# Appendix 4.2.6.1

## Framework for the systematic adaptation of teaching interventions (FSATI*)*

## Guidance Document

The framework (FSATI) is intended to be used for improving daily practice within PT sessions. This document describes the framework and provides practical documents that can be used readily during PT sessions. There are three inter-related parts:

- the main guidance text below, covering principles, process and practice matters to be considered when utilising the framework
- a FSATI record sheet to be utilised within daily practice for the recording of interventions used against the 'change' codes.
- a flowchart (also presented below) as a visual *aide-memoire* outlining the FSATI 'practice pathway' to inform decision making during PT programmes

**Principles for implementation**

FSATI should be implemented with regard to these over-arching principles:

PT represents an approach to improving learning that focuses on solving teaching problems and, with this, involves a sense of 'professional responsibility' for adults involved in providing effective adaptations throughout each programme. It is not one that emphasises a child's learning difficulties or wholly focuses on 'within child' factors in explaining progress.

The delivery of FSATI is to be a collaborative experience. PT programmes delivered through the framework are to be conducted *with* the student allowing for feedback and negotiation on task and teaching throughout as a general feature of delivery

The FSATI should respond to student's social and emotional needs. It is to be delivered within the developing context of a positive teaching-learning relationship that is fostered through the sessions, and strategies for increasing student engagement are to be implemented whenever necessary at the adult's discretion

The FSATI structure should be adhered to at all times. Exceptions to this are to be discussed with the Educational Psychologist.

**Overview to the FSATI**

FSATI is structured in a flowchart format allowing for a systematic or 'stepped' approach to PT sessions. Such delivery guidance is provided to support the implementation of PT programmes in their usual format through a framework to guide decision making. In addition to this guidance a complementary flowchart and record sheet is provided for practical use. *In the interests of practicality, each change code is only required to be entered once for each daily session on the record sheet to confirm implementation despite possible repeated use.*

The framework is split into three stages (daily sessions 1-3, 4-6 and 7-9), accounting for Steps A – I, and this is reinforced through the use of shaded flowchart boxes (daily session 1-3 are shaded yellow, 4-6 shaded green and 7-9 blue). These colours also correspond with the related decision point rows on the FSATI record sheet (i.e. decision point following session 3 is shaded yellow and so on) to be used to record any changes made at those points.

Staff are expected to commence each programme at Step A and follow through the flowchart in sequence making appropriate responses to the 'decision points' following daily sessions 3, 6 and 9. It should be noted that in addition to the suggested timings of different changes to PT programmes within this guidance, it is stressed that the provision of implementing strategies to 'increase student engagement' at the adult's discretion is permitted at any point throughout any programme. The following outline describes the

activities to be undertaken at each Step and, where appropriate, reference to 'staff aims' and preferred 'student outcomes' that should guide practice within the steps are made.

**The FSATI: 'A walkthrough'**

**Step A.** Familiarisation session – This first session is to be primarily used to discuss programme objectives (i.e. accuracy, fluency and maintenance criteria), outline process for next session, introduce new words and begin to build accuracy through brief teaching. A probe may be implemented on this occasion.

*Staff aim*: to build relationship and engagement with pupil via sharing task objectives and content and adapt teaching within the session (code 3) in negotiation with student.
*Student outcome:* to obtain clarity over task objective and build confidence about the task.

**Step B.** These next two sessions follow the usual PT format of *teach-test-chart-review*.

*Staff aim:* To build relationship with student through discussions (code 4) and employ the necessary teaching focus on error correction and building fluency where possible (code 3).
*Student outcome:* to build confidence and increase accuracy and fluency on task.

**Step C.** Staff to consider, 'is the programme objective met?' If so, continue to **Step A** and commence new programme. If not, to continue to **Step D.**

*Staff aim*: To systematically review progress in line with task objective.
*Student outcome:* To increase confidence through programme completion, and/or enhance relationship with staff member through discussion of current scenario.

**Step D. Following daily session 3 we arrive at the first key decision point** – If the student has not met objective at **Step C,** staff to consider, **'**is the student making steady

progress?' (i.e. is accuracy and fluency increasing?). If so, continue to **Step E.** If not, consider a change to the task size (code 2) with a revised programme and return to **Step A**.

*Staff aim*: To systematically review progress in line with task objective, and consider changes to task size (code 2).
*Student outcome:* To enhance relationship with staff member through discussion of current scenario by planning ahead.

**Step E.** At this point, from daily session 4 through to 6, staff continue to conduct PT sessions in usual format. During these next three sessions the student may exit the framework at anytime if the objective is met and then return to **Step A.** If the objective is not met following completion of session 6, the process moves to **Step F.**

*Staff aim:* To continue build relationship with student through discussions (code 4) and adapt teaching arrangements (code 3) in negotiation with student to maintain engagement and progress with regard to accuracy and fluency.
*Student outcome:* to continue to build confidence and increase accuracy and fluency on task.

**Step F. Following daily session 6 we arrive at the second key decision point**– Staff to consider, 'is the child near objective in terms of accuracy, fluency and maintenance?' If so, continue to **Step G**. If not, continue to **Step H**.

*Staff aim*: To systematically review progress in line with task objective, and begin to consider specific changes to reach task objective.
*Student outcome:* To enhance relationship with staff member through discussion of current scenario and discuss possible 'acceleration' strategies.

**Step G.** Alongside adapted teaching arrangements (code 3), staff to implement an increased use of motivational strategies (code 4) to increase performance for the next 3

daily sessions. During these next three sessions the student may exit the framework at anytime if objective is met and then return to **Step A.** If the objective is not met by completion of session 9, the process moves to **Step I.**

*Staff aim:* To continue build relationship with student through discussions and increased use of engagement strategies (code 4). Staff to also adapt teaching arrangements (code 3) in negotiation with student to maintain engagement and progress with regard to fluency and maintenance.
*Student outcome:* to continue to build confidence, increase fluency and demonstrate maintenance of skill.

**Step H.** Staff member to discuss programme with student and consider task based adaptations. This will necessitate restarting with a revised programme reflecting changes to task sequence (code 1) and/or task size (code 2).

*Staff aim*: To systematically review programme in terms of task size, sequence, teaching arrangements and engagement strategies used. Open discussion with student to maintain relationship and demonstrate sense of 'professional responsibility' over programme to date.
*Student outcome:* To maintain relationship with staff member through discussion of current scenario and discuss possible improvement strategies for future programmes.

**Step I. Following daily session 9 we arrive at the third key decision point** -Staff member to seek supervision from colleagues and /or Educational Psychologist regarding current programme. This is will necessitate restarting with a revised programme, and may reflect changes to task sequence (code 1) or task size (code 2).

*Staff aim*: To systematically review progress in collaboration with colleagues in order to refine future programmes in terms of task size, sequence, teaching arrangements and engagement strategies used. Open discussion with student to maintain relationship and

support student's self-esteem and self-efficacy by demonstrating a sense of 'professional responsibility' over progress on the programme to date.
*Student outcome:* To maintain self-esteem and self-efficacy and build relationship with staff member through discussion of current scenario and discuss possible improvement strategies for future programmes.

**Recording changes**

Changes made to PT programmes within this model will be made with reference to four codes using the FSATI Record Sheet (appended). These will be:

**Code 1** will represent 'change to the sequence of tasks' (i.e. re-ordering or inter-leaving words from PT programme plan lists)
**Code 2** will represent 'change to task size' (i.e. increasing or decreasing the number of items taught)
**Code 3** will represent 'change to teaching arrangements' and is sub-divided into four specific codes. These are:

- Changes to instructional procedures (i.e. moving from accuracy to fluency building activities) – **code 3a**
- Changes to organisational arrangements (i.e. timing of sessions, duration of daily intervention) – **code 3b**
- Changes to teaching materials (e.g. size and type of materials) –**code 3c**, and
- Changes to teaching activities (e.g. variety of 'games' utilised) – **code 3d**

Code 4 will represent strategies for 'increasing student engagement' and is sub-divided into four specific codes. These are:

- Recognition of positive task-related behaviours (e.g. improvements in accuracy and / or fluency, observed effort during PT sessions or programme completion) – **code 4a**
- Recognition of personal commitment to the intervention (e.g. regular attendance and punctuality, additional practise at home) – **code 4b**

- Interventions to develop relationships with student using more personalised approaches (such as discussions in response to mood or disposition) – **code 4c**
- Consultation about other aspects of the PT intervention to encourage student engagement (such as teaching approach, task expectations, task objectives and task sequence) **- code 4d**.

Any other changes that do not fit comfortably into any of the codes above should be noted on the FSATI record sheet.

Should you be uncertain of any aspect of the FSATI please do not hesitate to contact Will Roberts (Senior Educational Psychologist) via email or over the telephone.

**FSATI Record Sheet** **Appendix 4.2.6.2**

**Name of Student: …… Staff Member: …… Programme: …… Criteria- Acc**: 3 or less errors; **Fluency**: 50 wpm

**Maintenance**: 3 consecutive sessions.

| | **Date** | **Instructional Arrangements** (How did you teach?) | **Is this a change? If so, say what you did under code 3.** Changes to: Procedures(3a), Organisation (3b) Materials (3c) Activities (3d) | **Detail any other changes to the programme:** sequence(1), task size(2) or Increasing engagement - Task praise (4a) Commitment(4b) Relationships(4c) Consultation (4d) | No. correct (o) | No. incorrect (x) | Programme end? (Y or N) |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Session 3 Decision Point | Please note change to programme using code here (if required): | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Session 6 Decision Point | Please note change to programme using code here (if required): | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Session 9 Decision Point | Please note change to programme using code here (if required): | | | | | | |

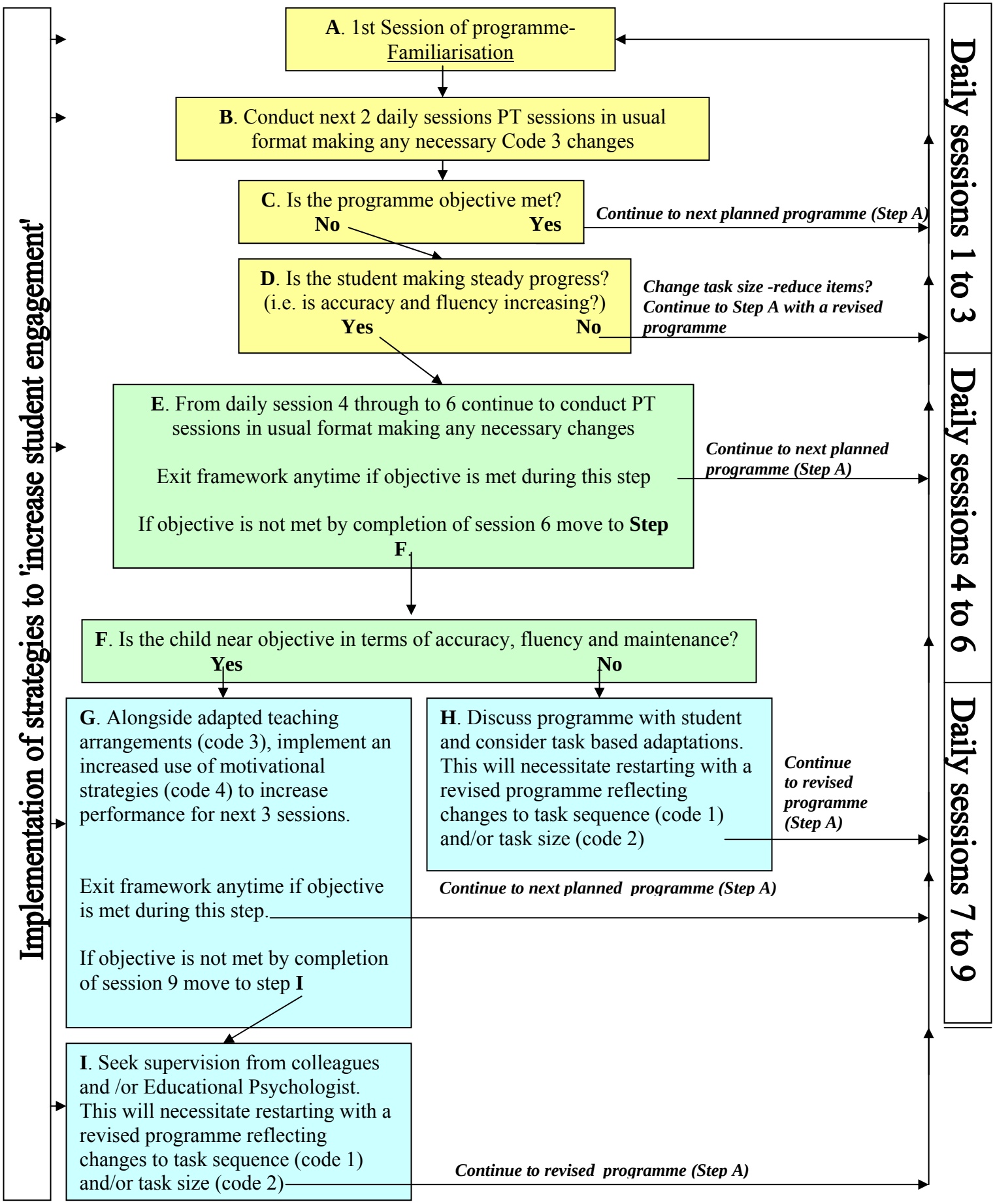
Code 1 will represent **'change to the sequence of tasks'**
Code 2 will represent **'change to task size'**

Code 3a-d will represent **'change to teaching arrangements' (3a, 3b, 3c, 3d)**
Code 4a-d will represent interventions to **'increase student engagement' (4a, 4b, 4c, 4d)**

***Other? – please note yourself***

**Appendix 4.2.6.3**

**Framework for the Systematic Adaptation of Teaching Interventions - FSATI**



**Appendix 4.2.7**

**1. Raw Data for the Reliability of Recording Measure (RRM)**

| Date | Audio Recording Number | Codes from Record Sheet | Codes from Audio | Percentage Agreement | New Interventions? | Possible Code | Example "…." |
|---|---|---|---|---|---|---|---|
| 7.1.08 | 1 | 4a, 4d | 4a(x8), 4d | 100 | Confirmation' | 4e | *Are you sure this is okay?'* |
| 8.1.08 | 2 | 3a, 4a, 4d | 3a, 4a (x7), 4d | 100 | Confirmation' | 4e | *Is that okay with you?* |
| **9.1.08*** | 3 | 3a, 4a, 4d | 3a, 4a (x9), 4d | 100 | Confirmation' | 4e | *Quite happy doing that now – yeah?* |
| 10.1.08 | 4 | 4a, 4d | 4a (x7), 4d (x2) | 100 | Confirmation' | 4e | *Happy with that?* |
| 11.1.08 | 5 | 4a, 3b | 4a (x8), 3b | 100 | Confirmation' | 4e | *Still want to keep on?* |
| 7.1.08 | 6 | 4a, 4d | 4a (x4), 4d | 100 | Confirmation' | 4e | *Okay then?* |
| 8.1.08 | 7 | 3a, 4a | 3a, 4a (x6) | 100 | Confirmation' | 4e | *Is that okay with you?* |
| 9.1.08 | 8 | 4a, 3c | 4a (x8), 3c | 100 | Confirmation' | 4e | *Happy with that?* |
| 10.1.08 | 9 | 4a | 4a (x7) | 100 | Confirmation' | 4e | *Happy with that?* |
| 11.1.08 | 10 | 3a, 3c, 4a | 3a, 3c, 4a (x6), 4c | 75 | Confirmation' | 4e | *Carry on?* |
| 7.1.08 | 11 | 4a | 4a (x6) | 100 | | | |
| 8.1.08 | 12 | 4a,4c,4d | 3a,4a (x8),4c,4d | 75 | Confirmation' | 4e | *Okay then?* |
| 9.1.08 | 13 | 4a, 4c | 4a (x10), 4c | 100 | Confirmation' | 4e | *Okay X?* |
| 10.1.08 | 14 | 3d, 4a | 3d, 4a (x12) | 100 | Confirmation' | 4e | *Was that as good as I thought?* |
| 11.1.08 | 15 | 4a | 4a (x6) | 100 | Confirmation' | 4e | *Ready to move on?* |
| 22.5.08 | 16 | 3a, 4a | 3a, 4a (x8) | 100 | Confirmation' | 4e | *Are you sure this is okay?'* |
| 23.5.08 | 17 | 3a, 4a, 4d | 3a, 4a (x8), 4d | 100 | | | |
| 24.5.08 | 18 | 4a | 3a, 4a (x9) | 50 | Confirmation' | 4e | *You sure?* |
| 25.5.08 | 19 | 4a | 4a (x5) | 100 | Confirmation' | 4e | *Okay, ready now?* |
| 26.5.08 | 20 | 3a, 4a | 3a, 4a (x6) | 100 | Confirmation' | 4e | *Okay, redy?* |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 22.5.08 | 21 | 4a | 4a (x10) | 100 | Confirmation' | 4e | *Shall we start?* |
| 23.5.08 | 22 | 4a | 4a (x9) | 100 | Confirmation' | 4e | *Okay then?* |
| 24.5.08 | 23 | 3d, 4a | 3d, 4a (x6) | 100 | Confirmation' | 4e | *Happy to begin with these?* |
| 25.5.08 | 24 | 4a,4c,4d | 3a, 4a (x7),4c,4d | 75 | Confirmation' | 4e | *Is that okay?* |
| 26.5.08 | 25 | 3a, 4a | 3a, 4a(x13) | 100 | Confirmation' | 4e | *Okay X?* |

| | | | |
|---|---|---|---|
| Mean agreement level | **95%** | Modal agreement level | **100%** |

**Notes**

1. 9.1.08* is the transcribed session presented on following pages in this Appendix

2. Under **'Codes from Audio',** items underlined were not recorded on written FSATI record sheets. Also, where a figure is presented in brackets next to a code (e.g. 4a (x13), this indicates that an example of this kind of intervention or change was recorded to have been employed repeatedly, thirteen times in this example, during that session from the audio recording.

**2. Sample transcript of Audio Recording 3 for the RRM from 9.1.08.**

***Transcript of PT Session on Wednesday 9th January 2008***

***Session 3 of a 7 session programme***

**School: 1** **TA (code): 1** **Student (code): 33**

| | |
|---|---|
| TA | Okay we are going to have a go at these words today and see how you go – then we will time you to do a test okay. Have a look at them first. ***Okay?*** |
| Student | Yeah, Dig, Tuesday, High, Thirteen, Eighteen, Fifteen, High, Fifteen, Thirteen, Thur – Thursday |
| TA | Eh |
| Student | Tuesday |
| TA | Tuesday – **yeah** |
| Student | Eighteen |
| TA | **Yeah** |
| Student | Fifteen |
| TA | **Yeah** |
| Student | Eighteen, Thirteen, Tuesday, Tuesday, Tuesday, Tuesday |
| TA | *Chuckles*, **great!** |
| Student | Thirteen, Thirteen, High, Eighteen, Thirteen |
| TA | **Well done.** All right then. So we'll have a little more practice and we'll see how you do and then we'll do the real thing. ***Quite happy doing that now – yeah?*** Right ….now what are we aiming for 50 –We'll try and go as fast as we can when I show you the cards like yesterday, all mixed up. We will go for about a minute or so. **I won't say them first today, just you see if you can do it on your own when I show you them**. Ready, Go! |
| Student | Dig, Thursday, Tuesday, Thirteen, Eighteen, Fifteen, High, Thirteen, Thursday, High, Fifteen, Dig, Eighteen, Fifteen, Tuesday, Eighteen, Thirteen, Dig, High, Tuesday, Dig, Eighteen, Fifteen, |

***'Okay'*** **Possible new intervention under code 4 (*confirmation*)?**

**'yeah' (4a)**

**'Yeah' (4a)**

**'Yeah' (4a)**

**'great' (4a)**

**'Well done' (4a)**

***'Quite happy…'*** **New intervention under code 4 (*confirmation*)?**

**'I won't say them first today…' (3a)**

High, Thirteen, Fifteen, Tuesday, High, Dig, Thirteen, Eighteen, High, Dig, Eighteen, Thirteen, Fifteen, Tuesday, Thirteen, Dig, Eighteen, High, Dig, Thursday, High, Dig, Thursday, Tuesday

TA (*TA chuckles*), Well done.

**'Well done' (4a)**

Student Thanks Miss. It feels quicker now.

TA **Do you want to have another crack at it a bit more practise? It's up to you we can do the real thing test now or do you want to** …

**'Do you want …'(4d)**

Student The real thing

TA The real thing now, the real test then we are going to get a little tiny bit quicker if we can.

Student Yeah

TA Right okey dokey, ready, go.

Student Dig, Tuesday, Thirteen, Eighteen, Fifteen, High, Thirteen, Tuesday, High, Fifteen, Dig, Eighteen, Fifteen, Tuesday, Eighteen, Thursday, Thirteen, Dig, High, Tuesday, Dig, Eighteen, Fifteen, High, Thirteen, Fifteen, Tuesday, High, Dig, Thirteen, Eighteen, High, Dig, Eighteen, Thirteen, Fifteen, Tuesday, Thirteen, Dig, Eighteen, High, Dig, Tuesday, Thirteen, Eighteen, Fifteen

TA Stop. **Really well done.** That was 45 and no mistakes.

**'Really well done' (4a)**

Student Really?

TA You were in the 30s yesterday, so that is a **really good step up**. Another 5 more and you would have reached the magic 50.

**'really good step up' (4a)**

Student Cool.

TA I'll just fill this in so that's done, what did I say 45 – no mistakes. **That's really good. Well done.** So come again on Thursday, tomorrow and we'll have another go and we'll see how you get on – see if we can get to that magic 50.

**'That's really good. Well done.' (4a)**

Student Okay

TA Well done R.

***End of session***

**Codes implemented:** 3a (x1); 4a (x9); 4d (x1)

**Note:**

**New interventions noted-** 'Confirmation' (x2) (possible addition to Code 4)

**Appendix 4.2.8**

**Programme duration and individual changes (raw 'coded' data) made for each programme across all schools for groups C and D under the FSATI**

| School (code) | Group (C or D) | TA (code) | PPTP Programme number | No. of sessions to meet criteria * | Changes recorded on daily session (DS) or decision point (DP) by code (1, 2, 3a, 3b, 3c, 3d, 4a, 4b, 4c, 4d) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | DS1 | DS2 | DS3 | DP 1 | DS4 | DS5 | DS6 | DP 2 | DS7 | DS 8 | DS 9 | DP 3 |
| 1 | c | 1 | 56 | 7 | 4a, 4d | 3a, 4a | 3a, 4a, 4d | | 4a | 4a, 3b | 4a, 3c | | 4a | | | |
| 1 | c | 1 | 57 | | 4a | 4a | 4a | 2 | | | | | | | | |
| 1 | c | 1 | 57 | 6 | 4a | 4a | 4a, 4b | | | | | | | | | |
| 1 | c | 1 | 58 | 3 | 4a | 4a | 4a, 4b | | | | | | | | | |
| 1 | c | 1 | 59 | 3 | 4a | 4a | 4a, 3b | | | | | | | | | |
| 1 | c | 1 | 60 | | 4d | 3a | 3b | | 4a | 3b, 4c | | 2 | | | | |
| 1 | c | 1 | 60 | 10 | 4a | 4a | 4a, 4b | | 4a | | | | | | | |
| 1 | c | 1 | 61 | 5 | 4d | 3a, 4c | 4a, 4c | | 4a | 4a | | | | | | |
| 1 | c | 1 | 62 | 5 | 4b | 3a, 3d | 4a | | 4a, 4b | 4a | | | | | | |
| 1 | c | 2 | 63 | 4 | 4b | 3a, 3d | 4a | | 4a | | | | | | | |
| 1 | c | 2 | 63 | | 4a | 4a | 3d | 2 | | | | | | | | |
| 1 | c | 2 | 64 | 6 | 4a | 4a | 4a, 4b | | | | | | | | | |
| 1 | d | 1 | 65 | 3 | 4a | 4a | 4a, 4b | | | | | | | | | |
| 1 | d | 1 | 66 | | 4a | 4a | 4a, 3b | | 3d, 4a | 4a | 4a | 1 | | | | |
| 1 | d | 1 | 66 | 10 | 4a | 4a | 3d | | 3d, 4a | | | | | | | |
| 1 | d | 1 | 67 | 5 | 4d | 3d, 4a | 3a, 4a, | | 3a, 4a | 4a | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 4d | | 4d | | | | | | | |
| 1 | d | 1 | 68 | | 3a, 4a | 4a | 4a | | 4a | | 4d, 4a | 2 | | | | |
| 1 | d | 1 | 68 | 10 | 4c | 4a | 4a | | 4a | | | | | | | |
| 1 | d | 2 | 69 | 5 | 4c | 4a | 4a | | 4a, 4d | | | | | | | |
| 1 | d | 2 | 70 | 8 | 4c | 3d, 4a, 4b | 4a | | | 4d | | | | 4a | | |
| 1 | d | 2 | 71 | 4 | 4a | 4a | 4a, 4b | | 4a | | | | | | | |
| 1 | d | 2 | 72 | 4 | 4a | 4a | 4a | | 3a, 4a | | | | | | | |
| 1 | d | 2 | 73 | | 4a | 3a, 4a | 4a | 2 | | | | | | | | |
| 1 | d | 2 | 73 | 6 | 4a, 4b | 4a | 4a, 4b | | | | | | | | | |
| 1 | d | 2 | 74 | 3 | 3d, 4a | 3d, 4a | 4a. 3d | | | | | | | | | |
| 1 | d | 2 | 75 | | 4a, 4d | 4a, 4d | 3b, 4a | | 3a, 4a, 4d | 4a | 4a | 1 | | | | |
| 1 | d | 2 | 75 | 10 | 4a, 4d | 4a, 4d | 3b, 4a | | 4a | | | | | | | |
| 1 | d | 2 | 76 | 3 | 4d | 4d | 3d, 4d | | | | | | | | | |
| 1 | d | 2 | 77 | 3 | 4a | 4a | 4a, | | | | | | | | | |
| 2 | c | 3 | 78 | 7 | 4a, 4d | 3a, 4a | 4a, 3c | | 4a | 3a, 3c, 4a | 3a, 4a, 4d | | 4a | | | |
| 2 | c | 3 | 79 | 3 | 4b | 4a, 3c | 4a | | | | | | | | | |
| 2 | c | 3 | 80 | 5 | 4c | 4a | 3d,4a | | 4a,4d | 3a, 4a, 4d | | | | | | |
| 2 | c | 3 | 81 | 5 | 4a,4c,4d | 3d,4a | 4d | | 4a | 4d | | | | | | |
| 2 | c | 3 | 82 | 4 | 3d, 4a | 4a,4d | 3d | | 4a | | | | | | | |
| 2 | c | 3 | 83 | | 4a | 4a,4d | ,4a,4c | | 4a | 3a, 4a, | 3a, 4a, | 1 | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 4d | 4d | | | | | |
| 2 | c | 3 | 83 | 9 | 4a | 4d | 4a | | | | | | | | | |
| 2 | c | 3 | 84 | 3 | 4a,4c,4d | 3d | 4a, 3c | | | | | | | | | |
| 2 | c | 3 | 85 | 3 | 4a | 3d,4a | 3d, 4a | | | | | | | | | |
| 2 | c | 3 | 86 | 4 | 4a | 4a,4d | 4a, 3c | | 4a | | | | | | | |
| 2 | d | 3 | 87 | | 4a | 4a,4d | 4a, 3c | 2 | | | | | | | | |
| 2 | d | 3 | 87 | 8 | 4a | 4a | 3d, 4a | | 4a | 4a | | | | | | |
| 2 | c | 3 | 88 | 5 | 4a | 4a, 3c | 4a, 3c | | 4a | 4a | | | | | | |
| 2 | c | 3 | 89 | | 4a | 3a, 4a, 4b | 3a, 4a, 4b | 2 | | | | | | | | |
| 2 | c | 3 | 89 | 6 | 4c | 4a | 4a | | | | | | | | | |
| 2 | c | 3 | 90 | 7 | 4a, 4b | 4a | 4a, 4b | | 4a,4c, 4d | 3a, 4a | 4a,4c, 4d | | 4a | | | |
| 2 | c | 3 | 91 | 7 | 4a | 3d,4a | 4a | | 4a, 4c | 4c | 4a,4c, 4d | | 4a | | | |
| 2 | c | 3 | 92 | 5 | 4a | 4a,4d | 3b,4a | | 4a, 3c | 4a,4c, 4d | | | | | | |
| 2 | d | 3 | 93 | 5 | 4a | 4d | 3d,4d | | 4a | 4a,4c, 4d | | | | | | |
| 2 | d | 3 | 94 | | 4a | 4a | 3a, 4a | 2 | | | | | | | | |
| 2 | d | 3 | 94 | 8 | 4a | 4a | 4a,4c, 4d | | 3a,3c,4d | 3a, 4a, 4d | | | | | | |
| 3 | c | 4 | 95 | 4 | 4a | 4a,4c, 4d | 4a, 4c | | 3d, 4a | | | | | | | |
| 3 | c | 4 | 96 | 7 | 4a | 4a, 4c | 4a, 3c | | 3a, 4a, 4d | 3c, 4a | 4a | | 4a,4c, 4d | | | |
| 3 | c | 4 | 97 | 6 | 4d | 4a, 3c | 3a, 4a | | 4a, 3c | 3a, | 4a,4c | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 4a | , 4d | | | | | |
| 3 | c | 4 | 98 | 5 | 4d | 4a | 4a | | 4a | 3b, 4c | | | | | | |
| 3 | c | 4 | 99 | | 4d | 3a, 4a, 4b | 4a | | 3a, 4a, 4b | 3a, 4a, 4b | 4a | 2 | | | | |
| 3 | c | 4 | 99 | 9 | 4a | 3a, | 4a | | | | | | | | | |
| 3 | c | 4 | 100 | 6 | 4a | 4a | 3c, 4c | | 4a | 3a, 4a, 4b | 4a | | | | | |
| 3 | c | 4 | 101 | 6 | 4a, 4b | 4a | 3a, 4a, 4b | | 4a | 3a, 4a, 4b | 4a | | | | | |
| 3 | c | 4 | 102 | | 3b, 4a | 4a | 3c, 4c | | 4a,4b | 4a | 4a | 2 | | | | |
| 3 | c | 4 | 102 | 10 | 4a | 4a | 4a | | 4a,4b | | | | | | | |
| 3 | c | 4 | 103 | 6 | 4a | 4a | 3c, 4c | | 3a, 4a, 4d | 4a | 4a | | | | | |
| 3 | c | 4 | 104 | 6 | 4c | 3a, 4a, 4b | 3c, 4a | | 4a | 4d | 4a | | | | | |
| 3 | c | 4 | 105 | 4 | 4c | 3a, 4a, 4b | 3a, 4a, 4b | | 4a | | | | | | | |
| 3 | c | 4 | 106 | 4 | 4a,4c, 4d | 4d, 4c | 3a, 4a, 4b | | 4a | | | | | | | |
| 3 | c | 4 | 107 | 5 | 4a, 4c | 4a, 4b | 4a | | 4a | 3a, 4a, 4b | | | | | | |
| 3 | c | 4 | 108 | 4 | 4a, 3c | 3b, 4a | 4d, 4a | | 4a | | | | | | | |
| 3 | c | 6 | 109 | 8 | 3a, 4a, 4b | 4a | 3a, 4a, 4b | | 3a, 4a, 4b | 3a, 4a, 4b | 3a, 4a, 4b | | 4a | 4a | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | c | 6 | 110 | | 4c | 4a | 4a, 3b | 2 | | | | | | | | |
| 3 | c | 6 | 110 | 8 | 3a, 4a, 4b | 4a | 4a | | 3a, 4a, 4b | 3a, 4a, 4b | | | | | | |
| 3 | c | 6 | 111 | 7 | 4a | 4a, 4b | 4d, 4a | | 3a, 4a, 4d | 3a, 4a, 4b | 3a, 4a, 4b | | 3a, 4a, 4b | | | |
| 3 | c | 6 | 112 | 7 | 4a | 3a, 4a, 4b | 4a | | 4d | 3a, 4a, 4b | 3a, 4a, 4b | | 3a, 4a, 4b | | | |
| 3 | c | 6 | 113 | 5 | 4a,4c, 4d | 4a, 3b | 3d,4a | | 4a,4d | 3a, 4a, 4b | | | | | | |
| 3 | c | 6 | 114 | 8 | 4c | 3a, 4a, 4b | 4a | | 3a, 4a, 4d | 3a, 4a, 4d | 3d | | 4a | 4a | | |
| 3 | c | 6 | 115 | 4 | 4c | 3a, 4a, 4b | 4a | | 4a | | | | | | | |
| 3 | c | 6 | 116 | | 3c, 4a | 3a, 4a, 4b | 3c, 4a | | 4a | 4a | 4c, 3d | 2 | | | | |
| 3 | c | 6 | 116 | 11 | 4a | 3a, 4a, 4b | 3a, 4a, 4b | | 4a | 4a | | | | | | |
| 3 | c | 5 | 117 | 4 | 3c, 4a | 4a | 4a | | 3a, 4a, 4b | | | | | | | |
| 3 | c | 5 | 118 | 5 | 3a, 4a, 4b | 4a | 4a | | 4a | 3b, 4a | | | | | | |
| 3 | c | 5 | 119 | 5 | 3a, 4a | 3c, 4a | 4a | | 4a | 3b, 4a | | | | | | |
| 3 | c | 5 | 120 | 5 | 3a, 4a, 4b | 3b, 4a | 4a | | 3b, 4a | 3b, 4a | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | c | 5 | 121 | 5 | 3a, 4a, 4b | 4a | 4b, 4a | | 3b, 4a | 3b, 4a | | | | | | |
| 3 | c | 5 | 122 | 4 | 4a | 4a | 4a | | 3b, 4a | | | | | | | |
| 3 | c | 5 | 123 | | 4a | 4c | 4a | 2 | | | | | | | | |
| 3 | c | 5 | 123 | 8 | 3a, 4a, 4b | 4a | 4a | | 3a, 4a, 4d | 4a | | | | | | |
| 3 | d | 5 | 124 | 5 | 3a, 4a, 4b | 4b | 3a, 4a, 4b | | 3a, 4a, 4d | 4a | | | | | | |
| 3 | d | 5 | 125 | 5 | 4a | 4a | 4a | | 3a, 4a, 4d | 4a, ab | | | | | | |
| 3 | d | 5 | 126 | 5 | 3a, 4a, 4b | 4a | 4a | | 4a | 4a | | | | | | |
| 3 | d | 5 | 127 | 4 | 4a | 4a, 4b | 4a, 4c | | 4a, 4b | | | | | | | |
| 3 | d | 5 | 128 | | 4a | 4a | 4a, 4c | 2 | | | | | | | | |
| 3 | d | 5 | 128 | 6 | 4a | 3a, 4a, 4b | 4a, 4c | | | | | | | | | |
| 3 | d | 5 | 129 | 6 | 4a | 3a, 4a, 4b | 3a, 4a, 4b | | 4a | 4a, 4b | 4a, 4c | | | | | |
| 3 | d | 5 | 130 | 3 | 4a | 4a, 4b | 3a, 4a, 4b | | | | | | | | | |
| 3 | d | 5 | 131 | | 4a | 4a | 3c, 4a | 2 | | | | | | | | |
| 3 | d | 5 | 131 | 8 | 4a | 4a | 4b | | 4a | 4a | | | | | | |
| 3 | d | 5 | 132 | 4 | 3a, 4a, 4b | 4a | 4a | | 3a, 4a, 4d | | | | | | | |
| 3 | d | 4 | 133 | | 4a | 4a | 4a | | 4a | 4a | 3a, 4a | | 4a, 4b | 4a, 4b | 4a | 1, 2 |
| 3 | d | 4 | 133 | 14 | 4a | 4a, 4c | 3a, 4a, 4d | | 4a | 4a | | | | | | |
| 3 | d | 4 | 134 | 4 | 3a, 4a, 4d | 4a | 4c | | 3a, 4a, 4d | | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | d | 4 | 135 | 3 | 3a, 4a, 4d | 4a | 4a | | | | | | | | | |
| 3 | d | 4 | 136 | | 4a, 4d | 3d, 4a | 4a | 2 | | | | | | | | |
| 3 | d | 4 | 136 | 7 | 3a, 4a | 3a, 4a | 4a | | 4a | | | | | | | |
| 3 | d | 4 | 137 | 6 | 3a, 4a | 3a, 4a | 4a | | 3d, 4a | 4a | 4a | | | | | |
| 3 | d | 4 | 138 | 6 | 3c, 4a | 3c, 4a | 3c | | 3c, 4a | 3c, 4a | 4a | | | | | |
| 3 | d | 5 | 139 | 3 | 4a | 3d,4a | 4a | | | | | | | | | |
| 3 | d | 5 | 140 | 3 | 4a | 4a | 3b,4a | | | | | | | | | |
| 3 | d | 5 | 141 | 3 | 3c, 4a | 4d | 4a | | | | | | | | | |
| 3 | d | 5 | 142 | | 4a | 4a | 3c, 4a | 2 | | | | | | | | |
| 3 | d | 5 | 142 | 7 | 4a | 4a | 4a | | 3d, 4a | | | | | | | |
| 3 | d | 5 | 143 | 5 | 4a | 3b,4a | 3c, 4a | | 3a, 4a | | | | | | | |
| 3 | d | 5 | 144 | 3 | 3a, 4a | 3a | 4a | | | | | | | | | |
| 3 | d | 5 | 145 | 3 | 4c | 4a | 3d,4a | | | | | | | | | |
| 3 | d | 5 | 146 | 5 | 3a, 4a | 3a, 4a | 3a, 4a | | 4a | 4d | | | | | | |
| 3 | d | 5 | 147 | | 4a | 3a | 4a | | 3a, 4a | 4a | 4a | 2 | | | | |
| 3 | d | 5 | 147 | 9 | 4a | 3a, 4a | 4a | | | | | | | | | |
| 3 | d | 5 | 148 | 4 | 3a, 4a | 3a, 4a | 3a, 4a | | 4a | | | | | | | |
| 3 | d | 5 | 149 | 5 | 3a, 4a | 4a | 4a | | 3a, 4a | 4a, 4b | | | | | | |
| 3 | d | 5 | 150 | 3 | 4a | 4a | 4a | | | | | | | | | |
| 3 | d | 6 | 151 | | 4a | 3d, 4a | 4a | | 4a | 3c, 4a | 3a, 4a | | 4a | 4a, 4b, 4c | 4a | 1, 2 |
| 3 | d | 6 | 151 | 13 | 4a | 3a, 4a | 4a | | 4a | | | | | | | |
| 3 | d | 6 | 152 | 7 | 4a | 3a, 4a | 4a | | 4a | 3a, 4a | 4a | | 4a | | | |
| 3 | d | 6 | 153 | 4 | 4a | 3a, 4a | 4a | | 4a | | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | d | 6 | 154 | | 3a, 4a | 3d, 4a | 4a | 2 | | | | | | | | |
| 3 | d | 6 | 154 | 8 | 4a | 3a, 4a | 4a | | 4c | 4a | | | | | | |
| 3 | d | 6 | 155 | 3 | 4a | 3a, 3c | 4a | | | | | | | | | |
| 3 | d | 6 | 156 | 3 | 4a | 4a | 4a | | | | | | | | | |
| 3 | d | 6 | 157 | | 4a,4d | 3a, 4a | 4a | | 4a | 3c | 4a | 1 | | | | |
| 3 | d | 6 | 157 | 9 | 4a | 3a, 4a | 4a | | | | | | | | | |
| 3 | d | 6 | 158 | 3 | 4a | 3d,4a | 4a | | | | | | | | | |
| 4 | c | 7 | 159 | 5 | 4a | 3a, 4a | 4a | | 4d | 4a | | | | | | |
| 4 | c | 7 | 160 | 3 | 4a | 3a, 4a | 4a | | | | | | | | | |
| 4 | c | 7 | 161 | | 4a | 4a | 3c, 4a | 2 | | | | | | | | |
| 4 | c | 7 | 161 | 10 | 4a | 3a, 4a | 4a | | 4a | 3a | | | 4a | | | |
| 4 | c | 7 | 162 | 3 | 4a | 4a | 4a, 4d | | | | | | | | | |
| 4 | c | 7 | 163 | 3 | 4a | 4a | 4a | | | | | | | | | |
| 4 | c | 7 | 164 | | 4c | 3a | 4a | 2 | | | | | | | | |
| 4 | c | 7 | 164 | | 4c | 3a, 4a | 3a, 4a | | 4a | 3a, 4a | 4a | | 4c | 4a | 4a | 1, 2 |
| 4 | c | 7 | 164 | 16 | 4a, 4c | 3a, 4a | 4a | | 4a | | | | | | | |
| 4 | d | 7 | 165 | 3 | 3a, 4a | 3a, 4a, 4d | 4a | | | | | | | | | |
| 4 | d | 7 | 166 | 7 | 4a | 3a, 4a | 4a | | 4a | 3a, 4a | 4a | | 4a | | | |
| 4 | d | 7 | 167 | | 4a | 3c, 4a | 4a | 2 | | | | | | | | |
| 4 | d | 7 | 167 | 6 | 4a | 3a, 4a | 4a | | | | | | | | | |
| 4 | d | 7 | 168 | 3 | 4a | 3a, 4a | 4a | | | | | | | | | |
| 4 | d | 7 | 169 | 3 | 4a | 3a, 4a | 4a | | | | | | | | | |
| 4 | d | 7 | 170 | | 4a | 4a | 4a | | 4c | 3a | 4a, 4d | 2 | | | | |
| 4 | d | 7 | 170 | 9 | 4a | 3a, 4a | 4a | | | | | | | | | |
| 4 | d | 7 | 171 | 3 | 4a | 4a | 4a, 4b | | | | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | d | 7 | 172 | 3 | 4a, 4b, 4c | 3a, 4a, 4b | 4a | | | | | | | | | |
| 4 | d | 7 | 173 | | 4a | 3a, 4b | 4a | 2 | | | | | | | | |
| 4 | d | 7 | 173 | 6 | 4a | 3b, 4a | 4a | | | | | | | | | |
| 5 | c | 8 | 174 | 3 | 4d | 3a, 4a | 3b, 4a | | | | | | | | | |
| 5 | c | 8 | 175 | 5 | 4d | 3a, 4c | 4a, 4c | | 4a | 3a, 3c, 4d | | | | | | |
| 5 | c | 8 | 176 | | 4a | 3a,3d | 4a | 2 | | | | | | | | |
| 5 | c | 8 | 176 | 8 | 4d | 3a, 4c | 4a, 4c | | 4a | 4d | | | | | | |
| 5 | c | 8 | 177 | 3 | 4a | 3a, 4a | 3b, 4a | | | | | | | | | |
| 5 | c | 8 | 178 | | 4d | 3a, 4a | 4a | 2 | | | | | | | | |
| 5 | c | 8 | 178 | | 4a | 4a | 4a | | 4a | 3a, 3c, 4a | 4a | 2 | | | | |
| 5 | c | 8 | 178 | | 4d | 4a, 4c | 4a | | 4c, 4d | 3d | 4a | | 4a | 4a | 4c, 4d | 1 |
| 5 | c | 8 | 178 | 21 | 4a, 4d | 4a | 4a | | | | | | | | | |
| 5 | c | 8 | 179 | 3 | 4a | 4a | 3a, 4a | | | | | | | | | |
| 5 | c | 8 | 180 | 3 | 4a, 4d | 3a, 4c | 4a, 4c | | | | | | | | | |
| 5 | c | 8 | 181 | 3 | 4a | 3a | 4a | | | | | | | | | |
| 5 | d | 8 | 182 | 3 | 4a | 4a | 3d,4a | | | | | | | | | |
| 5 | d | 8 | 183 | 3 | 4a,4c,4d | 3a, 4a | 4d | | | | | | | | | |
| 5 | d | 8 | 184 | | 4a | 4a | 3b,4d | | 4a, 4c | 4a | 4a | 1 | | | | |
| 5 | d | 8 | 184 | 10 | 4a | 4a | 3a, 4a | | 4a | | | | | | | |
| 5 | d | 8 | 185 | | 4a | 4a | ,4a,4c | | 4c | 4a | 4a | 2 | | | | |
| 5 | d | 8 | 185 | 9 | 4a | 4a | 4a | | | | | | | | | |
| 5 | d | 8 | 186 | 3 | 4a,4c,4 | 3a, 4b | 4a, 4d | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | d | | | | | | | | | | | |
| 5 | d | 8 | 187 | | 4a, 3c | 3a,4a,4 d | 4a | 2 | | | | | | | | |
| 5 | d | 8 | 187 | 7 | 4a, 4c | 4a, 4c | 3b,4a,4 c, | | 4a | | | | | | | |

**Key to table in Appendix 4.2.8 (above)**

(solid grey cell) programme ceased
(yellow cells) denote that the programme was revised at decision point 1
(green cells) denote that the programme was revised at decision point 2
(blue cells) denote that the programme was revised at decision point 3
(pink bordered cell) denotes that the programme ceased as student met the success criteria* on that daily session.

**Note 1.** The success criteria* requires the student to achieve at least fifty correct responses per minute with three or less errors over three consecutive sessions on their current list of words.
**Note 2.** Where cells do not have a 'change code' entry, no change was recorded on that daily session.
**Note 3.** All TAs recorded that they began teaching new programmes using the model-lead-test-review (MLTR) teaching procedure on their record sheets.

**Appendix 4.2.9**

**Table showing the number of sessions taken for each programme to reach the success criteria for groups C and D**

| Number of sessions per programme to meet success criteria | Frequency |
|---|---|
| 3 | 36 |
| 4 | 17 |
| 5 | 24 |
| 6 | 15 |
| 7 | 12 |
| 8 | 10 |
| 9 | 6 |
| 10 | 7 |
| 11 | 1 |
| 12 | 0 |
| 13 | 1 |
| 14 | 1 |
| 15 | 0 |
| 16 | 1 |
| 17 | 0 |
| 18 | 0 |
| 19 | 0 |
| 20 | 0 |
| 21 | 1 |

**Appendix 4.2.10**

**Plymouth Precision Teaching Project 07-08**

**Term 5 TA Interview Structure**

| | |
|---|---|
| **NAME:_____** | **DATE:_____** |
| **SCHOOL: _____** | **TIME: _____** |

**Timing & Materials**

Prior to each interview a preliminary analysis of each TAs FSATI Record sheets will be conducted. This analysis will primarily focus on:

- The use of the FSATI within the guidance issued
- The frequency of different teaching adaptations made within each programme at different times
- The sequence of different teaching adaptations made within each programme

Each interview will last approximately 45 minutes and will require the FSATI guidance and record sheets completed by each TA to be accessible for discussion. Formal introductions and questions are set-out below, though it is anticipated further prompts, re-wording and commentary may be necessary to facilitate the interview process: these will be recorded in the full transcripts.

**Introductions & Instructions**

*A. 'This is the last interview we will have looking at the work you have been doing. There are two parts, with the first looking at the FSATI and coded changes you have made to the PT programmes you have implemented. To do this we will look over the Record sheets you have completed and consider some questions that may help me understand more about what you have done. I will record our interview using a tape recorder so I don't miss anything you say.'*

Record sheets and the FSATI are made available for TAs to look over as an aide-memoire.

*B. 'Is this okay?'.* If not, a re-explanation of *A* is issued.

*C. 'What I am hoping to do is to use all of the information about changes to teaching made by all the TAs across all the participating schools to look at:*

- *the use of the FSATI and the guidance that came with it*
- *the precise teaching adaptations made by staff within the framework, and*
- *the way in which these adaptations are made*

*From here I aim to possibly revise the framework to help you further in the changes you make when carrying out PT programmes in the future. Okay?'*

If not, a re-explanation of *C* is issued.

*D. 'After this I want to explore some of your views on other things you may have learnt as being part of this project. We have looked at some of these as we have met on our support visits, and I want to make sure we don't miss anything that we can use in future work like this. Okay?'*

If not, a re-explanation of *D* is issued.

**Formal Interview Structure**

**-Part 1-**

**Questions 1 & 2 (Understanding and use of the FSATI)**

*1a) 'First, looking at the framework and guidance, was it clear how you needed to use it?'*

*1b) 'Can you give examples of this?*

*1c) 'What were the most helpful aspects of FSATI materials I produced?'*

*1d) 'Were there any aspects that were less helpful, or is there anything I could improve on?'*

*2a) 'Was the FSATI helpful during actual programme delivery?*

*2b) 'Were they any drawbacks, such as being overly restrictive, or may be too open ended?'*

**Questions 3 & 4 (Utility of Record sheet and Codes)**

*3. 'Now looking at the new Record sheets you used, how helpful were they in recording your changes?'*

*4a). 'Were the codes 1,2,3,4, and the sub codes suitable for recording the changes you made?'*

*4b). 'Are there any changes you can suggest. Were there any other kinds of changes not covered within the FSATI?'*

**Question 5 (Deciding on making a change)**

*5a). 'Were the key 'decision points' helpful in making changes to support student progress. If so, in what way?'*

*5b) 'How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?'*

**Question 6 (Most efficacious change)**

*6a). 'Overall, and thinking back across the project, what do you feel is the single most effective change you could make to improve student performance on a PT programme?'*

*6b). 'Can you explain why you said this.'*

**Question 7 (other comments)**

*7. 'As I pointed out at the beginning, I am planning to revise the framework at the end of this project. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?'*

**-Part 2-**

*E. 'I now want to explore some of your views on other things you may have learnt as being part of this project. As I said earlier, we have looked at some of these things as we have met on our support visits, and I want to make sure we don't miss anything that we can use in future work like this. Is this okay?'*

If not, a re-explanation of *E* is issued.

*F. 'Before we start the questions in Part 2, I would like to gather some personal information on this sheet* (present Participant Information Record) *if you are happy to provide it. You don't have to complete the whole sheet, or any of it at all, it's up to you. The information I collect will be helpful in my analysis of the whole research project, and will be kept securely and presented anonymously within the report. I will destroy the*

*original sheet you complete or return it to you once it has been summarised for analysis. Is this okay?'*

If not, a re-explanation of *F* is issued.

**(5 minutes allowed for completion of sheet – attached to the rear of the interview schedule).**

**Question 8 (Developments in understanding of teaching and learning)**

*8a). 'I am interested in any broad learning outcomes for you as a professional through being part of this project from the very beginning; such as any changes in your professional thinking. So, where you see there has been a change, could you tell me what you feel you have learnt about effective teaching and learning throughout the project?'*

*8b).* (1st Prompt, if necessary) – *'I am interested in any broad areas of change in your thinking about effective teaching and learning. Are there any aspects of how you think about your work with students that are different now?'*

*8c).* (2nd Prompt, if necessary) – '*How about* (present in turn, and give time for response, if not mentioned beforehand),

- *reviewing and reflecting on student's progress?*
- *the importance of relationships?*
- *how tasks or learning opportunities are presented?*
- *organisational arrangements in school?*
- *student's social or emotional presentation?*

**Question 9 (Developments in personal practice)**

*9a). 'So, on a more practical level, are there any features of PT that you feel have been of particular relevance to other areas of your practice, such as in class or other individual work you do?'*

*9b).* (1st Prompt, if necessary) – '*Could you give examples of this and how you use them?'*

*9c).* (2nd Prompt, if necessary) – '*Have you thought about things like* (present in turn, and give time for response, if not mentioned beforehand),

- *dialogue with students and use of questioning (e.g. asking the pupil how they feel they are progressing)?*
- *giving appropriate, specific feedback?*
- *sharing targets, goals or objectives with pupils?*
- *formative use of information from student's previous work?*
- *noticing and acting on the social or emotional context in school or lessons?'*

**Question 10 (other comments)**

*10. 'As a last question, are there any other important things you feel you have learnt during the project that we haven't covered so far?'*

If required, *'Why do you feel this is important?'*

*'Thanks for your time. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please feel free to contact me in the usual way via email or telephone'.*

**Participant Information Record**

**Participant (TA code): _____ School: _____**

**Sex: (Please circle)** Male Female

**Current position: _____**

**Length of time in current position: _____**

**Previous positions & length of service:** _____

_____

_____

**Qualifications (Please circle):**

-Secondary Education (CSE/ GCE / GCSE /other)

-Tertiary / Further Education (A Level/BTEC/other)

-Higher Education (First Degree / other)

-Higher Education –Post Graduate (Higher Degree / PGCE / Advanced Degree / other)

**Current courses / qualifications: _____**

**Planned courses / qualifications: _____**

**Aspirations:** _____

_____

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**Appendix 4.2.11**

**Plymouth Precision Teaching Project 07-08**

**Term 5 TA Interview**

| | |
|---|---|
| **NAME(TA code):___1_____** | **DATE:_7.5.08** |
| **SCHOOL: _____1_____** | **TIME: _9 a.m.** |

**Interview 9**

**-Part 1-**

**Questions 1 & 2 (Understanding and use of the FSATI)**

*1a)' First, looking at the framework and guidance, was it clear how you needed to use it?'*

Yes it was. It mirrored my practice. The 3, 6 and 9 day checking are critical really – it highlights the need for thinking about changes too all along, and I guess these are important prompts to do this.

*b) 'Can you give examples of this?*

It helped me question it, is what I am doing right and reflect back on how the kid is doing each day. This will be ideal for people who are new to PT. I have shown it to explain what we have been doing to teachers in class and they are interested too.

*c) 'Okay. What were the most helpful aspects of FSATI materials I produced?'*

The guidance materials gave me more detail and was really crucial to make the correct notes on the record sheets. It was detailed too so occasionally I would look back to check I was keeping on track with it each day. I think that was it really.

*d) 'And so, were there any aspects that were less helpful, or is there anything I could improve on?'*

No it was fin really, and I could see the value of it all. If there was one thing I didn't do was always do a warm-up or familiarisation session at the start, as I don't think it was needed really. But no, saying that, in all it was all clear and really helpful though so little to improve on I think.

*2a) 'Was the FSATI helpful during actual programme delivery?*
Yes, it really was a clear structure.

*2b) 'Were they any drawbacks, such as being overly restrictive, or may be too open ended?'*
No, I didn't think so. I liked the structure and you have freedom within it, and I think that is just what you need really.

**Questions 3 & 4 (Utility of Record sheet and Codes)**
*3. 'Okay. Now looking at the new Record sheets you used, how helpful were they in recording your changes?'*
They were very helpful, for sure. They highlighted the checkpoints well as I have said before, and so remind me of the right times to have a good look at the data with the student. The way it ties in with everything else really helped.

*4a). 'And so were the codes 1,2,3,4, and the sub codes suitable for recording the changes you made?'*
Yeah, though I tended to stick with ones that work – they all covered all the changes I made very well. I can't recall anything I did that didn't fit, although I seem to stick with one or two favourites really looking at it now.

*4b). 'Are there any changes you can suggest. Were there any other kinds of changes not covered within the FSATI?'*

No, they are all fine really. You don't want to make it too detailed as people won't use it, it wont be practical. All the programmes seemed to work so well when you have the student on board with it all.

**Question 5 (Deciding on making a change)**

*5a). 'Were the key 'decision points' helpful in making changes to support student progress. If so, in what way?'*

Yes, as I said before, they are good, clear reminders to look at the dates. Before, I wouldn't pay such attention in a routine way. They really helped me look at things and gave me demarcations to work to.

*5b) 'How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?'*

I followed the principles of building accuracy first. It is easy to go for speed too quickly during the early teaching sessions, but I wait for the probe data to show good levels of accuracy first. Alongside that you have to see how the students are feeling about the work, it is easy to rush on even though you think they are feeling good about it all, so talking about the programme and the teaching bit with the student really helps. It might be something quite small that gives you an inkling about something not being quite right, so you have to think carefully about stuff outside the probe tests too.

**Question 6 (Most efficacious change)**

*6a). 'Overall, and thinking back across the project, what do you feel is the single most effective change you could make to improve student performance on a PT programme?'*

Increasing motivation through praise; without it you are lost.

*6b). 'I see. Can you please explain why you said this.'*

To some extent getting the teaching right is the easy bit, making the kids believe they can do it and building a good relationship with them through recognising their achievements is the real key.

**Question 7 (other comments)**

*7. 'And so as I pointed out at the beginning, I am planning to revise the framework at the end of this project. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?'*

I don't think much needs to be changed really. The model covers it nicely without being too over the top or complicated as a practical guide.

**-Part 2-**

**(5 minutes allowed for completion of sheet – attached to the rear of the interview schedule).**

**Question 8 (Developments in understanding of teaching and learning)**

*8a). 'I am interested in any broad learning outcomes for you as a professional through being part of this project from the very beginning; such as any changes in your professional thinking. So, where you see there has been a change, could you tell me what you feel you have learnt about effective teaching and learning throughout the project?'*

Relationships, relationships really. I have always known they are important to getting the kids working by feeling supported but as it, PT, is so intense you notice more I think.

*8b). So, are there any specific aspects of how you think about your work with students that are different now?'*

I think I brought a lot of experience to this anyway but it has made me think about how the student's have done so far and what this means. This covers everything really for me. Its like, I think the 'task size' element has been good for me in the class through this work. I have really started to emphasise the learning and how it relates to confidence and this is done through a secure relationship. I think I do more of this now. It also boosts your confidence too as it's all about solving teaching problems and this fits into my classwork too. I think about more aspects you can adjust now even small things like where the kids sit and how the work is offered to them. Some like worksheets, others don't, you have to notice these things to get it right.

*8c). N/A*

**Question 9 (Developments in personal practice)**

*9a). 'So, on a more practical level, are there any features of PT that you feel have been of particular relevance to other areas of your practice, such as in class or other individual work you do?'*

I have been doing more task adjustments by thinking through more how the students have been doing in earlier lessons and using praise a lot. Explaining the task objectives clearly is critical to help children work more effectively. Often things are just put on the board and the kids don't pay attention to the lesson objectives – It's like the target rates, if you make it clear you are on the right track.

*9b).* '*Could you give any more examples of this and how you use them?'*

I suppose I try to talk more to the kids. I ask them what they think they are doing and how best to go about it. Some get a bit fed up when they think they can't do it and you have to respond to that too. It is quite a balancing act, especially when some teacher don't really differentiate that well.

*9c). 'Have you thought about things like the social or emotional context in school or lessons?*

I do try and track how children have done in previous sessions more. I always kept a notebook but that was more about work rather than their mood or how they respond to praise and stuff, but now I think I am more detailed in my record keeping. This makes the kids think you are noticing them and care more too.

**Question 10 (other comments)**

*10. 'As a last question, are there any other important things you feel you have learnt during the project that we haven't covered so far?'*

I don't think so – we have covered a lot. Though I can't believe how the kids have changed in class. 'J' for instance would never ask to read out before and was so quiet. It

is incredible how 5 weeks of help can make this difference. The whole thing has changed me as a TA.

*'Thanks for your time. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please feel free to contact me in the usual way via email or telephone'.*

**Participant Information Record**

**Participant (TA code): _____1_____ School: _____1_____**

**Sex: (Please circle)** Male Female

**Current position: ___Teaching Assistant_____**

**Length of time in current position: _11 years_**

**Previous positions & length of service: __Primary School Teaching Assistant (4 years)**

_____

_____

**Qualifications (Please circle):**

-Secondary Education (CSE/ GCE / GCSE /other)

-Tertiary / Further Education (A Level/BTEC/other)

-Higher Education (First Degree / other)

*Foundation Degree TA*

-Higher Education –Post Graduate (Higher Degree / PGCE / Advanced Degree / other)

**Current courses / qualifications: _____No_____**

**Planned courses / qualifications: _____No_____**

**Aspirations: None. I just love what I do!**

**Plymouth Precision Teaching Project 07-08**

**Term 5 TA Interview**

| | |
|---|---|
| **NAME (TA code):___2_____** | **DATE:_7.5.08** |
| **SCHOOL: _____1_____** | **TIME: _10 a.m.** |

**Interview 10**

**-Part 1-**

**Questions 1 & 2 (Understanding and use of the FSATI)**

*1a)' First, looking at the framework and guidance, was it clear how you needed to use it?'*

It was clear, but I needed to use the guidance stuff a lot at the start to make sure I was following the correct codes and the steps along the way. It was a big improvement on what we had before.

*b) 'Can you give examples of this?*

The record sheets were a good reminder to successful practice and were very clear so I knew I was on track, so to speak. They were good to look back over. They all tied in nicely and the sheets and the flowchart made the big document alive and useful each day for me.

*c) 'So what were the most helpful aspects of FSATI materials I produced?'*

The record sheets, as I said this made the thing come alive I guess. The layout was good, though I was pushed for time, it reminded me to check the programme regularly after 3 and 6 days. It is easy not to do sometimes when you are so busy.

*d) 'Were there any aspects that were less helpful, or is there anything I could improve on?'*

No, I could see the benefits and it will be great for people who are new to it and you are teaching.

*2a) 'Was the FSATI helpful during actual programme delivery?*
Yes. As I said, it was a great aide-memoire for good practice, how to do it.

*2b) 'Were they any drawbacks, such as being overly restrictive, or may be too open ended?'*
No, I think it is all essential. It was a safe framework to be flexible in. I liked that and it gave me confidence.

**Questions 3 & 4 (Utility of Record sheet and Codes)**
*3. 'Now looking at the new Record sheets you used, how helpful were they in recording your changes?'*
They were very helpful to look at what I had done before that had worked with the current or previous pupil. They were a good source of inspiration for me really.

*4a). 'Were the codes 1,2,3,4, and the sub codes suitable for recording the changes you made?'*
Yeah, I think they were all fine and covered all the changes I made. I never thought 'that doesn't fit' they were broad enough – though I guess you could have a million but that wouldn't be practical for us to use.

*4b). 'Are there any changes you can suggest. Were there any other kinds of changes not covered within the FSATI?'*
No changes I can think of, it was a great help.

**Question 5 (Deciding on making a change)**
*5a). 'And so were the key 'decision points' helpful in making changes to support student progress. If so, in what way?'*

Yes – it reminded me to be more focused about analysing the data at certain times. Sometimes it is easy to forget, though there were clear 'lines-in-the-sand' and the record sheet reinforced that well.

*5b) 'Okay, so how did you go about deciding on making a change to the teaching you carried out, or what things did you look for?'*
Performance really. I mean not just the scores or the probe but with how they were. Sometimes 'T' was upset or tired so we would have a more relaxed session and focus on yesterday's successes and not just keep on pushing him on. We would talk things through about his reading and see about ways to change the teaching to help him on words he found harder.

**Question 6 (Most efficacious change)**
*6a). 'Overall, and thinking back across the project, what do you feel is the single most effective change you could make to improve student performance on a PT programme?'*
It is critical we give them opportunity to build relationships with us. Some may have found really hard and resist any more chances to fail again. Once they trust you, you can start to work with them. Looking at code 4 stuff they all help build things up, so being sincere in your conversations is always important.

*6b). 'Can you please explain why you said this.'*
Well, I see this as the foundations to learning when adults and children work together. Without trust, kids won't engage or take chances, with these kids they really need to trust you.

**Question 7 (other comments)**
*7. 'As I pointed out at the beginning, I am planning to revise the framework at the end of this project. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?'*

No. The model was clear and gave me free choices within a tight framework. I think it was fine and will be useful for the future too.

**-Part 2-**

**(5 minutes allowed for completion of sheet – attached to the rear of the interview schedule).**

**Question 8 (Developments in understanding of teaching and learning)**

*8a). 'I am interested in any broad learning outcomes for you as a professional through being part of this project from the very beginning; such as any changes in your professional thinking. So, where you see there has been a change, could you tell me what you feel you have learnt about effective teaching and learning throughout the project?'*

Yes, I have learnt a lot I think! *(laughs)* I have been able to apply the principles in classwork a lot, and have thought a lot about how it relates. I have thought more about encouraging students to develop accuracy and fluency in learning skills such as in handwriting – those principles have been important for me.

*8b). So are there any specific aspects of how you think about your work with students that are different now?'*

My approach is now more focussed. I break tasks down and building relationships more with students in class as this really seems to impact heavily on how they are and their learning. I think they have to like you. It has to be enjoyable. There has to be more trust involved with TAs though this is important in all adult-student relationships.

*8c). 'Have you thought about reviewing and reflecting on student's progress?*

I suppose I do that anyway, cos you can't start on something they have never heard of or tried before.

'*How about organisational arrangements in school?*

Yeah, some students definitely respond better to different types of work at different times, and I changed some PT sessions because of this. It is hard to do this in class though, you know.

*And the student's emotional presentation?*
This has always been important, as I have said noticing things about them and following up on it, and then responding here is key to relationship building.

**Question 9 (Developments in personal practice)**
*9a). 'So, on a more practical level, are there any features of PT that you feel have been of particular relevance to other areas of your practice, such as in class or other individual work you do?'*
I certainly use praise and swifter feedback on progress a lot more. It has made me a better TA. I am now more thoughtful about how kids learn and have tried to think more about previous lessons and how they have done on it before, like what concepts were tricky and where they need more practice. I feel I have a secret over teachers - they don't know about the theory we use! (*laughs*)

*9b).* '*Could you give any more examples of this and how you use them?'*
The value of relationships, getting to know the child and understanding their learning through a model, making them part of it – I remember you saying about the child always being right and I have now tried to emphasise this more in class through discussion and checking at how they see or feel about things. I feel PT has put me more on my toes in thinking about how the kids see it and so I tune in more to their feelings as much as the work now, and talk things through with them when I think it is right.

*'I see.'*

The routine of feeding back to the kids using scores in PT has also had an effect as I try to tell the kids as much as possible about the good things they do in class.

*9c).* N/A

**Question 10 (other comments)**

*10. 'As a last question, are there any other important things you feel you have learnt during the project that we haven't covered so far?'*

No. That is fine. It has been great to be part of it. I have been amazed how such a little input has gone a long way. I have said on your visits how the children are reading more in class and wanting to do so. I was shocked really, it made me feel we were really making a bigger difference.

*'Why do you feel this is important?.*

Well, as you put it, you get more 'bang for your buck'! (*laughs*)

*'Thanks for your time. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please feel free to contact me in the usual way via email or telephone'.*

**Participant Information Record**

**Participant Initials: _____2_____ School: _____1_____**

**Sex: (Please circle)** Male Female

**Current position: ___Teaching Assistant_____**

**Length of time in current position: _8 years_**

**Previous positions & length of service: __Primary TA, 3 years**

**Qualifications (Please circle):**
-Secondary Education (CSE/ GCE / GCSE /other)
-Tertiary / Further Education (A Level/BTEC/other)
-Higher Education (First Degree / other)
-Higher Education –Post Graduate (Higher Degree / PGCE / Advanced Degree / other)
*Nursery Nurse – Certificate NVQ3*

**Current courses / qualifications: _____None_____**

**Planned courses / qualifications: _____Possibly a Dyslexia qualification_____**

**Aspirations: __None at present.**

**Plymouth Precision Teaching Project 07-08**

**Term 5 TA Interview**

| | |
|---|---|
| **NAME(TA code):** 3 | **DATE:** 16.5.08 |
| **SCHOOL:** 2 | **TIME:** 1.30 p.m. |

**Interview 11**

**-Part 1-**

**Questions 1 & 2 (Understanding and use of the FSATI)**

*1a)' First, looking at the framework and guidance, was it clear how you needed to use it?'*

I have to say it was ideal. It crystallised everything for me. It provided a great summary and I put it out each day and talked where we were on the journey with the students. Ideal.

*b) 'Can you give examples of this?*

Well it made sense and was succinct and practical, the flowchart that is. That is to say I referred to it a lot with the students so we could both see what was happening in each programme and where we were. It was helpful for me and the students.

*c) 'What were the most helpful aspects of FSATI materials I produced?'*

Well, the flowchart as I have said. It was visual, tidy and brought it all together, ideal for the students as a learning map I think.

*d) 'So, were there any aspects that were less helpful, or is there anything I could improve on?'*

As a whole it was fine. Perhaps the familiarisation thing. It wasn't that is wasn't helpful as a reminder but as I always made sure the students were aware of what we were doing so we didn't ever really need this 'primer' I suppose.

*2a) 'Was the FSATI helpful during actual programme delivery?*
Yes, as I have said for both of us, me and the student. So I could explain things through when I needed to.

*2b) 'Okay, that's helpful to know. Were they any drawbacks, such as being overly restrictive, or may be too open ended?'*
I don't think so. I stuck to the plan or the diagram and it worked every time. It's fool proof I think. Good for people who are new to it too I think.

**Questions 3 & 4 (Utility of Record sheet and Codes)**
*3. 'Now looking at the new Record sheets you used, how helpful were they in recording your changes?'*
They certainly did the job. It was clear and gave me something to use, like ideas for other students. I had plenty of room to fit most things in and as we were used to this approach from the Autumn, it was fine and adjusted version really.

*4a). 'And were the codes 1,2,3,4, and the sub codes suitable for recording the changes you made?'*
Yes it was easy to follow and covered all that I did. They were a helpful reminder and covered everything really. It was helpful to specify things using smaller codes as it helped me look back and remind myself what had worked before. It provided me with some new ideas to talk with the students about if we needed to.

*4b). 'So apart from the above, are there any changes you can suggest. Were there any other kinds of changes not covered within the FSATI?'*
No. I used to stick to some routine ones and then occasionally use others and often ask the students what they think. I think the early change of making the task smaller was a good one that you show in the flowchart, that prevented a 'slow death'! (*Laughs*). I can't think of anything I did that didn't fall into the 4 categories though.

**Question 5 (Deciding on making a change)**

*5a). 'Were the key 'decision points' helpful in making changes to support student progress. If so, in what way?'*

Well they were reminders for us both to talk through progress and check we were on target. It is easy to carry on and hope you reach the target – these checks help to avoid programmes that go on forever, and then the students get despondent. I really have to avoid that here, as so many of them are really hard to engage.

*5b) 'How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?'*

Either looking at the data and the framework, like at session 3, to see how they are doing or asking the students usually by following up a suspicion I think. Either the data or the kids mood would tell me I decided to do something, or the speed wasn't coming so we'd talk it through.

**Question 6 (Most efficacious change)**

*6a). 'Overall, and thinking back across the project, what do you feel is the single most effective change you could make to improve student performance on a PT programme?'*

Keeping up the confidence by giving them clear feedback on their probe scores, their attitude or how they did on their teaching games. So praise really, but saying what it's for is really valuable for me. So many teachers say well done, but the kids aren't sure what for. Telling them exactly, like, 'that's great, I can see you really concentrated on the practice today, and especially on those tricky words. Or something about arriving on time, more social praise I suppose like a code 4b.

*6b). 'Can you explain why you said this.'*

Well these kids don't believe in themselves so you need to build up their interest and confidence. It is really important for them.

**Question 7 (other comments)**

*7. 'As I pointed out at the beginning, I am planning to revise the framework at the end of this project. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?'*
No. It works for me and I feel clear about the model. I need to see how we can use this with more kids in the school now I am confident. The results have been great.

**-Part 2-**

**(5 minutes allowed for completion of sheet – attached to the rear of the interview schedule).**

**Question 8 (Developments in understanding of teaching and learning)**
*8a). 'I am interested in any broad learning outcomes for you as a professional through being part of this project from the very beginning; such as any changes in your professional thinking. So, where you see there has been a change, could you tell me what you feel you have learnt about effective teaching and learning throughout the project?'*

I have been thinking things through more and more now. The approach encourages you to look back over things, and so it has made me aware to do this kind of thing more to help kids learning. It's like making sure the teaching works, so you need to review progress regularly.

*8b). I am interested in any other broad areas of change in your thinking about effective teaching and learning. Are there any specific aspects of how you think about your work with students that are different now?'*
Its all been about looking back and things and making sense of them for the next session. Its interesting - I have also looked at the time of the day as well now, which never really occurred to me. Some students work better earlier on and others later so I have made changes to that and to how you give tasks for them to do – some like worksheets, some don't. As well as the probe scores and looking back over how they are progressing, I

look about how they are, some students require quite a bit of discussion to keep them focussed and I use that kind of thinking more now too. It keeps te relationship going too.

*8c). N/A*

**Question 9 (Developments in personal practice)**

*9a). 'So, on a more practical level, are there any features of PT that you feel have been of particular relevance to other areas of your practice, such as in class or other individual work you do?'*

As I have talked about it now I do think about how the kids are responding and so think about their feelings more. I can see that in class a lot more now. If you don't intervene then something may effect how they do across the whole lesson. It is also important, when they are settled, to make sure they know what you want. A bit like the fluency rate of 50, some kids don't listen well, or don't understand so they need help to understand expectations. Its usually on the board anyway, most of the teachers write down lesson objectives which really helps.

*9b).* '*Okay, thanks for that. Could you give any more examples of this and how you use them?'*

Well, keeping an eye out and talking to the student and find out whether my hunch is right. I always try to boost them up by stressing the good things they have done before and remind them about these things. I try to see how they are feeling and follow it up or tell the teacher if I am busy. It's always useful to show them previous work to remind me where they are at a well and talk to the teacher so we can try and work things out for them. We have small classes here so I can help out quite a bit when I need to.

*9c).* N/A

**Question 10 (other comments)**

*10. 'As a last question, are there any other important things you feel you have learnt during the project that we haven't covered so far?'*

No, but it has been really helpful for my development. I have used the data for my degree course module personal study module. My question was how does Precision Teaching help with reading for students? That made me read the references more and more: it has helped me a lot. I have been quite inspired by this you know (laughs).

*'Well that is great, and thanks for your time today. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please feel free to contact me in the usual way via email or telephone'.*

**Participant Information Record**

**Participant (TA code): _____3_____ School: _____2_____**

**Sex: (Please circle)** Male Female

**Current position: ___Teaching Assistant_____**

**Length of time in current position: _1 year_**

**Previous positions & length of service: __Higher Level Teaching Assistant (Mainstream) 4 years_____**

_____

_____

**Qualifications (Please circle):**
-Secondary Education (CSE/ GCE / GCSE /other)
-Tertiary / Further Education (A Level/BTEC/other)
-Higher Education (First Degree / other)
-Higher Education –Post Graduate (Higher Degree / PGCE / Advanced Degree / other)

**Current courses / qualifications: _____** BA (Hons) QTS_____

**Planned courses / qualifications: _____None –to complete the above _____**

**Aspirations: _I want to be a teacher – for children helping with their basic skills._____**

**Plymouth Precision Teaching Project 07-08**

**Term 5 TA Interview**

| | |
|---|---|
| **NAME(TA code):___4_____** | **DATE:__20.5.08** |
| **SCHOOL: _____3_____** | **TIME: _1 p.m.** |

**Interview 12**

**-Part 1-**

**Questions 1 & 2 (Understanding and use of the FSATI)**

*1a) 'Okay first, looking at the framework and guidance, was it clear how you needed to use it?'*

Very clear, the flowchart was helpful as it made it visual for me.

*b) 'Can you give examples of this?*

Well the reference to staff aims and student outcomes in the document walkthrough bit was a way of making the specific aspects clearer.

*c) 'What were the most helpful aspects of FSATI materials I produced?'*

The flowchart really – it summed everything up well. The kids I worked with really liked it to as it showed them the route we were going on.

*d) 'Were there any aspects that were less helpful, or is there anything I could improve on?'*

Not really. The only thing was that I didn't use the familiarisation session so specifically as that happened as part of routine sessions. I just used to get on with it seeing accuracy as a crucial starting point.

*2a) 'Was the FSATI helpful during actual programme delivery?*

Yes. It made me feel I was doing the right thing I guess.

*2b) 'Were they any drawbacks, such as being overly restrictive, or may be too open ended?'*
No, it just gives a broad structure with some key landmarks. It provides enough procedure while gently guiding you.

**Questions 3 & 4 (Utility of Record sheet and Codes)**
*3. 'Now looking at the new Record sheets you used, how helpful were they in recording your changes?'*
Well, okay I see. Yep the sheet was fine for recording the changes. They matched the materials really well and helped me remember what had worked beforehand. It reinforced the framework really.

*4a). 'Were the codes 1,2,3,4, and the sub codes suitable for recording the changes you made?'*
Certainly – I think they were fine and captured all I did. They were helpful, neat reminders to guide my thinking.

*4b). 'Are there any changes you can suggest. Were there any other kinds of changes not covered within the FSATI?'*

No. The changes are quite broad so you get the flexibility within to make the changes I think. I just hope I got them all down for you (*laughs*)!

*'I am sure you will have.'*

**Question 5 (Deciding on making a change)**
*5a). 'So then ,were the key 'decision points' helpful in making changes to support student progress. And, if so, in what way?'*

As I said a bit earlier, they were useful land marks and made sure we were on course for success. Sometimes it could be easy to 'see how things go' but this gave you discipline I think.

*5b) 'How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?'*

I always ask the students – it was how they were responding that would encourage me to talk things through. They seemed to usually come up with the best answers and mostly confirmed my thoughts. It may have been something small, but a chat often helps clarify where to go next.

**Question 6 (Most efficacious change)**

*6a). 'So then overall, and thinking back across the project, what do you feel is the single most effective change you could make to improve student performance on a PT programme?'*

Praise, praise, praise. – you and the student have got to believe it though. They know when you mean it, so you must be genuine and then they build up trust in you.

*6b). 'Can you explain why you said this.'*

Relationships I guess – This is what comes from the trust you build when giving positive comments that are sincere. These programmes depend on it.

**Question 7 (other comments)**

*7. 'As I pointed out at the beginning, I am planning to revise the framework at the end of this project. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?'*

No. I have said enough I think!

**-Part 2-**

**(5 minutes allowed for completion of sheet – attached to the rear of the interview schedule).**

**Question 8 (Developments in understanding of teaching and learning)**

*8a). 'I am interested in any broad learning outcomes for you as a professional through being part of this project from the very beginning; such as any changes in your professional thinking. So, where you see there has been a change, could you tell me what you feel you have learnt about effective teaching and learning throughout the project?'*

It has made me think more about what I do. How I review things to get the next step right. It has made me think more in class about all the changes you can make to help children with their learning, so it has opened doors for me I think. I need to look over what kids have done and be sure where they are at.

*8b). 'That's good. I am interested in any broad areas of change in your thinking about effective teaching and learning. Can you think of any other aspects of how you think about your work with students that are different now?'*

Well, if you think about the four areas of change – I think I think about them more in class with groups too now. Its all about reflecting what works for each kid really. So building relationships, giving praise, changing tasks, how they are organised and the teaching materials and watching carefully for how students are, their mood. It comes down to relationships though, this process has really stressed that for me. I think about these things more now – and maybe use them more too!

*8c).* N/A

**Question 9 (Developments in personal practice)**

*9a). 'So, on a more practical level, are there any features of PT that you feel have been of particular relevance to other areas of your practice, such as in class or other individual work you do?'*

Give more praise really and saying what it is they have done precisely is important. I think this has been more part of what I have done really. I feel I talk more and present questions to the kids too, about how they see their work and learning which has helped a lot.

*9b). 'Could you give any more examples of this and how you use them?'*

I suppose I try to help the pupils understand what they are aiming for by talking through teaching goals and referring them back to what we have done beforehand and look at their work with them – then we know where to start from. Detecting more about how they are in themselves has been really important too. I think I always did things like this, but now I do it more as I am more aware of how helpful these things can be. It is amazing how some of the key bits of PT can work in class too you know?

*9c). 'Have you thought about your use of questioning with students?*

Errr…well I certainly try to get more out of them so I can see it from their viewpoint. You have to be careful how you do this in class as kids don't want to stand out. Asking them when you can about how they see their progress is definately helpful, and PT has stressed this for me I guess.

**Question 10 (other comments)**

*10. 'As a last question, are there any other important things you feel you have learnt during the project that we haven't covered so far?'*

It has made me more aware of how important it is to review how kids are doing. It has definitely helped my own development and made me think a lot more about doing more courses to be a teacher.

*'Thanks for your time. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please*

*feel free to contact me in the usual way via email or telephone'*.

**Participant Information Record**

**Participant (TA code):** _____4_____ **School:** _____3_____

**Sex: (Please circle)** Male Female

**Current position:** ___Teaching Assistant_____

**Length of time in current position:** _5 years_

**Previous positions & length of service:** ___None_____

_____

_____

**Qualifications (Please circle):**
-Secondary Education (CSE/ GCE / GCSE /other)
-Tertiary / Further Education (A Level/BTEC/other)
-Higher Education (First Degree / other)
-Higher Education –Post Graduate (Higher Degree / PGCE / Advanced Degree / other)

**Current courses / qualifications:** _____None_____

**Planned courses / qualifications:** First Degree so I can eventually be a teacher

**Aspirations:** __I would like to be a teacher_____

_____

**Plymouth Precision Teaching Project 07-08**

**Term 5 TA Interview**

| | |
|---|---|
| **NAME(TA code):** 5 | **DATE:** 20.5.08 |
| **SCHOOL:** 3 | **TIME:** 3 p.m. |

**Interview 13**

**-Part 1-**

**Questions 1 & 2 (Understanding and use of the FSATI)**

*1a) 'First, looking at the framework and guidance, was it clear how you needed to use it?'*

Yep, totally I knew exactly what I was doing. It kinda added more to what I had learnt before. It was good really I think.

*b) 'Can you give examples of this?*

The flowchart picture had it all so I knew I wouldn't miss anything. It was clear for me and the student.

*c) 'So what would you say were the most helpful aspects of FSATI materials I produced?'*

The flowchart definitely, for me and the pupils. It was a great way to show them how it all works. It was a concise reminder too for me, the guidance materials were a good reference point too, though I didn't read it daily (*laughs*)!

*d) 'Were there any aspects that were less helpful, or is there anything I could improve on?'*

Not really to be honest. I guess the guidance needed to be quite long I suppose, but it helped me out when I wasn't sure and needed reminding of what to do. I used to dip in and out of it really.

*2a) 'Was the FSATI helpful during actual programme delivery?*

Yes, for sure. It was my guiding light as well and made me feel safe I suppose. Sure I was doing the right thing.

*2b) 'Were they any drawbacks, such as being overly restrictive, or may be too open ended?'*

Apart from the length of the guidance stuff no. But I can see why you need the detail and I used it quite a lot for specific problems.

**Questions 3 & 4 (Utility of Record sheet and Codes)**

*3. 'Now looking at the new Record sheets you used, how helpful were they in recording your changes?'*

Err (pause), I would have liked a bit more space for the other changes that weren't code 3s, but it was fine.

*4a). 'And were the codes 1,2,3,4, and the sub codes suitable for recording the changes you made?'*

Yes, they were fine. I added detail on the back of the sheets to remind me exactly what it was I did for the future. All of them fitted well I think.

*4b). 'Are there any changes you can suggest. Were there any other kinds of changes not covered within the FSATI?'*

No. I cant think of anything else.

**Question 5 (Deciding on making a change)**

*5a). 'Were the key 'decision points' helpful in making changes to support student progress. If so, in what way?'*

For sure. It keeps you focused on evaluating things so you check routinely.

*5b) 'How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?'*

Talking to the kids and discussing their performance on the probe test or the teaching sessions. You could often see if things were going right or wrong by their mood and a discussion clears this kind of thing up really.

**Question 6 (Most efficacious change)**

*6a). 'Overall, and thinking back across the project, what do you feel is the single most effective change you could make to improve student performance on a PT programme?'*

Giving positive feedback. You need to use it all the time so it was good it was not prescribed at certain points.

*6b). Can you explain why you said this?'*

It builds trust in your relationship. Kids take risks when they feel someone will support them. Giving praise and keeping the mood up is really important.

**Question 7 (other comments)**

*7. 'As I pointed out at the beginning, I am planning to revise the framework at the end of this project. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?'*

No. I think I have covered it.

**-Part 2-**

**(5 minutes allowed for completion of sheet – attached to the rear of the interview schedule).**

**Question 8 (Developments in understanding of teaching and learning)**

*8a). 'So, I am interested in any broad learning outcomes for you as a professional through being part of this project from the very beginning; such as any changes in your professional thinking. So, where you see there has been a change, could you tell me what you feel you have learnt about effective teaching and learning throughout the project?'*

I already think a lot about supporting the kids, but it has made me think even more about this. I think I have been more aware of keeping kids emotionally supported by giving out praise when it is right too. You can see this really helps them stay settled and achieve more.

*8b). Could you tell me more about this: there any other broad areas of change in your thinking about effective teaching and learning. What are the aspects of how you think about your work with students that are different now?'*

I am aware of a greater range of possibilities now that I can use and think about for each student. Talking things through and thinking about a range of things is key to this and keeps the kids on side so they feel really part of it. For some you will need to be really flexible about when, how and where you do things, like anything to do with teaching or the task at hand, for others it is more about supporting them emotionally and stepping in and talking things through at the right time. I think these things go around more in my head than they have before, and I think more about where the kids are starting from, what they have acheieved already and feed this into what we do. PT has magnified things for me. You could use so much of it during my daily job.

*8c).* N/A

**Question 9 (Developments in personal practice)**

*9a). 'So, on a more practical level, are there any features of PT that you feel have been of particular relevance to other areas of your practice, such as in class or other individual work you do?'*

It has definitely made me think more about making things more personal building on what they hace done before. Yes, you need to start from their position and make sure they are clear about things, like the lesson tasks, look at where they are at and not assume all kids are from the same starting point.

*9b).* '*Could you give other examples of this and how you use them?'*

Well check, in class, they know what they need to do by looking togher at the worksheet or rehearsing the teachers instructions and then look at what they have got done before – the I know where I can help or encourage them. It's a bit like getting the task right in PT – it shapes your teaching then I suppose. I talk to them and ask questions about what they know and try to notice their feelings more now. I can remember only today in Science when I did all of that and I know it made a huge difference to the lesson, especially when I told them about positive things, gave time for talking things through and gave feedback about last time and how well they worked.

*9c).* N/A

**Question 10 (other comments)**

*10. 'As a last question, are there any other important things you feel you have learnt during the project that we haven't covered so far?'*

I don't think so. Thank you very much. It has been really helpful to be involved, so many of the teachers have said they have noticed the difference in kids in class. Which is great. I feel really good about that.

*'Thanks for your time. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please feel free to contact me in the usual way via email or telephone'.*

**Participant Information Record**

**Participant (TA code): _____5_____ School: _____3_____**

**Sex: (Please circle)** Male Female

**Current position: ___Teaching Assistant_____**

**Length of time in current position: _6 years_**

**Previous positions & length of service: _None__ _____**

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**Qualifications (Please circle):**
-Secondary Education (CSE/ GCE / GCSE /other)
-Tertiary / Further Education (A Level/BTEC/other)
-Higher Education (First Degree / other)
-Higher Education –Post Graduate (Higher Degree / PGCE / Advanced Degree / other)

**Current courses / qualifications: _____None_____**

**Planned courses / qualifications: _____None _____**

**Aspirations: __None at present. To carry on being a Teaching Assistant_____**

_____

**Plymouth Precision Teaching Project 07-08**

**Term 5 TA Interview**

| | |
|---|---|
| **NAME(TA code):___6_____** | **DATE:__20.5.08** |
| **SCHOOL: _____3_____** | **TIME: _2 p.m.** |

**Interview 14**

**-Part 1-**

**Questions 1 & 2 (Understanding and use of the FSATI)**

*1a) 'First, looking at the framework and guidance, was it clear how you needed to use it?'*

Yes. Totally you gave us a great explanation and it is built on a lot on what we did before.

*b) 'Can you give examples of this?*

Well the guidance doument really helped by talking things through on top of your explanation. It all tied in well with the flowchart and the record sheet we completed.

*c) 'What were the most helpful aspects of FSATI materials I produced?'*

The flowchart. It was good for me as it summarised everything so well. I talked it through with the students.

*d) 'Were there any aspects that were less helpful, or is there anything I could improve on?'*

No I didn't think so, but we didn't always just use session 1 for familiarisation cos it happened anyway.

*2a) 'Was the FSATI helpful during actual programme delivery?*

Yes, and I learnt it quite quickly really as it was so clearly laid out.

*2b) 'Were they any drawbacks, such as being overly restrictive, or may be too open ended?'*

I don't think so. It worked for me and let me choose a range of changes within a safe model. I have shared it with my colleague and it seemed to make sense to them too, and they haven't heard of this before .

**Questions 3 & 4 (Utility of Record sheet and Codes)**

*3. 'Now looking at the new Record sheets you used, how helpful were they in recording your changes?'*

Ideal, a good way of detailing it all. They were a clear match with the framework so it reinforced it all really. Plenty of space on them which was good.

*4a). 'Were the codes 1,2,3,4, and the sub codes suitable for recording the changes you made?'*

Yes, they were for me, and reminded me of all the possibilities. Some I did more than others but I guess that was okay.

*4b). 'Are there any changes you can suggest. Were there any other kinds of changes not covered within the FSATI?'*

No, they did everything I wanted them to. Though when I praise the kids, I do it all the time, but could only note it down once so you don't get an idea of how much you need to do that thing. But that's recording problems. The codes were fine though.

**Question 5 (Deciding on making a change)**

*5a). 'Were the key 'decision points' helpful in making changes to support student progress. If so, in what way?'*

They have given the whole thing more structure and the possible codes were really good I think with the examples you provided us with in the guidance doc.

*5b) 'Okay how did you go about deciding on making a change to the teaching you carried out, or what things did you look for?'*
Well I stuck to the guidance, but as well as the data you have to look at how the kids are feeling too you know. Talk it through yer know?

**Question 6 (Most efficacious change)**
*6a). 'Overall, and thinking back across the project, what do you feel is the single most effective change you could make to improve student performance on a PT programme?'*

Keep building confidence and telling them by praising them.

*6b). Can you explain why you said this?'*
I use it in class, but even more here the kids need to believe in themselves you see.

**Question 7 (other comments)**
*7. 'As I pointed out at the beginning, I am planning to revise the framework at the end of this project. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?'*
No, just keep keeping it simple. The guidance is just for reference. It's the flowchart that is important and really helped me explain it to the kids.

**<u>-Part 2-</u>**

**(5 minutes allowed for completion of sheet – attached to the rear of the interview schedule).**

**Question 8 (Developments in understanding of teaching and learning)**
*8a). 'I am interested in any broad learning outcomes for you as a professional through being part of this project from the very beginning; such as any changes in your*

*professional thinking. So, where you see there has been a change, could you tell me what you feel you have learnt about effective teaching and learning throughout the project?'*

It has made me realise I need to think and reflect back a lot more. The four areas of change, you could use them in class I think. Like getting the teaching and the task right has been more important to me really. I have thought more about that really.

*8b). So, what are the aspects of how you think about your work with students that are different now?'*
I think more about progress by talking to them I suppose about their progress and how they feel they are doing. In a class you don't often get the time. When you do this you get all sorts of ideas so you can help them with their motivation, confidence and things like that. Making sure the materials or activities are of interest is important as I had to vary things in the PT sessions, so I am thinking of how I can work with teachers to do this in class more now. One thing I have thought about is where kids sit in class as a small change that could make a big difference, like the changes to physical arrangements under (pause) 3b.

*8c). 'How about the importance of relationships?*
I think I have always known this and used praise to build them up. Noticing their emotions is part of this. Some kids are often really down so you need to do something, a stock piece of work however attractive it is, err…. ain't gonna change that. So you need to talk. I have always been like that.

**Question 9 (Developments in personal practice)**
*9a). 'So, on a more practical level, are there any features of PT that you feel have been of particular relevance to other areas of your practice, such as in class or other individual work you do?'*
I know I think about more things now and so I guess I have changed a bit really. I look back more on what they have done now. Keeping a great relationship is really valuable, noticing how they are feeling and my praise really helps with this. I have seen the value

of it, being in tune with their feelings and trying my best to get to know them counts for a lot I think.

*9b).* '*Could you give any other examples of this?'*
Well talking more to students I think and helping explain what they need to aim for. I try to get their opinions on how they are progressing and show them the good things they have done before. I never used to really do that. It helps remind me where we are starting from I think. I have always done a lot of praising and telling them what they have done wel and boosting them, giving them confidence is just so imporatnt with some of these kids. I think PT has made the importance of being clear an important point for me. The kids know the target, what we are going to do and how we might get here. I try to talk this through with them more now, as they are often honest if they really trust you so you get some important info then about what to do. Especially when we look at other work they have done, we can make sure with the teacher that were aren't giving them something too hard or too easy.

*9c).* N/A

**Question 10 (other comments)**
*10. 'As a last question, are there any other important things you feel you have learnt during the project that we haven't covered so far?'*
No. I don't think so. I have really enjoyed it though and the kids love it.

*'Thanks for your time. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please feel free to contact me in the usual way via email or telephone'.*

**Participant Information Record**

**Participant (TA code): _____6_____ School: _____3_____**

**Sex: (Please circle)** Male Female

**Current position: ___Teaching Assistant_____**

**Length of time in current position: _7 years_**

**Previous positions & length of service: School Dinner Assistant_3 years_____**

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**Qualifications (Please circle):**
-Secondary Education (CSE/ GCE / GCSE /other)
-Tertiary / Further Education (A Level/BTEC/other)
-Higher Education (First Degree / other)
-Higher Education –Post Graduate (Higher Degree / PGCE / Advanced Degree / other)

**Current courses / qualifications: _____None_____**

**Planned courses / qualifications: _____None_____**

**Aspirations: __I just love what I do. That's fine for me._____**

_____

**Plymouth Precision Teaching Project 07-08**

**Term 5 TA Interview**

| | |
|---|---|
| **NAME(TA code):___7_____** | **DATE:_29.04.08** |
| **SCHOOL: _____2_____** | **TIME: _9 a.m.** |

**Interview 15**

**-Part 1-**

**Questions 1 & 2 (Understanding and use of the FSATI)**

*1a) 'First, looking at the framework and guidance, was it clear how you needed to use it?'*

I used the notes more than the framework, this gave me the detail about the code for the changes particularly for 3s and 4s as you had so many choices. It was clear but the guidance notes were the most helpful for me.

*b) 'Can you give examples of this?*

The guidance notes were clear for me. Making sure I used the right code under 4 for example was really important and the notes made this clear and were helpful during the sessions.

*c) 'What were the most helpful aspects of FSATI materials I produced?'*

The text guidance, I am better with words than pictures. The framework gave me an overview but I always referred to the guidance notes.

*d) 'Were there any aspects that were less helpful, or is there anything I could improve on?'*

Yeah, I think the framework really, there were too many arrows for me although I can see why they were there. I think the record sheet was a better way of showing this model

alongside the notes as it was similar to the first one we used. I can see why people want a flowchart, but for me the guidance document and the record sheet was enough.

*2a) 'Was the FSATI helpful during actual programme delivery?*
Yes, definitely. It kept me on the right road because it was well described and clear for me.

*2b) 'Were they any drawbacks, such as being overly restrictive, or may be too open ended?'*
I don't think so as there were only a few key rules and they made sense anyway. They certainly work as the students have done so well I think it will be helpful for new-comers.

**Questions 3 & 4 (Utility of Record sheet and Codes)**
*3. 'Now looking at the new Record sheets you used, how helpful were they in recording your changes?'*
I got used to it and it was useful for my work. One section would be enough to record the changes, but I can see why you did that to help remind us what to record and the detail under code 3. The guidance notes made the biggest difference though and made sure I was completing the right code.

*4a). 'Were the codes 1,2,3,4, and the sub codes suitable for recording the changes you made?'*
Yes. They covered everything for me, and although I mainly used 3s and 4s I can see the use of other changes. I couldn't think of anything else that wasn't encapsulated by the four areas in the framework – they acted as a helpful reminder.

*4b). 'Are there any changes you can suggest. Were there any other kinds of changes not covered within the FSATI?'*
No. As I said, they were fine and covered all the main changes.

**Question 5 (Deciding on making a change)**

*5a). 'Were the key 'decision points' helpful in making changes to support student progress. If so, in what way?'*

Yes. They helped me stay on track. It has made it more regimented I think so you don't miss things out.

*5b) 'How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?'*

I asked the children. I generally started using model, framework – lead etc, and built up fluency from there under code 3a. Sometimes I used to change activities or organisation but all of this was carried out with the students.

**Question 6 (Most efficacious change)**

*6a). 'Overall, and thinking back across the project, what do you feel is the single most effective change you could make to improve student performance on a PT programme?'*

The positive, task praise. I did it 14 times on the record sheets, I had a look yesterday, but probably more in reality. It is hard to record everything from memory. You are recording some TAs aren't you?

*Yes to see how reliable the data is. It may be that the record sheets do undersell the level of some of the changes. We will see.*

*6b). 'Anyway, can you please explain why you said that task praise is so effective?'*

Well, as I said really, I think it is the most powerful way to build relationships and commitment to it all – without it I would be lost! It helps build the confidence really, you can see kids lifted by it. As it is one to one the kids seem to listen more s they aren't distracted.

**Question 7 (other comments)**

*7. 'As I pointed out at the beginning, I am planning to revise the framework at the end of this project. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?'*
No, I think the framework is clear to use and would help people who are learning about Precision Teaching, definitely.

**-Part 2-**

**(5 minutes allowed for completion of sheet – attached to the rear of the interview schedule).**

**Question 8 (Developments in understanding of teaching and learning)**
*8a). 'I am interested in any broad learning outcomes for you as a professional through being part of this project from the very beginning; such as any changes in your professional thinking. So, where you see there has been a change, could you tell me what you feel you have learnt about effective teaching and learning throughout the project?'*

It's given me a load of confidence in my work and has made me expert in the school about this work. I am more relaxed about working with this. I really enjoy it now and have realised and thought more about what is going on. I can see the value in reviewing how kids are doing more generally, not just on the task but how they are feeling, their mood and that. I think far more about the value of the relationships – sometimes you need to sit and listen. I used to go around always telling the kids off – it's a waste of time.

*8b). So, are there any other broad areas of change in your thinking about effective teaching and learning. Are there any specific aspects of how you think about your work with students that are different now?'*
Oh, I see. I do try to spend more time thinking about what happened last time in my general class work. I guess it's about knowing the kids and how to organise things for them, even down to where they sit and when they do different types of work. I am now

more confident to leap in and pick-up on their feelings and how they are – it's a constant thing of noticing and making changes I guess. Keeping a good relationship I part of all of this for me though.

*8c). How about how tasks or learning opportunities are presented?*
Yes, making it more interesting is important though having a trusting relationship makes the biggest difference I think.

**Question 9 (Developments in personal practice)**
*9a). 'So, on a more practical level, are there any features of PT that you feel have been of particular relevance to other areas of your practice, such as in class or other individual work you do?'*
As I said my confidence has grown and I am now more willing to intervene in class. I can see the value of praise and being specific with it, I have noticed how emotions play a big part in learning and so I know I give feedback more readily now. I think I emphasise this more now and also I ask the kids more about how they think they are doing.

*9b).* '*Could you give any more examples of this and how you use them?'*
Mmmm…. I guess I spend a bit more time looking back at the PT work with students and trying to learn a bit more about that before we move on. I have definitely tried to learn from previous sessions that more. I try to work more with teachers now to give them feedback about what works with the students I work with and that has helped me get on better with staff I think. It is critical they are clear about the objectives of the lesson too. So many just do what they think rather than listen or read the lesson goals. I have tried to be clearer with the kids in class now.

*9c). 'And what about noticing and acting on the emotional content of sessions?'*
I think I said earlier about this, I think it is crucial as kids need time to adjust I think and I act as a I often the bridge between them and the teacher.

**Question 10 (other comments)**

*10. 'As a last question, are there any other important things you feel you have learnt during the project that we haven't covered so far?'*

No, not really but it is great that you can still see them do better in the classroom outside the PT session you know? It has been a pleasure to be involved.

*'Thanks for your time. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please feel free to contact me in the usual way via email or telephone'.*

**Participant Information Record**

**Participant (TA code): _____7_____ School: _____2_____**

**Sex: (Please circle)** Male Female

**Current position: ___Teaching Assistant_____**

**Length of time in current position: _7 years_**

**Previous positions & length of service:** **Teaching Assistant in a Primary School (1 year)**

_____

_____

**Qualifications (Please circle):**
-Secondary Education (CSE/ GCE / GCSE /other)
-Tertiary / Further Education (A Level/BTEC/other)
-Higher Education (First Degree / other)
-Higher Education –Post Graduate (Higher Degree / PGCE / Advanced Degree / other)

**Current courses / qualifications: _____Maths (GCSE)_____**

**Planned courses / qualifications: _____Foundation Degree_____**

**Aspirations: __To be a teacher!____**

**Plymouth Precision Teaching Project 07-08**

**Term 5 TA Interview**

| | |
|---|---|
| **NAME(TA code):___8_____** | **DATE:_29.04.08** |
| **SCHOOL: _____5_____** | **TIME: _2 p.m.** |

**Interview 16**

**-Part 1-**

**Questions 1 & 2 (Understanding and use of the FSATI)**

*1a) 'First, looking at the framework and guidance, was it clear how you needed to use it?'*

It was great. It gave you the confidence to make sure you are doing it right. It is great to have clear markers – it was ideal to have structure and be able to make the right choices with the student within it.

*b) 'Can you give examples of this?*

The codes were clearly defined in the gudiance doc, though the framework as a whole allowed for a freedom in what I was doing, so I could respond by, let's say, changing the teaching activities in the way I think worked best with the students.

*c) 'What were the most helpful aspects of FSATI materials I produced?'*

The flowchart – it was a clear summary and useful for me to talk through with the students. It added to the targets in a way as it gave them more clarity about the whole programme.

*d) 'Were there any aspects that were less helpful, or is there anything I could improve on?'*

None really. The FSATI materials they were fine for me and the students liked it too! Keep the flowchart.

*2a) 'Was the FSATI helpful during actual programme delivery?*
Yes, particularly in explaining the process to the students. Well, winning the students over is the big battle. This was the most important thing and the materials helped greatly cos you can explain things to them using the flowchart for example.

*2b) 'Were they any drawbacks, such as being overly restrictive, or may be too open ended?'*
I wouldn't say that, though when I read the guidance I thought at first I would never recall it all in the sessions. I guess practice made it more perfect! Having a clear plan and the choice to do as you need to within it was ideal, I didn't feel any restrictions really .

**Questions 3 & 4 (Utility of Record sheet and Codes)**
*3. 'Now looking at the new Record sheets you used, how helpful were they in recording your changes?'*
They were helpful. Having said that I think you could have just one column for the changes cos it does emphasise the teaching a bit more, and often there are other things that are even more important.

*4a). 'Were the codes 1,2,3,4, and the sub codes suitable for recording the changes you made?'*
Yes. They were fine – the guidance document reminded me that if I used one change more than once in a session, I need only write down the code once. So that's what I did. They were fine though.

*'No that's fine.'*

*4b). 'Are there any changes you can suggest. Were there any other kinds of changes not covered within the FSATI?'*
Well, No. I think the sub-codes were just enough so you can detail the code later on if you want by adding text which I did on the back from time to time to remind me. But

overall it will be ideal for newcomers - The model overall is a safety net for them I think and will boost confidence ‘cos its so clear.

**Question 5 (Deciding on making a change)**

*5a). ‘Were the key ‘decision points’ helpful in making changes to support student progress. If so, in what way?’*

These were ideal checkpoints, and being on the record sheet was an important reminder for me. School life is so busy and we needed a bit more time when the kids were late, but these points helped me stay disciplined and made me focus more on the probe scores regularly.

*5b) ‘How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?’*

For me I always asked the child about how they thought they were doing and combined it with my thoughts. I would use the data from the previous day then discuss it with them. They knew fluency was what we were aiming for so they could often see why I wanted to change the teaching.

**Question 6 (Most efficacious change)**

*6a). ‘Overall, and thinking back across the project, what do you feel is the single most effective change you could make to improve student performance on a PT programme?’*

Using praise. When the student weren’t right or had difficulty in the previous session I would always try to keep our trust going and give them a sense of belief by praising them.

*6b). ‘Anyway, can you please explain why you said that task praise is so effective?’*

Well, okay. It’s hard for some older kids to admit reading some of these easy words is hard for them. PT offers protection and support by making it just for them, so you have to gain their confidence and keep supporting by telling them they are achieving even tiny things when things don’t go so well.

**Question 7 (other comments)**

*7. 'As I pointed out at the beginning, I am planning to revise the framework at the end of this project. Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?'*

No. Flexibility is key within the framework, although having markers at days (*pause*)….3, 6 and 9 keep you from keeping dragging out with programmes that aren't working. I needed to use task changes a number of times and I think nipping this in the bud at Session 3 was crucial and very helpful for our sessions.

**-Part 2-**

**(5 minutes allowed for completion of sheet – attached to the rear of the interview schedule).**

**Question 8 (Developments in understanding of teaching and learning)**

*8a). 'I am interested in any broad learning outcomes for you as a professional through being part of this project from the very beginning; such as any changes in your professional thinking. So, where you see there has been a change, could you tell me what you feel you have learnt about effective teaching and learning throughout the project?'*

Being precise and clear about the work, whether that is in class or in PT sessions. This approach makes things all very clear and I something think that classes can be a bit of a muddle for the kids, and that where I come in to explain the lesson objectives, and make sure the task is okay for them and we haven't given them too much. Discussing things like this more with the students is something I have thought more about, though that can be hard in busy classes and a bit embarrassing for the kids sometimes. I think these are the main things.

*8b). So, can you think of any other broad areas of change in your thinking about effective teaching and learning. Are there any specific aspects of how you think about your work with students that are different now?'*

I think more about lots of things, like reviewing their work so far and how they have progressed. It has helped me be a better TA in class I think. PT has made me think more about aspects I knew were important. The four codes have helped me think about my class work now and I really see the value in getting the task right, trying to monitor how the students are, like their mood and emotions, and being positive about talking things through, feedback and relationships. I spend a great deal of time asking how kids appear or seem when they walk in and so try to get them settled. PT has made me realise how important this is.

*8c). 'How about organisational arrangements in school?*
Yeah, I think this is important for sure as some students need smaller groups or more individual work to given them a boost. I don't think secondary school setups work for all kids as they aren't flexible enough really.

**Question 9 (Developments in personal practice)**
*9a). 'So, on a more practical level, are there any features of PT that you feel have been of particular relevance to other areas of your practice, such as in class or other individual work you do?'*
I can definitely see the important things to look for but can't always do it all. All the codes could be used to class practice and I have now tried to do a lot of them. I guess using motivational strategies have always been important for me, but now I try to talk more to the teachers in some lessons, not all want to know about how some kids need shorter inputs or smaller portions to keep them engaged, or let them use the computer when they can.

*9b). 'Could you give any more examples of this and how you use them?'*
I suppose I also try to listen to the teachers and the students about their progress so far, what they can do and what they can't. Looking at last lesson's work is really helpful so you know where to start. I think watching for students behaviour or mood has been another thing, cos if you don't respond they can be lost in some lessons and teachers don't always have the time or trust that TAs have with the kids. And also, as I said

earlier, we need to be clear with the kids and I try to make sure they know what the teacher wants by chatting the target or lesson goal through with the kids. They have a realistic expectation then.

*9c).* '*Have you thought about other things like giving appropriate feedback?*
I think this comes into the praise thing, cos saying 'well done' doesn't always mean much unless you say what it is that is good. I try to talk to teachers to see how kids are doing so I can discuss it with them.

**Question 10 (other comments)**
*10. 'As a last question, are there any other important things you feel you have learnt during the project that we haven't covered so far?'*
No. I used this as an example of my work for my degree interview yesterday. It was really helpful to show that I could think like a teacher in this kind of way. So, thank you very much Will.

*'Thanks for your time. If you would like a transcript of this interview I can supply it to you over the next 2 weeks. If you have any further questions about this interview please feel free to contact me in the usual way via email or telephone'.*

**Participant Information Record**

**Participant TA (code): _____8_____ School: _____5_____**

**Sex: (Please circle)** Male Female

**Current position: ___Teaching Assistant_____**

**Length of time in current position: _1 year_**

**Previous positions & length of service:** **Teaching Assistant Primary School (4 years)**

_____

_____

**Qualifications (Please circle):**
-Secondary Education (CSE/ GCE / GCSE /other)
-Tertiary / Further Education (A Level/BTEC/other)
-Higher Education (First Degree / other)
-Higher Education –Post Graduate (Higher Degree / PGCE / Advanced Degree / other)

**Current courses / qualifications: _____None_____**

**Planned courses / qualifications: _____BEd. (Starting 9/08)_____**

**Aspirations: __To be a teacher**

**Appendix 4.2.11.1**

## Summary of key findings from TA Interviews 9 – 16 (Parts 1 and 2)

Overview to table

Each key, primary theme (the most frequently recorded) is emboldened with its' frequency of reference noted in brackets beside. The emerging primary themes are ranked in terms of frequency of expression (1st, 2nd and so on), and any elaborative comments relating to these primary themes are noted below in italics with a reference to their frequency in brackets alongside. Where more than one elaborative theme emerged the most commonly referenced is italicised and emboldened. Lastly, where one interviewee made reference to two separate themes an interview number reference is made (e.g. int. 1).

## Part 1

| *Question* | **Emerging primary themes** | | |
|---|---|---|---|
| ***1a) 'First, looking at the framework and guidance, was it clear how you needed to use it?'*** | **Rank 1**<br><br>**Yes (8)**<br><br>*Elaborative themes:*<br>***-Provided structure (2)***<br>***Guidance document improved clarity(2)***<br>***-Represented 'cumulative learning' (2)***<br>*-Provides a helpful 'summary' (1)*<br>*-Flowchart improved clarity (1)* | | |
| ***1b) 'Can you give examples of this?*** | **Rank 1**<br><br>**The guidance document (4)**<br><br>*Elaborative themes:*<br>***-Clarity (3)***<br>*-Coherence (1)* | **Rank =2**<br><br>**Use of Flowchart (2)**<br><br>*Elaborative theme:*<br>***-To promote collaborative learning (2)*** | **Rank =2**<br><br>**Promoted reflection (2)**<br><br>*Elaborative themes:*<br>***-Supports 'sharing practice' (1)***<br>***-Coherence (1)*** |
| ***1c) 'What were the most helpful aspects of FSATI materials I produced?*** | **Rank 1**<br><br>**The Flowchart (5)**<br><br>*Elaborative theme:*<br>***-Summative and 'Student-friendly'(5)*** | **Rank 2**<br><br>**The guidance document (2)**<br><br>*Elaborative themes:*<br>***-Personal preference for words (1)***<br>***-Outlining details (1)*** | |
| ***1d) 'Were there any aspects that were less helpful, or is there anything I could improve on?'*** | **Rank 1**<br><br>**No (7)**<br><br>*Elaborative themes:*<br>***-But, 'familiarisation session' may be redundant (4)***<br>*-'Student-friendly'(1)*<br>*-Supports 'sharing practice' (1)*<br>*-Need for detail (1)* | **Rank 2**<br><br>**Yes - Flowchart (1)**<br><br>*Elaborative theme:*<br>***-Personal preference for 'words' (1)*** | |

| | | | |
|---|---|---|---|
| ***2a) 'Was the FSATI helpful during actual programme delivery?*** | **Rank 1**<br><br>**Yes (8)**<br><br>*Elaborative themes:*<br>***-Offered clarity (7)***<br>*-Facilitated explanations(2)*<br>*-Provided personal security (2)* | | |
| ***2b) 'Were they any drawbacks, such as being overly restrictive, or may be too open ended?'*** | **Rank 1**<br><br>**No (7)**<br><br>*Elaborative themes:*<br>***-Provides structure and freedom (5)***<br>*-Supports 'sharing practice' (4)*<br>*-Provides intuitive, simplified approach (1)* | **Rank 2**<br><br>**Yes – Guidance document (1)**<br><br>*Elaborative theme:*<br>***-Length of guidance document (1)*** | |
| ***3a). 'Now looking at the new record sheets you used, how helpful were they in recording your changes?'*** | **Rank 1**<br><br>**Helpful (8)**<br><br>*Elaborative themes:*<br>***Emphasised FSATI structure (3)***<br>***Adjustments to layout could be made (3)***<br>*Promoted reflection on successes (2)* | | |
| ***4a). 'Were the codes 1,2,3,4, and the sub codes suitable for recording the changes you made?'*** | **Rank 1**<br><br>**Yes (8)**<br><br>*Elaborative theme:*<br>***-Helpful reminder of options (3)*** | | |
| ***4b). 'Are there any changes you can suggest. Were there any other kinds of changes not covered within the FSATI?'*** | **Rank 1**<br><br>**No (8)**<br><br>*Elaborative themes:*<br>***-To maintain practicality(1)***<br>***-Broad structure(1)***<br>***-Supports 'sharing practice' (1)*** | | |
| ***5a). 'Were the key 'decision points' helpful in making changes to support student progress. If so, in what way?*** | **Rank 1**<br><br>**Yes (8)**<br><br>*Elaborative theme:*<br>***-Promotes structured evaluation(8)*** | | |
| ***5b) 'How did you go about deciding on making a change to the teaching you carried out, or what things did you look for?'*** | **Rank 1**<br><br>**Student presentation (8)**<br><br>*Elaborative themes:*<br>***-Discussion with student (7)***<br>***-Use framework (1)*** | | |
| ***6a). 'Overall, and thinking back across the project, what do you feel is the single most effective change you could make to improve student performance on a PT programme?'*** | **Rank 1**<br><br>**Praise (7)** | **Rank 2**<br><br>**Opportunities to build relationships (1)** | |

| | | | |
|---|---|---|---|
| ***6b). 'Can you explain why you said this?'*** | *Elaborative themes:*<br>*-Confidence (4)*<br>***-Builds relationships (5)*** | *Elaborative theme:*<br>***-'…are the foundations of learning' (1)*** | |
| ***7. 'Are there any other important features about the changes to how you teach and when you make these changes that you feel to be important?'*** | **Rank 1**<br><br>**No (8)**<br><br>*Elaborative themes:*<br>*-Provides structure and freedom (2)*<br>*-Provides freedom and flexibility (2)*<br>***-Supports 'sharing practice'/Facilitates explanation (3)***<br>*-Provides clarity (2)*<br>*-Provides intuitive, simplified approach (2)* | | |

## Part 2

| *Question* | **Emerging primary themes** | | | | |
|---|---|---|---|---|---|
| ***8a) …. So, where you see there has been a change, could you tell me what you feel you have learnt about effective teaching and learning throughout the project?'*** | **Rank 1**<br><br>**The need to review/reflect on student progress (4)**<br><br>*Elaborative themes:*<br>***-Teaching (2)***<br>*-Task (1)*<br>*-Relationship (1)* | **Rank =2**<br><br>**The need to consider personal factors (2)**<br><br>*Elaborative themes:*<br>***-Importance of relationships (1)***<br>***-Supporting students emotionally (1)*** | | **Rank=2**<br><br>**The need to consider task-related factors (2)**<br><br>*Elaborative themes:*<br>***-Learning new skills fluently (1)***<br>***-Clarity of task presentation (1)*** | |
| ***8b) So, are there any aspects of how you think about your work with students that are different now?'*** | **Rank 1**<br><br>**The need to review/reflect on student progress (7)**<br><br>*Elaborative themes:*<br>*-Organisational arrangements (6)*<br>*-Task presentation(6)*<br>*-Relationships (6)*<br>***-Students' social/emotional presentation(7)*** | **Rank 2**<br><br>**Being more focussed (1)**<br><br>*Elaborative themes:*<br>***-Task presentation(1)***<br>***-Relationships (1)*** | | | |
| **8c) *'How about* (present in turn, and give time for response, if not mentioned beforehand),**<br>***-reviewing and reflecting on student's progress?***<br>***-the importance of relationships?***<br>***-how tasks or learning opportunities are presented?***<br>***-organisational arrangements in school?***<br>***-student's social or emotional presentation?***<br>***(n=4)*** | **Rank 1**<br><br>**Organisational arrangements in school (2)** | **Rank=2**<br><br>**Reviewing and reflecting on student's progress** | **Rank=2**<br><br>**The importance of relationships** | **Rank=2**<br><br>**How tasks or learning opportunitie s are presented** | **Rank=2**<br><br>**Student's social or emotional presentation** |

| | | | | | |
|---|---|---|---|---|---|
| ***9a). 'So, on a more practical level, are there any features of PT that you feel have been of particular relevance to other areas of your practice, such as in class or other individual work you do?*** | **Rank 1**<br><br>**Sharing objectives with pupils (5)** | **Rank=2**<br><br>**Giving feedback to students (2)** | **Rank=2**<br><br>**Formative use of student's work (2)** | **Rank=3**<br><br>**Dialogue with students (1)** | **Rank=3**<br><br>**Social and emotional responsiveness (1)** |
| ***9b). (1st Prompt, if necessary) – 'Could you give examples of this and how you use them?'*** | **Rank 1**<br><br>**Dialogue with students (6)** | **Rank=2**<br><br>**Noticing the social and emotional context (5)** | **Rank=2**<br><br>**Use of information from student's previous work (5)** | **Rank=3**<br><br>**Sharing lesson goals (4)** | **Rank=4**<br><br>**Giving feedback (3)** |
| ***9c). (2nd Prompt, if necessary) – 'Have you thought about things like ..<br>-giving appropriate, specific feedback?<br>-noticing and acting on the social or emotional context in school or lessons?<br>(n=3)*** | **Rank 1**<br><br>**Giving appropriate feedback (2)** | **Rank 2**<br><br>**Noticing and acting on the social and emotional context in school or lessons (1)** | | | |
| ***10. 'As a last question, are there any other important things you feel you have learnt during the project that we haven't covered so far?'*** | **Rank=1**<br><br>**No, but…(7)**<br><br>*Elaborative themes:*<br>**Generalised to the classroom (4)**<br>Personal professional development (2)<br>Personal enjoyment (1) | **Rank=2**<br><br>**The importance of reviewing progress (1)**<br><br>*Elaborative theme:*<br>**Personal professional development (1)** | | | |

**Appendix 4.2.12**

**Framework for the systematic adaptation of teaching interventions - version 2 (FSATI v2.)**

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**Guidance Document**

**Record Sheet**

**Flowchart**

~

**Developed by:**
**Will Roberts (Senior Educational Psychologist)**

-

**July 2008**

**(Evaluated and developed through Plymouth Precision Teaching Project 07-08)**

**Appendix 4.2.12.1**

**Framework for the systematic adaptation of teaching interventions – Version 2 (FSATI v2.)**

**Guidance Document**

The framework (FSATI v2.) is intended to be used for improving daily practice within PT sessions. This document describes the second version of the framework and provides practical documents that can be used readily during PT sessions. There are three inter-related parts:

- the main guidance text below, covering principles, process and practice matters to be considered when utilising the framework
- a FSATI v2. record sheet to be utilised within daily practice for the recording of interventions used against the 'change' codes.
- a flowchart (also presented below) as a visual *aide-memoire* outlining the FSATI v2. 'practice pathway' to inform decision making during PT programmes

**Principles for implementation**

FSATI v2. should be implemented with regard to these over-arching principles:

PT represents an approach to improving learning that focuses on solving teaching problems and, with this, involves a sense of 'professional responsibility' for adults involved in providing effective adaptations throughout each programme. It is not one that emphasises a child's learning difficulties or wholly focuses on 'within child' factors in explaining progress.

The delivery of FSATI v2. is to be a collaborative experience. PT programmes delivered through the framework are to be conducted *with* the student allowing for feedback and negotiation on task and teaching throughout as a general feature of delivery

The FSATI v2. should respond to student's social and emotional needs. It is to be delivered within the developing context of a positive teaching-learning relationship that is fostered through the sessions, and strategies for increasing student engagement are to be implemented whenever necessary at the adult's discretion

The FSATI v2. structure should be adhered to at all times. Exceptions to this are to be discussed with the Educational Psychologist.

**Overview to the FSATI (version 2)**

This second version of the FSATI is again structured in a flowchart format allowing for a systematic or 'stepped' approach to PT sessions. Such delivery guidance is provided to support the implementation of PT programmes in their usual format through a framework to guide decision making. In addition to this guidance a complementary flowchart and record sheet is provided for practical use. *In the interests of practicality, each change code is still only required to be entered once for each daily session on the record sheet to confirm implementation despite possible repeated use.*

The framework is continues to be split into three stages (daily sessions 1-3, 4-6 and 7-9), accounting for Steps A – I, and this is reinforced through the use of shaded flowchart boxes (daily session 1-3 are shaded yellow, 4-6 shaded green and 7-9 blue). These colours also correspond with the related decision point rows on the FSATI v2. record sheet (i.e. decision point following session 3 is shaded yellow and so on) to be used to record any changes made at those points.

Staff are expected to commence each programme at Step A and follow through the flowchart in sequence making appropriate responses to the 'decision points' following daily sessions 3, 6 and 9. It should be noted that in addition to the suggested timings of different changes to PT programmes within this guidance, it is stressed that the provision of implementing strategies to 'increase student engagement' at the adult's discretion is permitted at any point throughout any programme. The following outline describes the

activities to be undertaken at each Step and, where appropriate, reference to 'staff aims' and preferred 'student outcomes' that should guide practice within the steps are made.

**The FSATI (version 2) : 'A walkthrough'**

**Step A.** 'Introduction' - This first session should be used to discuss programme objectives (i.e. accuracy, fluency and maintenance criteria), outline the FSATI structure and introduce new words and begin to build accuracy through brief teaching. The session will also follow the usual PT format of *teach-test-chart-review*.

*Staff aim*: to build relationship and engagement with pupil via sharing task objectives and content and adapt teaching within the session (code 3) in negotiation with student.
*Student outcome:* to obtain clarity over task objective and build confidence about the task.

**Step B.** These next two sessions follow the usual PT format of teach-test-chart-review.

*Staff aim:* To build relationship with student through discussions (code 4) and employ the necessary teaching focus on error correction and building fluency where possible (code 3).
*Student outcome:* to build confidence and increase accuracy and fluency on task.

**Step C.** Staff to consider, 'is the programme objective met?' If so, continue to **Step A** and commence new programme. If not, to continue to **Step D.**

*Staff aim*: To systematically review progress in line with task objective.
*Student outcome:* To increase confidence through programme completion, and/or enhance relationship with staff member through discussion of current scenario.

**Step D. Following daily session 3 we arrive at the first key decision point** – If the student has not met objective at **Step C,** staff to consider, **'**is the student making steady

progress?' (i.e. is accuracy and fluency increasing?). If so, continue to **Step E.** If not, consider a change to the task size (code 2) with a revised programme and return to **Step A**.

*Staff aim*: To systematically review progress in line with task objective, and consider changes to task size (code 2).
*Student outcome:* To enhance relationship with staff member through discussion of current scenario by planning ahead.

**Step E.** At this point, from daily session 4 through to 6, staff continue to conduct PT sessions in usual format. During these next three sessions the student may exit the framework at anytime if the objective is met and then return to **Step A.** If the objective is not met following completion of session 6, the process moves to **Step F.**

*Staff aim:* To continue build relationship with student through discussions (code 4) and adapt teaching arrangements (code 3) in negotiation with student to maintain engagement and progress with regard to accuracy and fluency.
*Student outcome:* to continue to build confidence and increase accuracy and fluency on task.

**Step F. Following daily session 6 we arrive at the second key decision point**– Staff to consider, 'is the child near objective in terms of accuracy, fluency and maintenance?' If so, continue to **Step G**. If not, continue to **Step H**.

*Staff aim*: To systematically review progress in line with task objective, and begin to consider specific changes to reach task objective.
*Student outcome:* To enhance relationship with staff member through discussion of current scenario and discuss possible 'acceleration' strategies.

**Step G.** Alongside adapted teaching arrangements (code 3), staff to implement an increased use of motivational strategies (code 4) to increase performance for the next 3

daily sessions. During these next three sessions the student may exit the framework at anytime if objective is met and then return to **Step A.** If the objective is not met by completion of session 9, the process moves to **Step I.**

*Staff aim:* To continue build relationship with student through discussions and increased use of engagement strategies (code 4). Staff to also adapt teaching arrangements (code 3) in negotiation with student to maintain engagement and progress with regard to fluency and maintenance.
*Student outcome:* to continue to build confidence, increase fluency and demonstrate maintenance of skill.

**Step H.** Staff member to discuss programme with student and consider task based adaptations. This will necessitate restarting with a revised programme reflecting changes to task sequence (code 1) and/or task size (code 2).

*Staff aim*: To systematically review programme in terms of task size, sequence, teaching arrangements and engagement strategies used. Open discussion with student to maintain relationship and demonstrate sense of 'professional responsibility' over programme to date.
*Student outcome:* To maintain relationship with staff member through discussion of current scenario and discuss possible improvement strategies for future programmes.

**Step I. Following daily session 9 we arrive at the third key decision point** -Staff member to seek supervision from colleagues and /or Educational Psychologist regarding current programme. This is will necessitate restarting with a revised programme, and may reflect changes to task sequence (code 1) or task size (code 2).

*Staff aim*: To systematically review progress in collaboration with colleagues in order to refine future programmes in terms of task size, sequence, teaching arrangements and engagement strategies used. Open discussion with student to maintain relationship and

support student's self-esteem and self-efficacy by demonstrating a sense of 'professional responsibility' over progress on the programme to date.
*Student outcome:* To maintain self-esteem and self-efficacy and build relationship with staff member through discussion of current scenario and discuss possible improvement strategies for future programmes.

**Recording changes**

Changes made to PT programmes within this model will be made with reference to four codes using the FSATI v2. Record Sheet (appended). These will be:

**Code 1** will represent 'change to the sequence of tasks' (i.e. re-ordering or inter-leaving words from PT programme plan lists)
**Code 2** will represent 'change to task size' (i.e. increasing or decreasing the number of items taught)
**Code 3** will represent 'change to teaching arrangements' and is sub-divided into four specific codes. These are:

- Changes to instructional procedures (i.e. moving from accuracy to fluency building activities) – **code 3a**
- Changes to organisational arrangements (i.e. timing of sessions, duration of daily intervention) – **code 3b**
- Changes to teaching materials (e.g. size and type of materials) –**code 3c**, and
- Changes to teaching activities (e.g. variety of 'games' utilised) – **code 3d**

Code 4 will represent strategies for 'increasing student engagement' and is sub-divided into five specific codes. These are:

- Recognition of positive task-related behaviours (e.g. improvements in accuracy and / or fluency, observed effort during PT sessions or programme completion) – **code 4a**
- Recognition of personal commitment to the intervention (e.g. regular attendance and punctuality, additional practise at home) – **code 4b**

- Interventions to develop relationships with student using more personalised approaches (such as discussions in response to mood or disposition) – **code 4c**
- Consultation about other aspects of the PT intervention to encourage student engagement (such as teaching approach, task expectations, task objectives and task sequence) **- code 4d**.
- Use of (often brief) verbal interventions made to maintain or verify the student's involvement in the session. This is summarised as 'confirmation' strategies – **code 4e.**

Any other changes that do not fit comfortably into any of the codes above should be noted on the FSATI v2. record sheet.

Should you be uncertain of any aspect of the FSATI v2. please do not hesitate to contact Will Roberts (Senior Educational Psychologist) via email or over the telephone.

**FSATI (version 2) Record Sheet** **Appendix 4.2.12.2**

**Name of Student: …… Staff Member: …… Programme: …… Criteria- Acc**: 3 or less errors; **Fluency**: 50 wpm

**Maintenance**: 3 consecutive sessions.

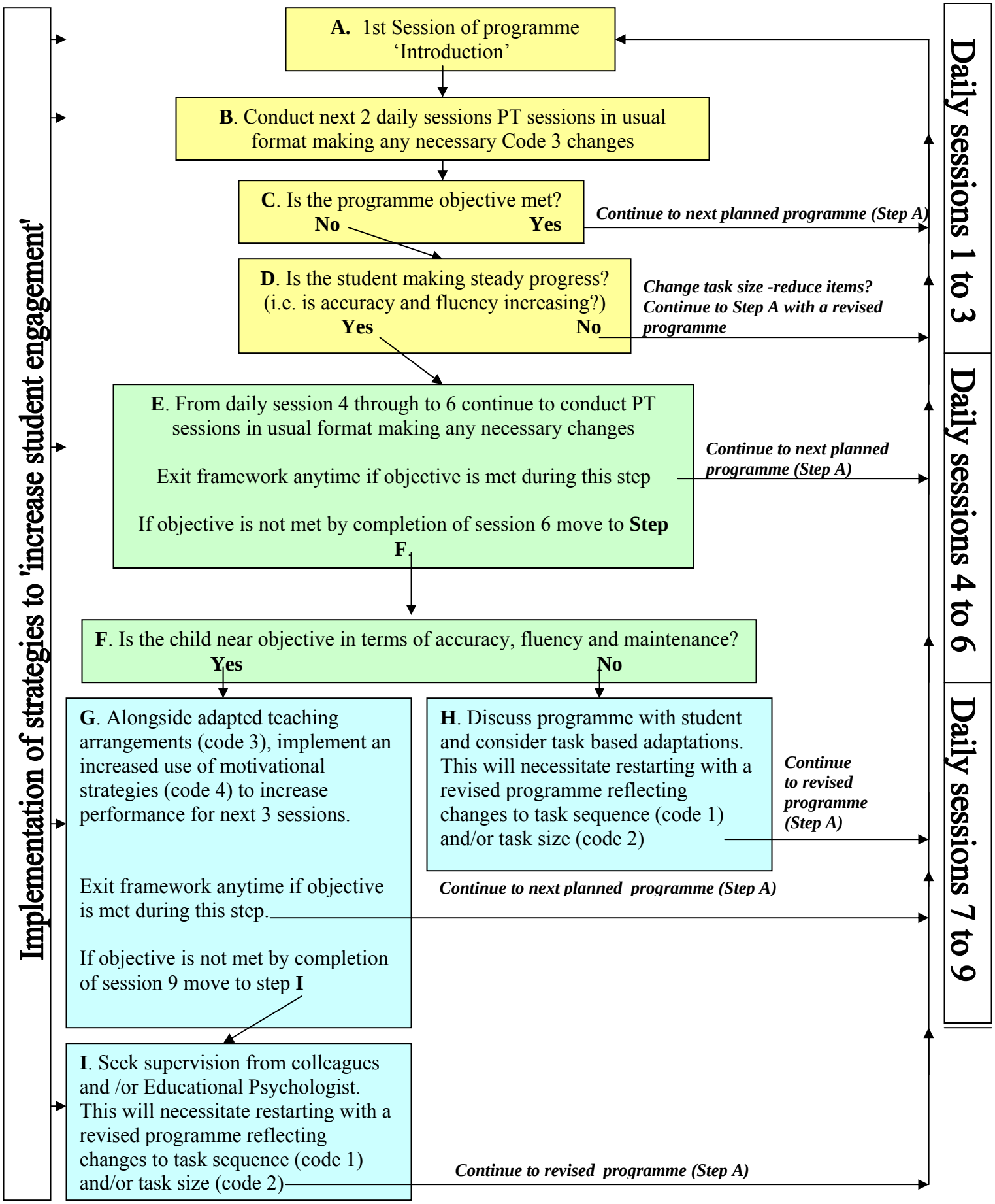
| **DATE** ↓ | **Instructional Arrangements** (How did you teach?) | **Note down any changes to the programme- Changes to/for….**<br>**Task sequence** (Code 1) **Task size** (Code 2)<br>**Teaching arrangements** (Code 3): Procedures(3a) Organisation(3b) Materials(3c) Activities(3d)<br>**Increasing student engagement** (Code 4): Task praise(4a) Commitment(4b) Relationships(4c) Consultation(4d) Confirmation(4e) | **No. correct (o)** | **No. incorrect (x)** | **Programme end? (Y or N)** |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| **Session 3 Decision Point** | Please note change to programme using code here (if required): | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| **Session 6 Decision Point** | Please note change to programme using code here (if required): | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| **Session 9 Decision Point** | Please note change to programme using code here (if required): | | | | |

Code 1 will represent **'change to the sequence of tasks'**
Code 2 will represent **'change to task size'**

Code 3a-d will represent **'change to teaching arrangements' (3a, 3b, 3c, 3d)**
Code 4a-d will represent interventions for **'increasing student engagement' (4a, 4b, 4c, 4d, 4e)**

***Other? – please note yourself***

**Framework for the Systematic Adaptation of Teaching Interventions – FSATI v2.** **Appendix 4.2.12.3**



**Appendix 4.3.1**

**Support session pro-forma (uncompleted)**

# Support Session Record Form

| | |
|---|---|
| Schools in attendance: | Date: |
| Persons Present: TA/s | |

**Key items to discuss:**

**Discussion & outcomes:**

**Other notes:**

**Appendix 4.3.2**

**Completed pro-formas for support sessions 1-12**

# Support Session 1 - Record Form
# School Site

School: 1 Date: 17 September 2007

Persons Present: TAs 1, 2

**Key items to discuss:**

> Record Sheet

> Teaching Approaches

**Discussion & outcomes:**

> *Can we add to our descriptions of changes beyond the 4 codes?* It was agreed that this could be done by putting notes together as this will help in the framework development.

> *What other approaches can we use?* We agreed that we keep to the theory of building fluency. In fact, using Model-lead-test review behind any activities could work. The use of other adjustments to like organisation and materials not just the activities in line with information from the student were discussed.

**Other notes:**

LW and RS report all is going well and students are enjoying it. Some even show greater interest and confidence in class.

Both TAs commented that the approaches to teaching that PT offers could be used with all students in all classes. TA 2 highlighted, *'giving them clear targets to work toward, carefully looking at progress and by using feedback to help them appreciate their successes'*.

# Support Session 2 - Record Form
# School Site

School: 2 Date: 17 September 2007

Persons Present: TA 3

**Key items to discuss:**

> Using codes for motivation (code 4)

> Literature/Research

**Discussion & outcomes:**

> *How do I show the different strategies I use?* It was discussed that simple notes will help in the development of a framework which will be picked up in formal interviews. We discussed trying to group them together for simplicity as making it too detailed may stray time away from actual PI practice on a daily basis.

> *Is there more research I could read so I can use this for my foundation degree? A* list of key references were discussed with several agreed to be sent as soon as possible.

**Other notes:**

> It is possible one or two children may not continue. TA 3 to keep me informed.

> All others really enjoying it and progressing well.

# Support Session 3 - Record Form
# School Site

School: 3 Date: 17 September 2007

Persons Present: TAs 4, 5, 6

**Key items to discuss:**

> Use of codes in class

> More literature?

**Discussion & outcomes:**

> *Will the coded changes work in my class work?* We discussed class based adaptations though agreed these need to be talked through with the teacher to link in with other plans. The group agreed that the four areas of change or intervention represent a range of key adjustments that could well relate well to routine practice.

> *Is there more I could read for my course project?* I agreed to send five key articles as soon as possible.

**Other notes:**

Next meeting 5th November with all school at Central base.

# Support Session 4 - Record Form
# School Site

School: 4 Date: 18 September 2007

Persons Present: TA 7

**Key items to discuss:**

> Reducing Task difficulty

> Completing record sheets

**Discussion & outcomes:**

> *When is best to change the task size?* It was agreed that this would come through the data and discussions with the child. We highlighted that it will be interesting to see when this happens the most, as this may inform the framework.

> *If I use one change more than once do I write it down repeatedly?* We agreed that you could do, but at the moment we were looking at the type of changes used with a view to possibly re-define or be more specific within each broad code. Some additional notes may help, but a frequency count would not be required..

**Other notes:**

> The students are doing so well with such limited input. In this way the TA noted that, *'out of all the classes I am in the students getting PT all seem more willing to participate in reading and are asking more questions, which is a big change for them.'*

> Next meeting 5th November at Central base.

# Support Session 5 - Record Form
# School Site

School: 5 Date: 18 September 2007

Persons Present: TA 8

**Key items to discuss:**

> Recording details

> Student commitment

**Discussion & outcomes:**

> TA stated, *'I want to reflect in more detail what I have been changing – the codes are too broad. Is that OK?'* We discussed how to make notes overleaf of the record sheets and use them when we have interviews over the half term.

> TA 8 noted that progress is great, though it is hard to fit the students in to the morning sessions sometimes as it isn't long. What helps is that they are arriving early, *'which I never thought would happen'*. This was a point of interest to the TA as this was not anticipated.

**Other notes:**

> Next meeting is at Central base on 5th November 2007.

# Support Session 6 - Record Form
# Central Base

Schools in attendance: 1, 2, 3, 4, 5 Date: 5 November 2007

Persons Present: TAs 1, 2, 3, 4, 6, 7, 8

**Key items to discuss:**

> Teacher feedback
> Motivational strategies
> Teaching Activities
> Work in class

**Discussion & outcomes:**

> Schools 1, 2, 4 and 5 highlighted really positive feedback (anecdotally from across subject teachers) about students' confidence in class in reading to them.

> The group highlighted a range of positive strategies: praise for effort/praise for 'probe' performance/using discussions to keep children 'on board'/involving them in developing teaching approaches.

> The group outlined a number of activities to promote accuracy and fluency – snap-hide and seek/probe sprints/matching.

> *Should we share words with teachers?* The group thought that this could only benefit the child.

**Other notes:**

> Dates for interviews were agreed to consider practice so far as a way of developing a framework for use of changes/interventions.

# Support Session 7 - Record Form
# School Site

School: 1 Date: 19 February 2008

Persons Present: TAs 1 , 2

**Key items to discuss:**

> The 3 'check points'

> Record Sheet and codes

> Class practice

**Discussion & outcomes:**

> We discussed PT practice in relation to the decision points under the FSATI. Both TAs clarified their use and confirmed that all had been using them in line with the model.

> We checked over frequency of codings. In line with the FSATI we noted that one insertion of a code was enough, rather than frequency to register their use-i.e. kind of change not degree or the level of it. It would be extremely difficult to capture each praise statement precisely.

> TA 1 noted the effects on her general practice around the school: *'It has made me think things through in class'*. Particular areas of practice influenced include noticing a students mood or their previous 'history' with the subject or teacher.

**Other notes:**

TA 2 said, *'All is going very well – Students are really enjoying this, they are more willing to join in the PT sessions as they continue*.'

# Support Session 8 - Record Form
# School Site

School: 2 Date: 18 February 2008

Persons Present: TA 3

**Key items to discuss:**

> Practice in class

> FSATI checkpoints – 3 session check

**Discussion & outcomes:**

> We discussed the use of the four areas of change in class as staff feel they would be helpful there too. We looked at examples across the 4 areas and considered how they could be adapted. TA 3 commented that this process had made them consider a variety of changes for all children using emotional feedback in particular – *'working this intensively makes you think broader than this you know'*.

> Clarification of need to start a new programme if task size needed to be changes. It was reinforced that this would necessitate the start of a new/revised programme re-entering the process at session 1 on the flowchart – this was in keeping with the TAs practice.

**Other notes:**

> Next meeting 19 March 2008

# Support Session 9 - Record Form
# School Site

School: 3 Date: 18 February 2008

Persons Present: TAs 4, 5, 6

**Key items to discuss:**

> PT practice and the FSATI

> Generalising PT practice

**Discussion & outcomes:**

> We looked over records kept and all are in line with the guidance.

> Following on from previous discussions, two TAs (4, 5) have shared this with staff and have started to use these change codes as inspiration for class based work. Is this because the classes are smaller in a special school? We agreed that these could be good ideas for all children in differentiating or personalising a curriculum for them.

> TA 4 pointed out the emphasis this has brought to their thinking about reflecting on work in class that the students have been undertaking. *'I am looking at things a bit more now and seeing where they are at, and trying to make sure the work is right for them'*. TAs 5 and 6 agreed with this too.

**Other notes:**

> The staff team have applauded the progress the children in groups a and b have made. They are noticing a sense of willingness for some of the children to read-out-loud which is unheard of.

> Next meeting 19th March at Central base.

# Support Session 10 - Record Form
# School Site

School: 4 Date: 18 February 2008

Persons Present: TA 7

**Key items to discuss:**

> FSATI record sheet

> Use of strategies in class

> 'Emotional assessment'

**Discussion & outcomes:**

> Verification of record sheet notes were undertaken. TA 7 questioned the frequency of coded entries such as task praise which happens more than once in most sessions. I confirmed the guidance materials and my agreement with a previous school that this isn't about frequency of interventions within sessions, more about noting presence during practice. I t was agreed that to note frequency would be extremely difficult without hampering the intervention.

> TA 7 has started to implement some of the coded changes in her group work, e.g. reducing task size/building relationships/noticing commitment.

> TA 7 also pointed out how being involved in the process had increased her awareness of the emotional element of learning and getting the task right for each child: *'I have been thinking about this more and more. I guess it's only when you look at things and review your work with a student that you can really appreciate how important it is to match these things up'*.

**Other notes:**

> *'All in all it is going well and all students are very keen at present: one even keeps arriving too early to do PT!'*
> Next meeting is on 19th March 2008 at Central base.

# Support Session 11 - Record Form
# School Site

School: 5 Date: 19 February 2008

Persons Present: TA 8

**Key items to discuss:**

> Teacher feedback

> Recording all the changes

> Relationships

**Discussion & outcomes:**

> TA 8 wished to share the positive feedback from staff who teach the students involved. Many have noticed a real boost in confidence in class. TA 8 was surprised by this, although pointed out their improvements have been really impressive and they seem more willing to take part.

> Discussion regarding the level of detail required for 'change' records. As a minimum the guidance highlights what to include, though I pointed out additional notes may help when the FSATI is reviewed and refined.

> TA 8 stressed the importance now placed on relationships between herself and all students. *'This is something I have not thought through as much before, I have always got along with the kids, but now it seems even more important to notice even smallest things'*.

**Other notes:**

> Next meeting 19 March 2008 at Central base.

# Support Session 12 - Record Form
# Central Base

Schools in attendance: 1, 2, 3, 4, 5 Date: 19 March 2008

Persons Present: All 8 TAs

**Key items to discuss:**

> Use of FSATI decision points and recording codes
> Pupil progress in 5 weeks
> Confidence
> Generalising the model
> Daily organisation

**Discussion & outcomes:**

> We shared records between the group in turn, and talked over practice using the FSATI. The records and practice were observed to be consistent across all 8 TAs.

> Concern regarding 5 week intervention for groups c and d – is it enough? It was noted that the research may give an indication of this.

> Staff in all schools highlighted a noticeable improvement in confidence for most of the students which has been recognised by a number of teachers or observed by them directly in class.

> Four TAs highlighted how they have started to use aspects of practice in PT sessions and think more about how students have done previously. Specific examples included actions such as specifying lesson goals, reviewing previous work, using discussions to clarify student understanding.

> Ideas for adjusting organisational factors were stressed as very helpful by 2 TAs such as time of session/place or location/access to distractions!

**Other notes:**

> All staff are looking forward to the results for these groups (c and d) after the progress a and b had made. All reported the benefits of the FSATI, with schools 1, 3 and 5 pointing out how it had boosted their 'sureness' about making the right decisions.

**Appendix 4.3.3**

**Summary of key findings from records of Support Sessions 1 - 12**

Overview to table

Each key, primary theme (the most frequently recorded) is emboldened with its' frequency of reference noted in brackets beside. The emerging primary themes are ranked in terms of frequency of expression (1st, 2nd and so on).

| *Support Sessions* | **Emerging primary themes** | | | | |
|---|---|---|---|---|---|
| ***1 - 6*** | **Rank 1**<br><br>**PT practice (6)** | **Rank =2**<br><br>**Change in reading skills (2)** | **Rank=2**<br><br>**Interest in gaining more information (2)** | **Rank=3**<br><br>**Thinking about teaching and learning (1)** | **Rank=3**<br><br>**Student's emotional presentation (1)** |
| ***7 - 12*** | **Rank 1**<br><br>**PT practice (6)** | **Rank =2**<br><br>**Student's emotional presentation (5)** | | **Rank =2**<br><br>**Thinking about teaching and learning (5)** | |