Integrating thinking skills in foreign language learning: What can we learn from teachers’ perspectives?

**Abstract:**

Teaching thinking is important for learning and social practice and teachers around the world are encouraged to integrate thinking skills in teaching. However, little is known about teachers’ conceptions, beliefs and practice about integrating thinking skills in foreign language instruction. This paper addresses this issue by examining teachers’ cognition about thinking skills in EFL classrooms in China through the analysis of 473 self-completed questionnaires, four focus group interviews with 18 teachers and a further follow-up classroom observation and video-based reflection of three teachers. Data analysis focuses on bringing all the data together to generate an in-depth understanding about how teachers conceptualise thinking skills and how these skills are perceived to be promoted in subject learning. This study suggests that EFL teachers in China find it difficult to define thinking skills and hold fragmented and insufficient understanding about the concept. The teachers also demonstrated overall positive attitudes towards integrating thinking skills in language classrooms, although they do not believe thinking skills should be promoted specifically in language classrooms. The study also revealed that teachers believe that thinking skills can be taught, and especially through reading, science and maths. Moreover, integrating thinking skills in teaching is closely related to the focus of the English subject, curriculum, class time and textbooks. There is a strong case for arguing for immediate teacher training to develop both content and pedagogical knowledge of teaching thinking skills.

1. **Introduction**

Teaching thinking is important for learning and social practice to develop global citizens with creativity and innovative capacity (MacDonald, 2005). Policy reports from around the world stress that education for higher level skills, such as problem-solving, creativity and learning to learn together (L2L2), is crucial for future economic growth (e.g., World Bank, 2011), and equally critical thinking, resilience, tolerance and reasonableness are all also essential to personal and collective well-being in an increasingly globalised world (OECD, 2014). In educational research, the development of students’ thinking skills has been strongly recommended by many scholars and educators (e.g., Avargil et al., 2012; Li, 2011; Nagappan 2001). At a policy level, there is a trend for including thinking skills in curricula. For example, thinking skills were included as learning goals in educational policy in England in 1999 (Qualifications and Curriculum Authority, 1999), in Hong Kong in 2000 (Education Commission, 2000), in Malaysia in 2003 (Abdullah et al., 2003) and in China in 2001 (Ministry of Education, 2001). Similar initiatives can be found in other developing economies including Thailand, Mexico, Russia and Brazil. At a practical level, teachers around the world are encouraged to integrate thinking skills into subject instruction and abundant research suggests it is beneficial for developing 21st century learners (e.g. Mercer, 1996, 2004; Wegerif et al., 1999).

In language education, research suggests cognition and language development is closely linked (e.g. Carter, 2004; Cook, 2000); for example, researchers have recognised that developing thinking skills may promote higher levels of language proficiency (Chapple & Curtis, 2000; Renner, 1996; Tarone, 2005). However, integrating thinking in language teaching has been peripheral (Pica, 2000), particularly in foreign language instruction (Ghonsooly & Showqi, 2012; Li, 2011; Sokol et al., 2008). It is well-argued in the literature that teachers probably play the most significant role in implementing any innovation in education, it is important to investigate teacher cognition about and practices of teaching thinking skills if any progress of integrating them into language instruction is made. A systematic review of language teacher cognition research to date suggests that there is little research reporting English as a foreign / second (EF/SL) teachers’ conceptions of and practice in teaching thinking skills in a curriculum. Recognising this gap in the literature, this article attempts to make the first contribution to the understanding (EFL) teachers’ thinking and practice of teaching thinking skills, taking a Chinese context as an example.

1. **Significance of the study**

The significance of this study lies in the following two aspects:

First, in order for any thinking-based curriculum to make a difference to students’ foreign language learning, evidence is required to support approaches to teachers’ professional learning and curriculum development so that teachers are equipped with knowledge and skills to help language learners become critical and creative thinkers while learning a foreign language. Researching foreign language teachers’ conceptions of thinking skills and their attitudes towards implementing these skills in their teaching helps researchers, policy-makers and teachers themselves identify the guiding principles in relation to their classroom work and go beyond description towards an understanding and explanation of teacher actions.

Second, the review of literature of second language education and thinking skills seems to indicate advantages for all types of students through the explicit teaching of thinking skills. However, it has proven difficult to find any studies that specifically investigated language teacher cognition about thinking skills within an English as a foreign language context. This research addresses this deficit in the literature by specifically focusing on how teachers understand the concept and to what degree they implement teaching thinking in their classrooms, and as well as potential factors influencing their decisions. The findings are of interest to educators and researchers interested in the teaching and learning of thinking skills as well as those interested in second language teacher cognition. This might also be of interest to researchers and teachers as well as policy makers in improving second language learning in general. The educational significance of this research is that it provides base-line data from one group of stakeholders that will allow educators and policy makers to answer questions about whether it is worth the time, expense and effort of developing and implementing thinking-based EFL curricula. It provides insight into educational questions about whether teachers are ready and prepared to implement educational innovation; what barriers there might be in the implementation; and, whether there are lessons to be learnt for similar contexts.

1. **The Chinese context**

At the outset, it is crucial to discuss the social, cultural and educational contexts of Chinese learning. Various studies have been published regarding Chinese learners and the culture of Chinese learning, claiming that Chinese learners are obedient and passive, and do not practice higher thinking skills. However, this is not an entirely true reflection of this culture of learning, as the Chinese language engages different kinds of thinking, including reflective thinking. Specifically, Chinese reflective thinking requires learners to reflect in relation to the context they are in and to engage in critical and creative thinking, and in many cases collaborate (Li & Wegerif, 2014; Li, 2015). This said, much teaching and learning in China does involve rote learning and knowledge acquiring and retrieving, rather than *knowledge construction and creation*. This perhaps is due to the education system. In China, students spend six years in primary and six years in secondary school (with three years for junior high and three years for senior high sections). Thus, for an ordinary learner, there are three high-stake examinations which take place at the end of primary school (year six) and at the end of junior high school and senior high school. These three exams are pivotally important for learners because they are selective exams for further education, especially the NCEE (National College Entrance Examination) at the end of senior high school. NCEE determines whether a student can obtain a place at a university. In essence, the NCEE has become the real aim and motivation of high school study (Ding & Lehrer, 2007). The NCEE is also the indicator of the effectiveness of teaching at high school (Luo & Wendel, 1999), and a key influential factor for any education reform (Li, 2008). For all these reasons, Chinese education is known as exam-oriented, and passing exams is a symbol of success (Kirkpatrick & Zang, 2011).

In 2001, as elsewhere in the globalizing world, developing learners’ thinking skills gained an important role in Chinese education reform (Li, 2011). The Chinese government launched a new curriculum and syllabus to encourage students’ critical and creative thinking skills, to change the focus on receptive learning, rote-learning, and mechanical drilling and to advocate learner participation, exploration, information collection and comprehension, problem-solving, negotiation and collaboration (Ministry of Education (MOE hereafter), 2001). In terms of foreign language education, the new curriculum emphasizes the application of language in real-life contexts to explore, negotiate, communicate, collaborate and participate. Language learning, thus, is not considered as developing linguistic competence but participation, knowledge co-construction, engagement and sharing. Such learning requires ‘higher-order thinking skills’ such as critical thinking, complex information-processing, reasoning, enquiry, creative thinking and evaluation (Resnick, 1987).

1. **Teaching thinking skills and L2 studies**

Thinking skills is interpreted differently by researchers as critical thinking, creative (possibility) thinking, group thinking, learning to learn together and metacognition. Critical thinking and metacognition have been research foci in the last decade, but a review of the current development of research in teaching thinking skills points to creativity and learning to learn together (Wegerif, Li & Kaufman, 2015). The shift of focus implies that the view of ‘thinking’ is gradually moving from the individual to group, from cognitive to social development. Thinking skills, in this article, however, refers to any higher order thinking skills, which involve effort, self-regulation, imposing meaning, possibility and subtle judgement and interpretation (Resnick, 1987).

Integrating good thinking skills in teaching has proved to be beneficial for academic learning, personal development and social relations, and the benefits have been investigated in all dimensions of thinking skills, especially about critical thinking, metacognition and creativity.

Previous research suggests that teaching such skills along with a school subject enable students to feel that their thinking was meaningful and that these skills were useful (McGuinness, 2006). In L2 studies, one aspect of research has examined the effects of thinking skills on second language acquisition (e.g., Hashemi & Ghanizadeh, 2012; Ghanizadeh & Moafian, 2011). Rao’s (2007) and Gibson’s (2012) studies show how teaching critical thinking in an L2 writing class facilitates the production of more critical ideas in writing, which also influences the use of language. This research clearly demonstrates the close link between thinking skills that students are able to employ during a writing task in foreign language learning, and the output of second language. On an affective aspect, Shahini and Riazi’s (2011) conducted a study in a college L2 class in developing critical thinking, to find that its integration can motivate students to take risks. Similar ideas were proposed by Casanave (2010). Both of these studies argue that learning a language does not only mean developing students’ linguistic competence, but to be open-minded and prepared to take risk. Another strand of research on thinking skills in L2 studies is about assessing the levels of students’ critical thinking, very often through employing critical thinking scales (Alagozlu, 2007; Shin et al., 2006; Stapleton, 2001). One matter worth noting here is that these studies are by and large situated at college level and there is a notable absence of studies conducted in both primary and secondary school contexts.

Integrating critical thinking into language learning increases student motivation to learn about and improve their thinking. This supports the view held by many scholars who regard language learning as an activity involving metacognition, in particular with reading and writing in second language education (Zhang, 2001). This is because substantive reading and writing requires learners to process information in a critical manner and reflect on their own thinking process. Most research in this area focuses on learners’ awareness of and use of strategy, which demands attention to learners’ subjective thoughts about strategic reading (or writing).

The positive effect of bilingualism has been shown on the development of creativity in second language learners, but only a few studies have investigated the impact of learning a foreign language in a context where the interaction is limited to teacher-student but not everyday social interaction. Ricciardelli (1992) conducted a meta-analysis of 24 studies that examined creativity in bilingual education and argued that bilingualism has a positive connection with creativity in general. Hommel et al., (2011) echoed the positive impact of bilingualism on creativity, suggesting that it is the underlying processes and mechanisms of creativity that are influenced by bilingual practice not the unitary concept, per se. Creativity is enhanced by cognitive function, so it can be expected that developments in bilinguals’ cognitive function facilitate creative abilities. Kharkhurin (2007) argues that bilinguals’ experience of participation in two cultures makes them see the world through two different conceptual systems which therefore enhances cognitive flexibility, divergent thinking and the creative expression of experiences.

1. **Teacher cognitions about thinking skills**

Research suggests that teachers’ pedagogical beliefs closely influence their instructional practices (Borg, 2003; Farrell and Kun, 2008; Ng and Farrell, 2003), decision-making in class and classroom interaction (Li & Walsh, 2011; Li, 2008). As Williams and Burden (1997) put it, teachers’ beliefs about language learning ‘affect everything that they do in the classroom’, guiding and prompting classroom actions much more strongly than the use of a particular methodology or course book (pp. 56–57). Thus, knowledge that teachers have about what constitutes thinking skills and how to integrate them in their subject teaching may have enormous instructional consequences. So in essence, one can assume that teachers will emphasise memorising skills in teaching if they consider memorisation is a key skill in learning. Thus, teachers' beliefs in this context might become a self-fulfilling prophecy (Zohar, et al, 2001).

Teacher cognition is a complex concept, consisting of cognitive, affective, subjective and objective dimensions (Richards & Lockhart, 1994). The concept of teacher cognition is not just static mental entities that teachers hold but understanding, perceptions, conceptions and selves in a professional context, which is influenced by various sociocultural factors, such as schooling, teaching experience (Tsui, 2003), and workplace culture (Li, 2008; Sato & Kleinsasser, 2004). In my view, teacher cognition can be understood as a process in which a variety of components (e.g. students, materials, teaching activities and teachers) interact in a particular context. This view of cognition is not situated in a cognitive perspective, but a sociocultural perspective of learning and instruction, which sees learning and doing being mediated and shaped by sociocultural elements. In this perspective, teacher cognition is not static and does not exist in teachers’ heads, but a fluid and interactive understanding that is situated in a given context. From this perspective, cognition can be studied using various methods, including both the traditional tool of questionnaire and the more innovative approach of classroom discourse (Li, 2012; 2013).

To date, discussions on L2 teacher cognition have appeared in the research literature on the degree of ‘match’ between learners’ and teachers’ beliefs (e.g. Cohen & Fass, 2001); on beliefs about subject matters (for example grammar and grammar teaching; literacy) (e.g., Svalberg & Askham, 2014); on changes in teachers’ beliefs (e.g. Mattheoudakis, 2007); on the influence of beliefs on teachers’ classroom behaviour and the convergence of practice from beliefs (e.g. See Basturkmen 2012 for a review), and on the influence of beliefs on both pre-service and in-service teacher education programmes (Busch, 2010). To my knowledge, there is no published research concerning foreign / second language teachers’ beliefs about teaching thinking skills.

However, some relevant studies can shed light on teacher cognition about thinking skills. Mok’s (2009) study revealed that teachers lacked knowledge of teaching methods and skills which could be used to develop students’ thinking skills in class. He observed two English writing classes in a secondary school in Hong Kong, and the results reveal that teachers did not create either the opportunities or the space for critical thinking. Their questioning skills were poor and they did not allow the students enough time to think. He also proposed that the absence of a collaborative learning environment in the classroom was another reason for the failure.

Another relevant study (Li, 2011) revealed a complex picture of teacher practice of promoting thinking skills. In this study, some teachers were good at creating opportunities and space in their classrooms to engage students with higher order thinking skills, such as possibility thinking and flexibility. Some teachers, however, restricted such opportunities by not giving students time and space to develop their thinking. Clearly, questioning techniques and interactional strategies employed by teachers can either develop or hinder thinking. Moreover, wait time is identified as another important element encouraging learner participation, negotiation and meaning co-construction. The findings emphasise the key role of the teacher in creating, developing, managing and navigating the *space for thinking* by using referential questions, increasing wait-time, reducing interruptions and adopting selective repair.

Based on the above discussion of the gap identified in the literature and the importance of developing language teachers’ understanding of teaching thinking skills, this paper reports a study conducted with secondary school EFL teachers in China. This study aims to bridge the research gaps that may exist between the theories of teaching thinking in Asian L2 contexts and actual pedagogical beliefs and practices of language teachers.

The research questions addressed in this study are:

* What are EFL teachers’ conceptions about thinking skills?
* What are EFL teachers’ attitudes towards teaching thinking skills in their subject?
* To what degree do EFL teachers integrate teaching thinking skills in their classrooms?
* What are factors contributing to their understanding and practice of teaching thinking skills?
1. **Methodology**

The research design was that of a case study, which enabled the in-depth understanding of a phenomenon in its context. I used a funnelling approach (Spradley, 1980), in that a broad overview of 473 teachers’ views of teaching thinking skills was investigated by means of a survey, a smaller group of 18 teachers were interviewed as four focus-groups about their conception and practice of teaching thinking skills, and three teachers were further interviewed and observed in teaching over a month. This enabled intensification and a further focusing at each stage for each of the issues under study. The study was undertaken in the capital of China, Beijing, with the help of several local education authorities. The selected teachers were from different types of schools[[1]](#footnote-1) and regularly attend continuing professional development (CPD) activities organised by local education authorities. The participation in the study was on a voluntary basis. The majority of participants (84.1% N=398) were female: this is consistent and representative of primary and secondary education in China and worldwide (e.g. Beghetto, 2008; Kampylis et al., 2009; Li, 2008). A large number of participants (n=366) were aged between 26-35 and there is a balanced number of teachers with teaching experience of 1-5 years, 6-10 years and 11-15 years. Most of teachers (n=424) taught a class of 31-50 students. The summarised demographic information is reported below in Table 1. Participants have been assigned with pseudonyms herein.

The research instruments included a self-report, anonymous, pencil-and-paper questionnaire (Teachers’ Cognition of Thinking Skills – TCTS specifically designed and piloted for the study) containing a covering letter and 42 items divided into four sections (three sections with attitudinal items and one with demographics and factual items). The 36 items in the three sections measuring teachers’ cognition were based on five-point Likert scales (from ‘strongly disagree’ to ‘strongly agree’). In these sections, teachers were asked a range of questions relating to their conception of thinking skills, attitudes towards teaching thinking skills in language lessons, their practice of teaching thinking skills, and potential factors that influenced their decision-making. There was also an open-ended question at the end of each section. The questionnaire was piloted with a convenience sample of twenty-two EFL teachers in China and a Cronbach’s alpha internal consistency reliability was calculated for each section. A good Cronbach’s α was achieved for each section by modifying a few items in the questionnaire (α =.913, .803 and .879 respectively) (George & Mallery, 2003). Then the questionnaire was distributed to around 600 teachers when they attended CPD courses, with 473 completed and valid ones.

Following the completion of the survey, 18 teachers took part in focus-group interviews. The interviews took place after the CPD event hosted by their local education authority in a café near the CPD venue. Interviews were digitally recorded, then transcribed. Each focus group normally lasted between 60 and 90 minutes. The purpose of the focus group was to explore the participants’ in-depth views of their understanding about thinking skills, implementation of this, and influential factors contributing to teaching thinking skills in foreign language instruction. Following the focus-group interviews, 3 teachers’ classrooms were observed, and followed-on with video-based interviews (Amy, Bi and Carol). Both their teaching and video-based interviews were recorded digitally for further analysis.

|  |  |  |
| --- | --- | --- |
| Demographic characteristics | N | % |
| Gender | Male | 75 | 15.9 |
|  | Female | 398 | 84.1 |
| Age | 20 to 25 | 68 | 14.4 |
|  | 26 to 35 | 247 | 52.2 |
|  | 36 to 45 | 119 | 25.2 |
|  | 46 to 55 | 39 | 8.2 |
| Teaching experience | 1 to 5 years | 122 | 25.8 |
|  | 6 to 10 years | 136 | 28.8 |
|  | 11 to 20 years | 144 | 30.4 |
|  | 21 to 30 years | 51 | 10.8 |
|  | More than 30 years | 20 | 4.2 |
| Student level | Junior | 225 | 47.6 |
|  | Senior  | 248 | 52.4 |
| Class size (student no.) | Less than 30 | 34 | 7.2 |
|  | 31 to 40 | 273 | 57.7 |
|  | 41 to 50 | 151 | 31.9 |
|  | More than 50 | 15 | 3.2 |

Table 1. Demographic information of participants

1. **Data analysis**

Various approaches were taken in the data analysis. The questionnaires were used to produce a general picture of Chinese EFL teachers’ cognition about teaching thinking skills through descriptive statistics. Means, standard deviations and percentages[[2]](#footnote-2) are reported to help the reader to understand the overall conception, attitudes and self-reported practice of the teachers with regards teaching thinking skills in English. The four focus group interviews and two semi-structured interviews generated (63, 72, 76 and 87 minutes; 73, 67 and 79 minutes respectively) nearly 517 minutes of recording, and the total amount of classroom video analysed was 6 hours 45 minutes. For focus group interviews, I undertook a grounded approach to classify teachers’ verbal accounts into themes which were then compared with quantitative data. Themes were identified through an iterative process to examine commonalities and differences in the four focus group interviews. Codes were then grouped to form themes that illuminated the teachers’ conceptions, perceptions and practices of teaching thinking skills. Then video-based reflection data from three individual teachers were transcribed and coded to provide insights into the themes from teachers’ perspectives. Classroom observation data were also transcribed verbatim and subject to discourse analysis. However, because of constraints of space, this article does not include classroom discourse data.

7.1 Conception of thinking skills

As suggested in the literature, when we talk about teaching thinking skills, we do not refer to a particular skill, rather a set of any good thinking skills, such as being critical, creative, engaging in a dialogic process in problem-solving, learning to learn together, and so on. In this study, teachers demonstrated varied but fragmented understandings of thinking skills (see below). The findings suggest that the teachers might find it hard to define and articulate thinking skills, as no teacher put forward their own definition of thinking skills when asked to do so.

|  |
| --- |
| **Descriptive Statistics**  |
| Thinking skills are | N | Minimum | Maximum | Mean | Std. Deviation |
| 1. intelligence
 | 473 | 3.00 | 5.00 | 4.65 | .52 |
| 1. memorization skills and techniques
 | 473 | 1.00 | 5.00 | 4.53 | .76 |
| 1. logics
 | 473 | 1.00 | 5.00 | 4.51 | .77 |
| 1. reasoning
 | 473 | 1.00 | 5.00 | 4.10 | 1.05 |
| 1. being critical
 | 473 | 1.00 | 5.00 | 4.10 | 1.00 |
| 1. aware of one’s learning process
 | 473 | 1.00 | 5.00 | 3.66 | 1.45 |
| 1. making appropriate argument
 | 473 | 1.00 | 5.00 | 2.97 | 1.55 |
| 1. problem solving
 | 473 | 1.00 | 5.00 | 3.11 | 1.40 |
| 1. changing perspectives
 | 473 | 1.00 | 5.00 | 2.94 | 1.45 |
| 1. learning to learn together
 | 473 | 1.00 | 5.00 | 2.32 | 1.28 |
| 1. openness and flexibility – ready to accept new ideas and different perspectives
 | 473 | 1.00 | 5.00 | 2.19 | 1.00 |
| 1. being creative
 | 473 | 1.00 | 5.00 | 2.13 | .96 |

Table 2. Teachers’ conceptions of thinking skills

Figure 1. Distribution of teachers’ conceptions of thinking skills

As shown in Table 1 and Figure 1, thinking skills for this group of teachers by and large meant developing individual learners’ intelligence (97.8%, M=4.65, SD=0.52), developing memorization skills and techniques (93.2%, M=4.53, SD=0.76), developing logics (93.2%, M=4.51, SD=0.77), enhancing reasoning abilities (84.5%, M=4.10, SD=1.05), becoming critical (78%, M=4.10, SD=1.00), and knowing one’s learning process (63.8%, M=3.67, SD= 1.45). This view of the thinking skill is largely influenced by the cognitive view of learning, which sees learning as developing individuals’ cognitive capacity and changing their behaviours, with learning considered as to happen through memorization and application. Openness and creative thinking, however, are the least important skills compared with others. Examining teachers’ conceptions, three areas merit unpacking further: memorisation, creative thinking and critical thinking.

*7.1.1 Memorisation as a thinking skill*

A large number of teachers (93.2%, M=4.53, SD=0.76) agreed that memorisation is important for learning, and an essential thinking skill in language learning. The focus group interviews suggested that the role of memorisation in language learning was ‘fundamental and important’ and higher order thinking skills (such as reasoning, logics, intelligence and critical thinking) were based on memorisation. This view is evidenced by comments from focus groups (FG1-FG4):

FG1: Thinking skills are about techniques that enhance students’ memory. Once the students have sufficient knowledge, they will be able to reproduce it at an appropriate time.

FG3: Memorisation is a very important skill because students need to have sufficient knowledge in order to develop logics and reasoning skills. They need to refer to the existing knowledge when reasoning.

FG2: Thinking skills are critical thinking. But in order to become critical, students need to have a good knowledge base, that is why memorization should be a core part of thinking skills.

The importance of memorisation is also closely related to student linguistic level. The teachers believed that one strategy to develop student linguistic competence was memorisation. Generally speaking, the younger the students are or the lower their English level is, the more important memorisation is. In teaching, memorisation has been highly emphasized by these teachers and the focus groups share similar practice in enhancing memorisation by giving instructions like ‘learn this by heart’, ’memorise this because it is important’, and ‘make a mental note here’. They also suggested a clear link between memorisation and linguistic development, claiming:

FG4: when students start to memorise grammar rules, vocabulary and language bits, their accuracy and proficiency will improve.

Individual teachers I observed also agreed with this view but explained the role of memorisation on the basis of their experience and understanding. For example, Amy suggested that memorisation was a complicated process which requires some higher order thinking skills, such as analysis, synthesis, making connections and application. Memorisation is also developmental, meaning that the skills required for memorisation are closely related to the stage of learning and the cognitive ability of learners. Simply put, ‘the more advanced the learner is, the more skilled they become in memorisation. The advanced learners know how to link existing knowledge to the new knowledge in order to memorise and internalise it, and are able to make reference to different types of knowledge acquired at different times’ (Amy).

In these teachers’ views, memorisation is also connected with language use, and discovery of new meaning. Bi gave an example:

During the process of memorising new grammar rules, students might need to analyse the learnt information, and subsequently discover the patterns that relate to the newly learned grammar rules. In this way a student might be able to internalise the new knowledge and use the language correctly.

The teachers also believed that the most effective way to enhance students’ foreign language learning was to help deepen understanding, which can be achieved through memorisation. ‘There is no short cut to successful language but through effective memorisation. Therefore, memorisation is worth promoting in class’ (Carol).

*7.1.2 Creative thinking*

It is surprising that creative thinking, which has already obtained significant attention in the research of thinking skills and creativity, scores the lowest percentages and means (in particular items 9, 11 and 12) which suggests that teachers generally do not consider creative thinking as part of thinking skills. In the focus groups, teachers shared their opinions:

FG1: creative thinking is something important for arts and literature. It is not closely related to language learning.

FG3: creativity is not part of the thinking skills because thinking skills should be related to factual knowledge whereas creative thinking does not necessarily focus on knowledge.

FG4: creative thinking is maybe important when students go to work, but right now, because they are learning subjects, it is not important. It is more important to develop students’ cognitive ability.

Teachers did demonstrate struggles with the terminology of thinking skills and revealed insufficient understanding of the concept. For example, one teacher claimed that she had no idea what (good) thinking skills were and this view was shared by her focus group. They also agreed that the difficulty of defining the concept presents challenges for them to integrate these skills in the curriculum.

FG4: we just discussed how difficult it is to define thinking skills because like you (referring to the researcher) said, they can be analytical skills, critical skills, individual thinking, flexibility, being creative, ability to solve problems, memorising, raising questions, being reasonable and so on. I wouldn’t know which one to teach to be honest. I don’t even know what they mean, let alone teach them.

*7.1.3 Critical thinking*

From the teachers’ perspectives, closely related to memorisation is the concept of critical thinking. Critical thinking scored a relatively high percentage and means compared with creative thinking (78%, M=4.10, SD=1.00). In the literature, critical thinking is interpreted as a skilful ability that involves drawing on inferences, evaluating, reasoning, analysing, and problem-solving (Fisher, 2001; Black, 2012; Moore, 2013). Teachers in this study offered similar but contextualised definitions for the concept. In the focus group interviews, the teachers identified key elements for critical thinking, including the ability to analyse materials, summarising, seeing from different perspectives, discovering rules and patterns in language learning, making reasonable argument with evidence, and applying language in real-life contexts. Comments drawn from the focus groups include:

FG 1: critical thinking is an ability that a learner has and uses in language learning. It involves analysing language materials and discovering language rules and usage.

FG2: Summarising is a key element of critical thinking. The ability to be able to make a good summary and reasonable argument is critical thinking. Of course, it also involves using materials and evidence to support their arguments, not just making a random argument.

FG4: critical thinking means being able to see things from different perspectives and not just blindly accepting one view. In terms of language learning, applying language in real-life contexts to communicate one’s opinions and solving a problem is critical thinking.

It is worth noting that being able to embrace different perspectives is associated with critical thinking from teachers’ points of view. This is in line with what Lipman (2003) suggested as ‘healthy scepticism’, that one needs to view things from multiple perspectives with flexibility for solutions. Amy explained this point with an example:

When people learn a foreign language, eventually they want to communicate their ideas and work with people from different cultures and countries, so being able to see where others come from and communicate one’s ideas effectively requires not only high language proficiency but also ability to analyse things from different positions and views.

Bi echoed Amy’s view in slightly different words:

There is no right or wrong (answers) in many cases, so it all depends how one communicates and convinces others, so apart from language proficiency, learners need to improve their ability to think various possible solutions to one issue. This requires criticality and it is important and a transferrable skill that they need to use in all aspects of their life. Blindly accepting authority’s opinion should be abandoned and criticised.

Reflecting on her own teaching, Bi added,

… that’s why in my classes, I often ask students to present different (or opposing) ideas and they have to argue for their ideas but respect others’ at the same time. I would say it is a healthy way to critique each other’s point but also an opportunity to learn from each other.

7.2 Attitudes towards teaching thinking skills

Teachers overwhelmingly recognised the importance of thinking skills and demonstrated positive attitudes towards teaching the skills. This is reflected in all data collected (e.g. questionnaire, focus group interviews, individual reflection and classroom observation). The questionnaire has a section asking teachers’ opinions about teaching thinking skills and there are 11 statements which are divided into three sub-sections, namely, general attitudes towards thinking skills ( items 1-2), thinking skills and English language learning (items 3-6) and the development of thinking skills (items 7-11) (See Table 3 and Figure 2).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | N | Min | Max | Mean | Std. Deviation |
| 1. Thinking skills are important for personal development and learning
 | 473 | 2.00 | 5.00 | 4.48 | .77 |
| 1. Thinking skills are important for all subjects
 | 473 | 2.00 | 5.00 | 4.24 | .74 |
| 1. Thinking skills are important for developing language proficiency
 | 463 | 1.00 | 5.00 | 3.24 | 1.42 |
| 1. Thinking skills should be promoted in English classes
 | 464 | 1.00 | 5.00 | 3.14 | .98 |
| 1. Thinking skills should be a core part of English curriculum
 | 473 | 2.00 | 5.00 | 3.75 | 1.23 |
| 1. There should be more thinking activities in the textbooks
 | 471 | 2.00 | 5.00 | 3.88 | 1.11 |
| 1. Thinking skills can be developed for all students
 | 473 | 1.00 | 5.00 | 3.97 | 1.06 |
| 1. Thinking skills are very much influenced by social and cultural contexts
 | 472 | 4.00 | 5.00 | 4.33 | .47 |
| 1. Thinking skills should be developed from early years
 | 473 | 4.00 | 5.00 | 4.63 | .48 |
| 1. Some students have better thinking skills than others
 | 473 | 4.00 | 5.00 | 4.36 | .48 |
| 1. A student can develop thinking skills in different ways
 | 473 | 3.00 | 5.00 | 4.40 | .61 |

Table 3. Teachers’ attitudes towards thinking skills

Figure 2: Teachers’ attitudes towards thinking skills

*7.2.1 Overall attitudes towards thinking skills*

The majority of teachers (89.8%; M=4.48, SD=0.77) agreed/ strongly agreed good (higher-order) thinking skills were important for personal development and learning. The focus groups also reflected this view, for example:

FG2: Thinking skills are important for students to develop in the future, for example, critical thinking will enable individuals to embrace different perspectives, and solve problems.

FG3: I used to teach those who are really intelligent and they are all very successful now in their jobs. So thinking skills will definitely help them to achieve their goals and make them more motivated and strategic.

FG4: If students are able to think critically and reflectively, they will succeed no matter whether they are studying or working.

The majority of teachers (86.3%; M=4.24; SD=0.74) also agreed / strongly agreed that thinking skills were important for all subjects, with only a few teachers who disagreed (2.1%). Presumably, from the teachers’ perspective, ‘all subjects’ here also includes English. However, only half of the teachers (55.0%; M=3.24; SD=1.42) agreed / strongly agreed that thinking skills were important for developing English proficiency. There is clearly a discrepancy between the importance of thinking skills for all subjects, and for developing English proficiency. The focus group interviews shed light on this discrepancy:

FG2: I think thinking skills help with the development of accuracy because once students know how to learn, they can use these strategies to learn vocabulary and figure out grammar rules.

FG3: Comparing fluency, accuracy is more important and in my experience, students with higher intelligence or learning strategies get better results in exams.

FG4: I think students can really benefit from improving their skills of memorising vocabulary and applying them appropriately. Also, thinking skills can help them to organise vocabulary according to their families.

From the comments above, we can see teachers believe thinking skills can increase students’ accuracy because they conceptualise thinking skills as a tool to enhance memory, learning strategies, metacognitive strategies, and intelligence. A possible explanation is that learning a foreign language is still widely believed to be gaining linguistic knowledge, which inevitably requires memorisation in China. Owing to learning English being viewed as acquiring linguistic knowledge through cognitive effort, thinking skills associated with or important for language learning is memory enhancement.

*7.2.2 Attitudes towards promoting thinking skills in English subjects*

Despite the positive attitudes towards thinking skills for personal well-being, and usefulness of thinking skills for all subjects and for developing English accuracy, the teachers were not keen to promote this in English classes. Only 42.7% of participants believed thinking skills should be promoted in English classes while 32.1% disagreed / strongly disagreed with this (M=3.14; SD=0.98). The focus group interviews revealed that the teachers:

1. did not feel it was their job to promote thinking skills and they suggested such skills should be promoted in other subjects like science and maths.
2. believed English classes should focus on linguistic knowledge and communication. Although developing students’ thinking skills is important, it should not be the focus of the subject.
3. believed students would acquire thinking skills naturally without explicit instruction.
4. believed that the current curriculum and textbooks are very much fixed and there is not much flexibility to integrate thinking skills in teaching.

These were identified as major reasons why teachers are not keen to promote thinking skills. In my observations of the three individual teachers’ classes, however, it seemed there were discrepancies between what teachers reported in the interviews and their practice. Clearly, teachers did teach thinking skills but they might not have been aware of it.

This said, the majority of teachers believed these skills should be a core part of an English curriculum and English textbooks should have more thinking-related activities (64.5%, M=3.75, SD=1.23 and 73.3%, M=3.88, SD=1.11 respectively). Again, this is to do with the role of English curriculum and textbooks in China. As stated earlier, teachers follow the curriculum and prescribed textbooks very strictly. There is no flexibility for individual teachers to choose their own materials, mainly because of the high-stake exams. One teacher was very critical about the curriculum, textbook and tests they follow and shared his concern in the focus groups:

FG4: I have been teaching years and have seen changes in curriculum, textbooks and tests, but unfortunately nothing really changes. It’s just more vocabulary, more reading, more materials and more content we need to cover. Exams are still the same, knowledge-based, so it makes it impossible to teach anything else apart from what’s there in the textbook. If we do not follow the textbook closely, we might disadvantage our students.

*7.2.3 The development of thinking skills*

In terms of the development of thinking skills, the majority of teachers (78.9%, M=3.97, SD=1.06) agreed / strongly agreed that thinking skills can be developed for all students, although a small number of teachers disagreed (16.7%). So, this study suggests that thinking skills are not innate and can be developed for individuals. Interestingly, all teachers agreed/ strongly agreed that thinking skills are very much influenced by social and cultural contexts (M=4.33, SD=0.47), thinking skills should be developed from an early age (M=4.63, SD=0.48), and some students have better thinking skills than others (M=4.36, SD=0.48). The focus group interviews suggested that teachers a) believed Chinese students think differently from western students and therefore, learning a foreign language will enable them to learn how to think differently; and b) believed that thinking skills are closely related to intelligence, logics and reasoning. Here is an example from one focus group:

FG2: of course people think differently, especially the Chinese think differently from westerns. People in the West are very direct but we are very indirect, for example. In terms of thinking skills, Chinese engage a lot in self-reflection and regulation. Do westerns think the same?…I think we focus on intelligence and logics development, especially in science and maths. For examples, students with high intelligence are recruited to ‘Olympic science/ maths club’ and their intelligence, logics and reasoning ability are further developed.

The large majority of the teachers (93.2%) believed that a student can develop thinking skills in different ways (M=4.40, SD=0.61). Analysis of interviews from the focus groups identified more or less the same ways for developing thinking skills, including:

* reading books, especially literature
* developing science and maths skills
* learning from teachers and parents
* observing social norms and practices

As discussed above, memorisation was identified by all teachers as an important element in English language learning, especially when students are learning a second language.

It is interesting and surprising to note that reading, science and maths skills are perceived to be important methods for developing thinking skills whereas working together (or learning together) is not. Clearly, teachers see the important role of social norms and practices in shaping thinking skills. Equally, they also see the experts (teachers and parents) as sources or facilitators in developing thinking skills for students. Both ideas are closely linked to the sociocultural perspective of learning in which cognition is developed in sociocultural contexts with the scaffolded help from experts.

7.3 Practice of teaching thinking skills

Teachers were asked to self-report their practice in promoting thinking skills. This section of the questionnaire consists of 13 five Likert-point statements (see Table 4, Figure 3), and covers three major areas of teaching. These three areas corroborate the themes identified in the focus-group interviews and three teachers’ classroom practice.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | N | Min | Max | Mean | Std. Deviation |
| 1. Students are offered opportunities to develop thinking skills in my class
 | 473 | 1.00 | 4.00 | 2.61 | .79 |
| 1. I promote thinking skills by asking open questions
 | 471 | 1.00 | 4.00 | 2.78 | .90 |
| 1. I allow students enough time to develop their thinking in class
 | 473 | 1.00 | 5.00 | 2.24 | 1.11 |
| 1. I provide students with opportunities to work collaboratively to solve problems in class
 | 471 | 1.00 | 5.00 | 2.98 | 1.02 |
| 1. I encourage unexpected answers and tend to exploit learning opportunities that might emerge
 | 473 | 1.00 | 5.00 | 2.11 | 1.03 |
| 1. I encourage students to be open with new ideas
 | 473 | 1.00 | 5.00 | 2.95 | 1.38 |
| 1. I encourage students to play with language
 | 473 | 1.00 | 5.00 | 2.23 | .90 |
| 1. I spend a lot of time to foster students' linguistic knowledge, such as vocabulary and grammar
 | 473 | 2.00 | 5.00 | 4.21 | .82 |
| 1. Students are offered sufficient opportunities to use language for real-life purposes
 | 473 | 1.00 | 5.00 | 2.66 | 1.10 |
| 1. I have to cover the content in the textbook so I have limited time to implement thinking-based activities
 | 473 | 4.00 | 5.00 | 4.34 | .47 |
| 1. The activities in the textbooks are dominantly linguistic-knowledge based.
 | 473 | 4.00 | 5.00 | 4.73 | .45 |
| 1. I feel well-trained to facilitate thinking skills to my students
 | 473 | 1.00 | 2.00 | 1.37 | .48 |
| 1. I know different ways to promote good thinking skills
 | 473 | 1.00 | 4.00 | 1.67 | 1.01 |

Table 4: descriptive statistics for self-reported practice in teaching thinking skills

Figure 3: Teachers’ self-reported practice of teaching thinking skills

*7.3.1 Teaching thinking skills*

There are seven items in this sub-section, consisting of teachers’ own perceptions and behaviours in teaching thinking skills (items 1-7). The overall finding here is that teachers do not promote thinking skills in their classes, despite the fact it is clearly stated in the subject curriculum that thinking skills should be a key element of English language teaching and their overall positive attitudes. A significant number of teachers (37.8%) disagreed that students were offered opportunities to develop thinking skills in class while only a very small number of teachers (9.1%) claimed that they promoted thinking skills (M=2.61, SD=0.79). Over half of the teachers (53.1%) were not sure, which suggests again that teachers found it hard to pin down what thinking skills were and whether they were teaching such skills. One teacher shared her view in the focus group:

FG4: I’ve discussed with my colleagues about thinking skills since I completed the questionnaire. I think we would like to teach thinking skills and help our students to become good thinkers, but we find it impossible at the moment because we do not know what exact skills are recognised as thinking skills. We don’t think we are consciously teaching thinking skills but some of us might be doing that unconsciously.

Open questions are evidenced in the literature as a method to promote higher order thinking skills (Li, 2011), yet only 22.5% agreed that they asked open questions to promote thinking skills (M=2.78, SD=0.90). Again, many teachers (42.1%) were not sure whereas 35.5% of teachers did not think they asked open questions. In both focus group interviews and observed classes, teachers acknowledged the importance of open questions. However, several teachers, including both Amy and Carol, pointed out that the main reason that they deliberately chose to use more closed questions in class were because a) they could go through more content in a short period of time and b) they were worried about causing chaos and management issues. Bi explained this with an example:

Bi: If we used more open questions, we probably would not keep students on track, so we cannot finish our teaching target on time but more importantly, we have to deal with all sorts of behavioural issues. So for many teachers, using closed questions is a method to keep students quiet and well-behaved.

Closely related to open questions is the flexibility and openness that teachers have regarding students’ answers. A very small number (17.4%) of teachers agreed that they considered unexpected answers from students and tended to exploit potential learning opportunities (M=2.11, SD=1.03). Similarly, an extended wait time could provide students a ‘thinking space’ (Li, 2011) and several researchers have suggested a dialogic space in the classroom to allow students to engage in good thinking (e.g. Wegerif, 2011). When asked whether sufficient time was allowed in their classrooms, only a very small number of teachers (16.5%) reported giving students time to develop their ideas and rehearse them before speaking out in class, and the majority of teachers (70.2%) did not allow students enough time in class (M=2.24, SD=1.11). Again, the interview data suggested that the time issue is a major concern because of the squashed curriculum.

Group work, in particular, collaborative work, promotes thinking skills because students can work in an equal, safe and dialogic environment to share and create knowledge. In this study, less than half of the teachers (46. 0%) organised collaborative work while 47.3% of teachers did not use much collaborative work (M=2.98, SD=1.02). However, the group work, which teachers reported, is not collaborative in nature. The focus group shed some light on the kind of collaborative work, or group work that teachers organise their students to do:

FG4: We use a lot of collaborative work. We always ask students to go through the paragraphs and take turns to read. We ask students to compare their notes and check their answers after written exercises.

Creative thinking is perhaps the most important and useful skill in the 21st century. Being open to new ideas is one criterion for creative thinking, but only 45% of teachers encouraged their students to be open with new ideas and more than half of teachers (51.4%) did not do so (M=2.95, SD=1.38). Similar to openness, playfulness is also a key element of creativity but only 16.1% of teachers agreed that they encouraged students to play with language whereas the majority (80.5%) disagreed with this (M=2.23, SD=0.90). In fact, both openness and playfulness were considered by these teachers as bad traits for a good thinker because it means the person is easily distracted and does not have their own thinking. This is reflected in the interviews:

FG1: It sounds good to be open and playful but actually they are useless because if we say a student is open, it means he/she probably does not know what they are doing. Or if a student is playful, then usually he / she is a naughty student and is not concentrating. Students need to be disciplined and focused in order to be successful.

*7.3.2 The focus of English classes*

The second sub-section asks teachers what they focus on in teaching (items 8-9). The majority of teachers (82.7%) reported that they spent a lot of time fostering students’ linguistic knowledge, such as vocabulary and grammar (M=4.21, SD=0.82). Just a small number of teachers (27.7%) agreed that students were offered sufficient opportunities in class to practise English for real-life purposes (M=2.66, SD=1.10). The predominant view of fostering linguistic knowledge of students perhaps is one of the main reasons why thinking skills are not the focus of learning in these classrooms. In the interviews, teachers reported that they had to focus on grammar and vocabulary because of the high stakes tests. One teacher’s view illustrates such a position:

FG3: I know we should be teaching communicative skills and students should be offered opportunities to practise English for real-life purposes, but we simply do not do this because vocabulary and grammar are the things that are tested. Tests are mainly about accuracy and comprehension. Even for a writing task, it is not for real. Students are coached to use various sentence structures and complicated words. So we are teaching for tests, to be honest. With this teaching purpose, we simply do not have time to practise communicative skills and just hope students can pick these skills up when they get to university.

Of course, apart from the backwash effects of the tests, other teachers mentioned the tight schedule, fixed textbooks and becoming a member of the existing community. For example, another teacher described her experience:

FG2: When I started teaching, I used a lot of new ideas I learnt from my Masters course in England. But soon I found out that all other teachers just focused on vocabulary and grammar. I felt that I didn’t have colleagues to share the resources and ideas because I was the only one doing all these creative activities. Then I had to change to fit in the culture, you know. I wanted to work with my colleagues and they had been there for a long time and I should just follow the existing practice.

7.4 Factors influencing teaching thinking skills

The third section presented two major factors that might have hindered teachers from implementing a thinking approach in their teaching (items 10-13). Interestingly, all of the teachers agreed that time and the textbook were two major issues in implementing thinking-based activity (M=4.34, SD=0.47; M=4.73, SD=0.45 respectively). First of all, teachers feel that they have to cover all the content in their classes, so they do not have time to design thinking-based activities. Secondly, because the activities in the textbooks are dominantly linguistic-knowledge based and teachers have to follow the textbooks very rigidly, they find it impossible to teach thinking skills.

FG4: Actually we don’t know much about thinking-based activities, but even we do, it is difficult to implement them because first of all, we have to cover all the content in class. It is important to do so because of the high stake tests we mentioned earlier. Secondly, you know we have to follow the activities in textbooks strictly, if we don’t, we might jeopardise students’ learning. The thing is all these activities are knowledge-based. We need to focus on fostering students’ knowledge. This is practice makes perfect.

Because teaching is an improvised activity, some teachers do feel that they change their plans and go off track in teaching. Carol explains how they deal with this issue:

Carol: Sometimes I am off track with my lesson plan because I spot a learning opportunity from a student’s response and want to develop it further. I might ask a follow-up question and also ask students to discuss the idea a little bit, but I have to make it up using student’s self-study time to cover the exercises in the textbook. Otherwise, students might be disadvantaged.

Concerning teachers’ knowledge about pedagogy, no teachers agreed that they were well-trained to facilitate thinking skills in their teaching (M=1.37, SD=0.48). In fact, no teachers who were interviewed or observed mentioned that they ever had training in teaching thinking skills. Many teachers were not aware that teaching thinking skills was part of the curriculum. There is simply a discrepancy between what the curriculum says and what teachers know about it. Nevertheless, 11.8% of the teachers did acknowledge that they knew different ways to promote thinking skills (M=1.67, SD=1.01). Five methods emerged from focus-group interviews and classroom observations, they are:

1. discussion of current affairs and matters
2. providing students with a good example of thinking
3. debate
4. project or problem based learning
5. using technological tools to develop creative thinking
6. **Discussion and implications**

A number of key issues emerged from the analysis of the data in this study. The first relates to the fundamental understanding of the concept of thinking skills. Clearly in this study, teachers demonstrate some, albeit fragmented, understanding of / knowledge about thinking skills, with the emphasis on the cognitive component only, ignoring personal and environmental components (Seo, Lee & Kim, 2005). Thinking skills are very much perceived as memorisation, developing intelligence and related cognitive capacity, which is perhaps why teachers devote time and effort to enhance students’ memory, intelligence, logics and reasoning skills. Of course, the conceptual basis of thinking skills is complex (Moore, 2013) and different social and cultural perspectives take different approaches to define the concept because thinking skills (e.g. creativity) are affected by sociocultural and environmental factors (Kampylis, et al, 2009; Sternberg, 2004). Nevertheless, it is important for teachers to realise the multi-layered concept for their pedagogical considerations. Many educators and researchers believe that engaging in critical thinking requires the relevant skills and dispositions (Giancarlo et al., 2004; Fisher, 2001; Ip et al., 2000), and it has consequently been suggested that these skills can be taught (Abrami et al., 2008; Lipman, 2003). But in order to develop thinking skills, teachers need to have such knowledge. Research in teacher cognition has highlighted the importance of teacher knowledge (e.g Andrews, 2003; Li, 2013) in innovation and change, and in this case, the implementation of teaching thinking requires sufficient teacher knowledge about these skills. I would argue that teachers need two kinds of knowledge here. First, teachers need to understand what ‘good’ thinking skills are and be more open to various ideas of developing students’ higher order thinking skills. This study points out that teachers lack content knowledge despite the efforts from the MOE to advocate a thinking-based curriculum. There is also evidence that teachers might have misconceptions about teaching thinking skills, for example, in this study, creativity is not regarded as an element of thinking skills because imagination and playfulness do not occupy serious academic roles in education (e.g. Eisner, 2002). Like teachers in Beghetto’s 2008 study, the teachers believe that students possibly distract from and distort academic ‘truths’ to be learned in school, (Beghetto, 2008). Second, teachers need to develop pedagogical awareness and skills, which they can use to integrate teaching thinking skills into English activities. Teachers’ lack of teaching methods and skills hinders the implementing of teaching thinking skills (Mok, 2009). Research suggests that thinking skills can be promoted through the use of open questions, extended wait time and collaborative work (e.g. Li, 2011; Mok, 2009; Wegerif, 2003). So in order to develop thinking skills for learners, perhaps the first step for teachers is to consciously implement these strategies in classrooms. The use of these strategies will help teachers create opportunities for learners to develop critical and creative thinking. However, teachers will not be able to increase their knowledge / awareness without help. So appropriate training / professional development opportunities are needed to tailor teachers’ needs. A case study approach might be an effective way where teachers are able to see how thinking skills are promoted in similar classrooms using these strategies. A video-based reflective approach is also useful in this case where teachers are able to take an instance of their classroom to critically review and assess whether there is a thinking moment and how task / activity could be realised to accommodate both pedagogical aim of developing language skills / knowledge and higher order thinking. Either approach requires a collaborative environment where teachers can learn and reflect in a community.

Second, the study points out that the role of memorisation is more complex than it seems to be understood in the literature. Memorisation has been understood as a technique for knowledge acquisition and enhancement, which prepares students for various levels of tests, but consequently results in lack of creativity (Beghetto, 2008). However, findings from this study suggest that Chinese teachers might have a different understanding about the function of memorisation in teaching and learning. Similar to teachers in Beghetto’s (2008) study, Chinese teachers in this study have a localized view of memorization, believing it is critical and fundamental in developing higher order thinking. Memorisation is not and should not be treated as a lower-order thinking skill in this case, but a process that involves analysing, synthesising, applying and making connections. This finding corroborates findings from the literature that memorisation is a way of accumulating new knowledge to increase and create meaningful knowledge for individuals (Watkins & Dahlin, 2000). We understand that students learn through their participation in the activity by gathering information and processing it interactively (Myhill et al, 2006), memorisation provides a space for students to gather information, and retrieve and apply it when appropriate. Thus, memorisation can be viewed as stepping stones for students to deepen their learning by applying memorised information and in return, understanding, internalising and appropriating new knowledge. New knowledge is constructed and generated and eventually, foreign language proficiency improved. In this case, memorisation bridges the learning process and enhances learning.

Third, we can infer from the study that there seems to be a link between thinking skills and certain subjects. Despite the positive attitudes towards teaching thinking skills, teachers believe thinking skills are more closely related to science and maths subjects and less connected to English because they feel that the latter should focus on linguistics knowledge and skills. The perceived weak link between language and thinking skills reflects the beliefs of teachers about learning and teaching English language. Learning a language is perceived as acquiring linguistic knowledge (such as grammar rules and vocabulary), rather than using language in real-life contexts to explore, negotiate, communicate, collaborate and participate. Clearly, what the MOE advocates about language learning and the role of language has not been thoroughly understood and applied by teachers in their professional contexts. This needs further exploration to bridge the gap between policy, curriculum and practice.

Finally, the teachers in the study point out the lack of practice of promoting thinking skills in English classrooms. As argued above, developing higher order thinking skills (particularly critical and creative thinking) is listed as one of the most significant education reforms in language education in China. However, this change unfortunately remains at the policy level. Schools and teachers are not aware of the curriculum reform, and they do not promote thinking skills. From the teachers’ perspectives, the implementation of thinking skills in teaching is confronted by a number of obstacles and dilemmas. First of all, it is the lack of both subject and pedagogical knowledge about thinking skills and teaching of them. Closely related to this is the lack of training and professional development opportunities. Secondly, there exist restrictions caused by depending on textbooks and the pressures of class time. Implementing innovative ideas in a very restricted time frame is always a concern for teachers (e.g. Li, 2008). Making room in the tightly packed curriculum for the development of thinking skills is a struggle (Zawojewski & McCarthy, 2007). Activities to boost thinking skills, including sufficient time for questions in class, imagining, collaborative work and reflection upon work in progress all take adequate ‘think time and space’ (Cremin, Burnard & Craft, 2006; Li, 2011). Another significant issue related to the time is classroom management – creative learners are likely to disturb classroom culture which results in undesirable behaviour. Such behaviours will take teachers time to resolve and the lack of discipline becomes a great concern for Asian teachers (Hue, 2007), which is an issue for them to consider when they plan their teaching activities (Ng & Smith, 2004). It could be this belief and understanding that further restrict teachers’ willingness to implement a thinking-approach based pedagogy. Thirdly, a fixed and compulsory curriculum with test-driven targets creates a barrier to stimulating creativity (Craft, 2005). Since the tests are high stakes and teachers in China feel particularly responsible for students’ exam results, it makes it extremely difficult for teachers to prioritize developing thinking skills over tests. High-stakes tests hindering the development of thinking is evidenced in the literature (e.g. Craft, 2005; Zawojewski & McCarthy, 2007; Zohar, 2008), and there is a need to rethink the testing system when a thinking approach-based curriculum is implemented. At least, the content of the tests should not merely focus on linguistic knowledge but application and creation of knowledge. Finally, teachers tend to follow a community of practice, even if they do not completely agree with it. Therefore, in order for changes to happen, a collaborative and self-motivated community is key.

1. **Conclusion**

This paper set out to investigate teacher cognitions about teaching thinking skills in EFL classrooms in China to address the research gap identified in the literature. Thinking skills are important for learning and developing 21st century learners and should be integrated in curriculum and instruction, whereas implementing a thinking-based approach depends on how teachers conceptualise, believe and practise thinking skills in their classrooms. In this article, focus is placed on higher-order thinking and how it is conceptualised and perceived in a given context. Findings suggest teachers’ knowledge about thinking skills is limited and fragmented, highlighting the need to develop teachers’ subject knowledge about higher order thinking skills. They also lack teaching methods and techniques to promote thinking skills in their classrooms, suggesting the importance of providing ongoing professional support. When the new curriculum was put in place, the immediate next step should have been teacher training and development. Clearly, if teachers lack knowledge (both content and pedagogical), innovation can only stay at the policy level. In terms of teacher knowledge about thinking skills, this research highlights the potential misinterpretation of Chinese understanding of ‘memorisation’ in the literature and the role of it in Chinese learning. The result suggests that memorisation is more complex than described in the literature, at least from these teachers’ point of view. Therefore, it merits further investigation, involving perhaps teachers from wider geographic, social, educational and subject backgrounds.

What this study has highlighted is how language teachers distinguish the subject differences concerning thinking skills. Sciences and Maths are viewed as having a closer connection. This is partially due to teachers’ beliefs about the nature of the subject and the learning of it. Language has long been associated with acquiring linguistic knowledge, which directly affects what is prioritised in language classrooms. One strand of future research could perhaps focus on teasing out the significant similarities and subtle differences of higher order thinking skills required for different subjects and investigate the generic higher order thinking skills that can be taught cross subjects and disciplines.

This study also reveals that the majority of the participating teachers do not teach thinking skills in their classes, despite the positive attitudes towards integrating them in classrooms. Nevertheless, what this research also reveals about the reasons behind it is vitally important if efforts are to be made to integrate thinking skills in English learning. Various factors contribute to the lack of teaching thinking skills and these factors are closely interrelated. Addressing one factor will not be sufficient in changing practice, and an integrated thinking approach is needed for curriculum, tests, teacher training, textbooks and so on.

Further research in this area, particularly focusing on understanding what thinking skills are and how they are reflected in classroom practice is much desired to fully support the integration of thinking skills in the curriculum. There is also a need for both theoretical and empirical work that explores the notion of how thinking is situated in a given sociocultural context and to what degree thinking skills are universal and/or culturally specific. Similarly, how teachers’ beliefs about developing thinking skills manifest themselves in classroom discourse and the connections between thinking skills and language acquisition (e.g. the breadth of use of vocabulary, the playful use of the language), particularly through the lens of interaction is much desired. As a final word, developing thinking skills is important but without understanding and scrutinizing teacher cognitions about it, it is less likely that we can successfully implement thinking skills in the curriculum, and therefore less likely to educate the open-minded, flexible, creative and collaborative learners with critical views and multiple solutions to problems.

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1. Schools are categorised as city key school, district key schools and ordinary schools in Beijing. The resources, student achievements and teacher quality in different types of schools vary. [↑](#footnote-ref-1)
2. For the convenience, ‘agree’ and ‘strongly agree’ were calculated together, and ‘disagree’ and ‘strongly disagree’ were calculated together. [↑](#footnote-ref-2)