

**Teacher knowledge construction in applying the
issue-enquiry approach in Liberal Studies:
A study of tensions and possibilities**

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Abstract :

The Education and Manpower Bureau (EMB) of the HKSAR stated in its report in 2005 that Liberal Studies would be a core subject in the New Senior Secondary (NSS) Curriculum. Teachers are advised to apply the issue-enquiry approach in Liberal Studies. In conducting an issue-enquiry, teachers are expected to employ various learning and teaching strategies to help students understand the issues, analyze the related questions, consider different views objectively and make reasoned judgments. Nonetheless, teacher knowledge construction involved in applying the issue-enquiry approach in Liberal Studies has been left unexplored. In this study, the theoretical underpinnings of the issue-enquiry approach in Liberal Studies was examined, with a view to uncovering the dimensions of teacher knowledge fundamental to instructional design of an issue-enquiry. Data collected from the Liberal Studies teachers in partnership with the Quality School Improvement Project (QSIP) illuminated the tensions and possibilities of teacher knowledge construction in applying the issue-enquiry approach which involves teacher change both in terms of beliefs and practices.

Keywords : Teacher Knowledge Construction, Issue-enquiry Approach, Liberal Studies, Tensions and Possibilities

1. Introduction: Background and Purpose of the Study

The Education and Manpower Bureau (EMB) stated in its report¹ in 2005 that Liberal Studies would be a core subject in the New Senior Secondary (NSS) Curriculum. Teachers are advised to adopt the issue-enquiry approach in the implementation of Liberal Studies. According to the proposed NSS Curriculum and Assessment Guide of Liberal Studies (Curriculum Development Council (CDC) and the Hong Kong Examinations and Assessment Authority (HKEAA), 2006), Hong Kong has built up relevant experience of this approach in curriculum development. Teachers are expected to have acquired related experience and pedagogical knowledge with Liberal Studies (Advanced Supplementary Level) and many cross-curricular studies such as civic education and thinking skills programs. Therefore, in conducting an issue-enquiry, teachers are expected to employ various learning and teaching strategies to help students understand the issues, analyze the related questions, consider different views objectively and make reasoned judgments. Nonetheless, teacher knowledge construction involved in conducting an issue-enquiry in Liberal Studies that is inter-disciplinary has been left unexplored. Under this context, the purpose of this study is to explore the tensions and possibilities of teacher knowledge construction in conducting an issue-enquiry when teaching Liberal Studies. First, the theoretical underpinnings of the issue-enquiry approach will be examined, with a view to uncovering the dimensions of teacher knowledge fundamental to instructional design of an issue-enquiry. Second, the author will explore through a qualitative case study the tensions and possibilities for teachers in Hong Kong to construct knowledge in applying the issue-enquiry approach which involves teacher change in terms of both beliefs and practices.

2. Theoretical Underpinnings of the Issue-enquiry Approach

According to the proposed NSS Curriculum and Assessment Guide of Liberal Studies (Curriculum Development Council (CDC) and the Hong Kong Examinations and Assessment Authority (HKEAA), 2006),

“the learning and teaching of Liberal Studies is structured around enquiry into a range of contemporary and perennial issues. Students should be helped to appreciate the changing, complex and controversial nature of these issues and encouraged to pose questions and look for answers. As students explore the issues, they are encouraged to bring in their own experiences and have access to

¹ The report is “The New Academic Structure for Senior Secondary Education and Higher Education – Action Plan for Investing in the Future of Hong Kong”.

first-hand information. Students should learn to see issues and information from multi-perspectives and evaluate different points of view.” (p.77)

Taking this stance, the issue-enquiry approach starts with an issue or problem, with students engaged in self-directed learning and teachers being the facilitators in the learning process. Students are expected to analyze the merits and demerits of alternative views, develop concepts and attitudes on the basis of evidence, and make reasoned judgments. In general, the cognitive processes in knowledge construction underpinning this issue-enquiry approach are guided by constructivist view of learning and instruction. The implications of this constructivist approach on learning and instruction have been well documented in a vast educational literature (see, for example, Brooks & Brooks, 1993; Sudzina, 1997; Nuthall, 1997; Dijkstra, 1997; Kinnucan-Welsch & Jenlink, 1998; Mayer, 1999; Willis, 2000a, 2000b; Davis & Sumara, 2003; Ledoux & McHenry, 2004). Their discussion reveals that, with regard to learning processes, this constructivist approach elucidates a shift from learning as response acquisition and knowledge acquisition to learning as knowledge construction. The learner is thus expected to change from a passive recipient to a sense maker. In regard to instruction, instead of being a dispenser of rewards and punishments, the teacher would serve as a guide for understanding academic tasks. Contrary to the traditional views of learning² about the direct link between teacher behaviors and student learning, the constructivist view of learning suggests that people learn through an “interaction between thinking and experience, and through the sequential development of more complex cognitive structures” (Pollard, 2002, p.138). It is based on the idea that students use their prior knowledge or daily experiences to construct a personally meaningful understanding of new content or experiences. The cognitive processes involved enable the students to organize and integrate the knowledge in a mental / conceptual model which becomes a “knowledge representation in working memory” (Mayer, 1999, p.144).

Given that this constructivist view of learning has got a growing body of receptive audience, the instructional-design issue thus becomes a focal point of discussion in the research literature on teaching. A number of educational researchers (see, for example, Brooks & Brooks, 1993; Slavin, 1990; Sudzina, 1997; Willis, 2000a, 2000b; Davis & Sumara, 2003; Ledoux & McHenry, 2004) support the notion that interpersonal

² There have been three views of learning during the previous century of research on learning. In Mayer (1999)’s assertion, they are: learning as response strengthening, learning as knowledge acquisition, and learning as knowledge construction. The first two emphasizing the teachers’ role in creating environments that respectively provide cues for responses and large amounts of information for knowledge transmission are the traditional views of learning.

learning environments enable students to extend their understanding through discussion, modeling, guided discovery, and scaffolding. According to them, every learner has the potential to ‘make sense’, which can be extended far beyond that which they can reach alone if they are given appropriate assistance by the more capable others (Pollard, 2002). Their notion is best illustrated through Vygotsky’s concept of the ‘zone of proximal development’ (the ZPD), which denotes:

the distance between the actual developmental level (of the child) as determined through problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers. (Vygotsky, 1978, cited in Pollard, 2002, p.142)

Based on this idea of Vygotsky, the learning process is both a behavioral activity and a cognitive activity. Social interaction thus assumes a significant role in constructivist learning. As for instruction, the teacher’s role is to draw on their students’ state of understanding, provide the most appropriate intervention or input to extend or to ‘scaffold’ it to take their students’ thinking beyond their ZPD as follows:

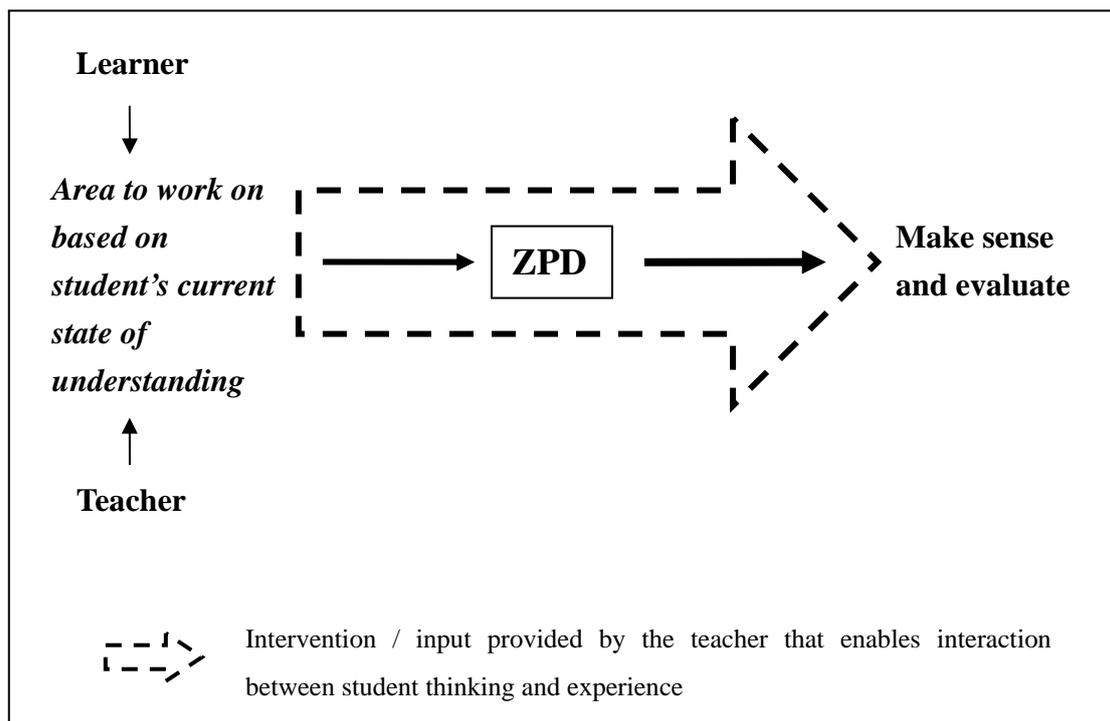


Figure 1: The role of teacher in constructivist learning

As for Liberal Studies, the issue-enquiry approach concerns constructivist processes of learning in which students see issues and information from multi-perspectives, and evaluate different viewpoints that represent different values and interests. In these processes, students learn to master relevant facts, understand the phenomena, clarify

key concepts, and analyze the differences and conflicts involved. Therefore, the role of the Liberal Studies teachers is to provide constructive intervention to help students extend their understanding beyond their ZPD, such that students have the capacities to make reflection, evaluation and judgment about the issues. Successive cycles of the process indicated in Figure 1 may occur in the issue-enquiry approach.

Figure 2 below illustrates the role of teacher in constructivist learning during an issue-enquiry.

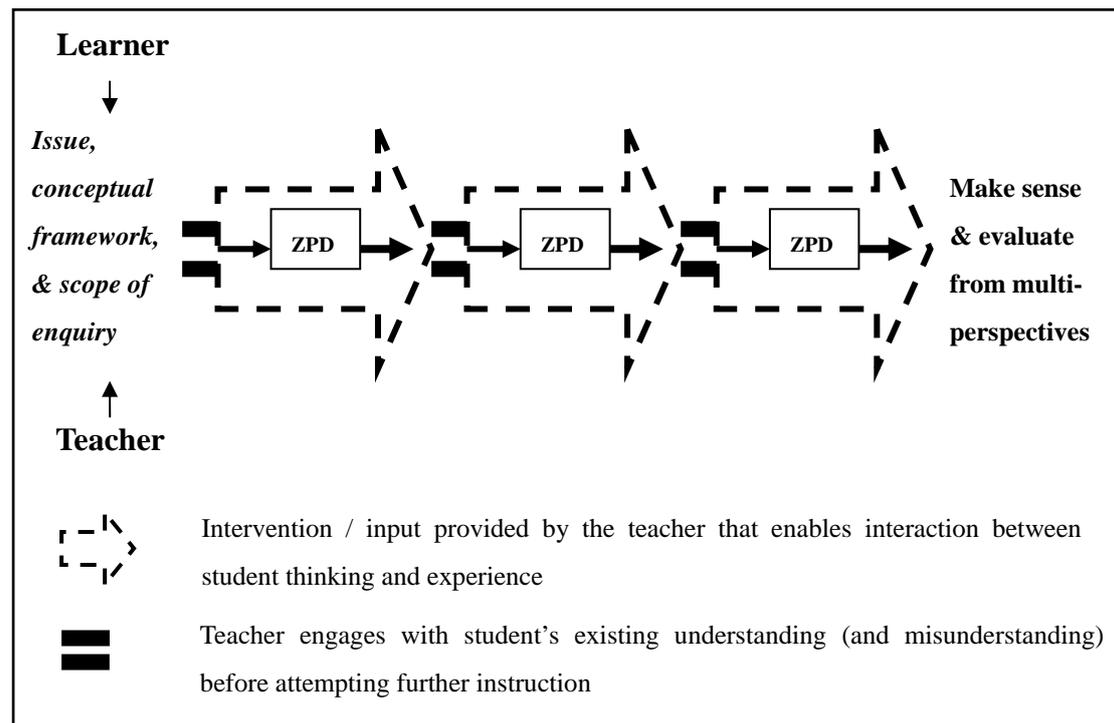


Figure 2: The role of teacher in constructivist learning during an issue-enquiry

In view of this, the intervention or input in an issue-enquiry of Liberal Studies can be well illustrated by the following:

- (1) put instructional activities in the form of problems for students to solve,
- (2) try to view students' solutions to problems from students point of view,
- (3) recognize that what are errors from an adult point of view are student's expressions of their current understanding,
- (4) recognize that substantive learning takes place over a long period of time and occurs during periods of confusion and conflict, and
- (5) recognize that learning is essentially social in nature. (Clements and Battista, 1990, cited in Sudzina, 1997, p.201).

Nevertheless, some educational researchers (e.g. Mayer, 1999) challenge this popular

notion by stating that constructivist learning is chiefly a cognitive activity and that the “primary design issue is how to prime cognitive processes in learners that are needed for sense-making, such as selecting, organizing, and integrating” (p. 152). Well-designed direct instruction (Carnine, Grossen, & Silbert, 1995, cited in Marzano, 2000, p.80) that enables students to construct meaning through such cognitive processes can also foster constructivist learning.

Taken as a whole, in an issue-enquiry, Liberal Studies teachers must engage with their students’ state of understanding, provide the most appropriate intervention or input to extend or to ‘scaffold’ it to take their students’ thinking beyond their ZPD in successive cycles to enable evaluation from multi-perspectives. In view of this, the constructivist stance underlying the issue-enquiry approach in Liberal Studies has generated re-conceptualizations of teaching and learning in Hong Kong. It would thus be essential to investigate the tensions and possibilities of teacher knowledge construction in applying the issue-enquiry approach in Liberal Studies. Prior to this investigation, the conceptions of teacher knowledge in the educational literature have to be examined.

3. Conceptions of Teacher Knowledge in the Educational Literature

A study of the teacher knowledge literature (see, for example, Grossman, Wilson, & Shulman, 1989; Munby, Russell, & Martin, 2001; Sherin, Sherin, & Madanes, 2000; Verloop, Driel, & Meijer, 2001) discloses a paradigm shift in the research on teaching during the last two decades. Research prior to this shift tended to believe in the direct link between teacher behaviors and student learning, thus focusing more on identifying specific behaviors associated with effective teaching such as questioning or management techniques (Brophy & Good, 1986; Shulman, 1986). However, a growing body of literature exhibits that teacher knowledge and beliefs have a strong impact on teacher thinking and the pedagogical approaches they adopt in teaching (e.g. Wilson, *et al.*, 1987; Prawat, 1992; Gess-Newsome, 1999; Bolhuis and Voeten, 2004; Prawat, 1992). Given the interconnectedness between teacher behaviors and beliefs, more recent research has been designed to examine from a cognitive perspective the nature, form, organization, and content of teacher knowledge (Brophy, 1991; Calderhead, 1987; Clark & Peterson, 1986, cited in Sherin, Sherin, & Madanes, 2000). Further, Verloop *et al.* (2001) assert that the concept of teacher knowledge should be used as “an overarching, inclusive concept, summarizing a large variety of cognitions, from conscious and well-balanced opinions to unconscious and un-reflected intuitions. This is related to the fact that, in the mind of the teacher, components of knowledge, beliefs, conceptions, and intuitions are inextricably intertwined” (p.446). As such, the

research focus of the teacher knowledge literature has moved from studying teacher behavior into studying teacher cognitions and beliefs underlying that behavior.

A vast literature (see, for example, Shulman, 1987; Wilson, *et al.*, 1987; Munby *et al.*; Gess-Newsome, 1999) has provided substantial discussion for a knowledge base of teaching. Conceptualization of the different dimensions of teacher knowledge has been well documented in the teacher knowledge literature (see, for example, Munby *et al.*, 2001; Verloop *et al.*, 2001) with respect to the aspect considered the most important by the respective researchers. Subject matter knowledge has received much concern in the teacher knowledge literature since Shulman developed a knowledge base for teaching with his seven categories of teachers’ knowledge in 1987. The categories of subject matter knowledge in Shulman’s study include content knowledge, general pedagogical knowledge, curriculum knowledge, pedagogical content knowledge, knowledge of learners and their characteristics, knowledge of educational context, and knowledge of educational ends, purposes and values (Shulman, 1987). According to Grossman, Wilson, & Shulman (1989), this initiated a rich line of research, reframing the definition of subject matter knowledge to include the “nature, form, organization, and content of teacher knowledge” (p.25-26). Their research of how novice teachers experience knowledge growth in teaching illuminates that teachers’ subject matter knowledge affects both the content and processes of instruction, thus influencing both what teachers teach and how they teach it. They then suggest a theoretical framework of four dimensions of subject matter knowledge influencing teaching and learning. These dimensions cover content knowledge, substantive knowledge, syntactic knowledge, and beliefs about the subject matter. In their assertion, the substantive and syntactic structures of a discipline have to be examined because they are from which the content emerges. Finally, teachers’ beliefs about the subject matter also powerfully affect their teaching.

Given that this study aims to examine the tensions and possibilities of Liberal Studies teachers’ knowledge construction in applying the issue-enquiry approach, the author doesn’t mean to present a comprehensive analysis of the literature on teacher knowledge. Besides, since Liberal Studies is a new inter-disciplinary study to many secondary schools in Hong Kong, many teachers are inexperienced about teaching with an issue-enquiry. The theoretical framework of teacher knowledge dimensions asserted by Grossman, Wilson, & Shulman (1989), which is about how novice teachers experience knowledge growth in teaching, is thus deemed appropriate for this study.

4. Methodology

In exploring the tensions and possibilities of teacher knowledge construction in applying the issue-enquiry approach in Liberal Studies, the interconnectedness between teachers’ beliefs and their practices is central to the study. As such, a qualitative case study methodology was adopted. Six junior-form Liberal Studies teachers of a secondary school in partnership with the Quality School Improvement Project (QSIP) were invited to be the participants. The reasons for selecting them were twofold. In the first place, the teachers had got previous experience about teaching an enquiry-based integrated curriculum. Prior to partnership with the QSIP, they had implemented a school-based Integrated Humanities curriculum in junior forms for several years. With the introduction of Liberal Studies in the current school year to replace Integrated Humanities, the teacher participants started to use the issue-enquiry approach to guide the instructional design. An additional reason for choosing them as participants concerns their evolutionary relationships from contrived collegiality to a collaborative culture. While the author provided on-site coaching in the current school year, she consciously adjusted the form of coaching in response to teachers’ needs and difficulties. As such, different varieties, or a combination, of “technical coaching, collegial coaching, and challenge coaching”³ had been adopted. Meanwhile, the forms of joint work among the teacher participants thus developed from administratively contrived interactions to a collaborative team culture which is trusting, sharing, reflective, and critical. Given their relevant experience and professional development, they would therefore provide rich data for this study.

Data were collected through participant observation, semi-structured interviews, co-reflection meetings, and document analysis from January to May in the current year. Observational data about the participants in the classroom and co-lesson planning were studied. Besides, semi-structured interviews covering two individual interviews with the panel head and one focus group meeting with the teacher participants were held to elicit relevant data. To enhance trustworthiness, their teaching materials during the study were also analyzed. As three co-reflection meetings were held to discuss problems in instructional design and delivery, they also became an important source of data for the study.

³ According to Garmston (1987), there are three different forms of coaching within teacher professional development: technical coaching, collegial coaching, and challenge coaching. The first approach emphasizes the learning and transfer of new skills and strategies into teachers’ existing practice. The second approach focuses more on the context of teaching and to the processes of self-reflection and professional dialogue among teachers, not only to improve practice but also to alter the organizational context in such a way to facilitate that improvement. As for the attention of the last approach, it concerns the problems in instructional design and delivery that are specific and persistent. (cited in Hargreaves & Dawe, 1990, p. 231)

5. Tensions about Knowledge Construction of Liberal Studies Teachers in Hong Kong

Knowledge of the subject matter occupies a central place in the knowledge base of teaching. Liberal Studies is actually more than a subject with regard to its inter-disciplinary nature. Klein (1990) provides a detailed map of the conceptual territory associated with inter-disciplinary learning in both research and teaching. According to her, interdisciplinary learning involves a higher level of synthesis, requiring “a conscious attempt to integrate material from various fields of knowledge into a new, single, intellectually coherent entity” (p57). However, without realizing the centrality of subject matter knowledge in an issue-enquiry, Liberal Studies teachers will be unaware of the powerful impact that knowledge, or the lack of knowledge, exerts on teaching. Given that this study aims to explore the tensions and possibilities of teacher knowledge construction in applying the issue-enquiry approach in Liberal Studies, the author will examine them in the light of the theoretical dimensions of subject matter knowledge suggested by Grossman *et al.* (1989) in their study on novice teachers. These dimensions encompass the content knowledge, substantive knowledge, syntactic knowledge, and beliefs about the subject matter. However, with regard to the aim of this study, the analysis will not be confined to these knowledge dimensions. The centrality of this part will thus be placed on the tensions for Liberal Studies teachers to translate their knowledge into instructional representations that enable constructivist learning, which also requires “knowledge of learners and learning, of curriculum and context, of aims and objectives, of pedagogy” (Grossman *et al.*, 1989).

5.1 Tensions about teacher construction of content knowledge

In the assertion of Grossman, *et al.* (1989), the term content knowledge refers to the factual information, organizing principles, and central concepts of a discipline. In the construction of knowledge through an issue-enquiry, teachers are expected to change their view of content knowledge from disciplinary knowledge to a widened concept of knowledge in Liberal Studies which is inter-disciplinary. Nevertheless, many teachers in Hong Kong find themselves teaching completely unfamiliar material as they struggle to acquire new knowledge beyond their original disciplines. What results may include their over-reliance on textbooks as a source of relevant facts and information, or lecturing without any student participation in order to avoid being led into unknown territory. Neither can teachers develop the central concepts and organizing principles of the subject matter underpinning an issue-enquiry. As for the teacher participants under study, most of them were non-humanities subject teachers.

The tension about their construction of content knowledge was thus more acute as they found themselves teaching unfamiliar material about society and culture. A teacher explicitly stated:

There is so much unfamiliar knowledge in Liberal Studies that even after co-lesson planning we find difficulties about the content knowledge.

Many of them also indicated during co-reflection meetings that their insecurity about content knowledge led them to miss the opportunities for student learning during the lessons.

I do not want to raise many questions in the classroom for I am afraid that students will then ask me a question which I don't know how to respond, because I do not have sufficient knowledge about it.

These findings are consistent with a study conducted by Gess-Newsome (1999) demonstrating that teachers with insufficient subject matter knowledge often teach for factual knowledge, involve students in lesson mainly through low level questions, rely on content and structures in textbooks, have difficulty identifying student misconceptions, and fail to offer contexts for meaningful learning activities. It is therefore crucial for Liberal Studies teachers to develop a sufficient and relevant knowledge base for the selection of appropriate issues and instructional strategies in Liberal Studies.

5.2 Tensions about teacher construction of substantive knowledge

According to Schwab (1978, cited in Gudmundsdottir, 1991), the substantive structure covers the concepts, ideas, understanding, principles, and propositions that characterize the discipline. Grossman *et al.* (1989) echo that “substantive structures are the paradigms or frameworks within a discipline that guide the focus of inquiry, dictating, in many ways, the questions researchers ask and the directions they pursue”, and therefore a teacher’s knowledge of substantive structures has a strong influence on how and what teachers choose to teach. As for Liberal Studies, teachers’ substantive knowledge denotes the ability to understand the curriculum by analyzing the components of the content and their intriguing relationships, the assumptions and the key concepts involved. In an issue-enquiry, substantive knowledge guides teachers to select appropriate issues for enquiry and develop conceptual frameworks guiding the focus of enquiry. The selection of issues gives substantive structures to the content of study where instruction looks to the complex problems that are close to real life. In

the assertion of Grossman *et al.* (1989), “content emerges through a process of critical analysis that is guided by both the substantive and syntactic structures of a discipline” (p.29). Taking this stance, instead of simplifying an issue, the teacher facilitates the problem-solving procedures by constructing a conceptual framework to present a holistic picture of the problem. Components of the problem and the intriguing relationships are generated in the conceptual framework, together with hierarchies or networks of concepts, concept attributes / cognitive constructs, and key problems to be solved. This holistic picture about the complexity of the knowledge and skill involved will then guide the instructional design that enables students to construct the knowledge to make relationships, to analyze from multi-perspectives, to create and to solve problems. Figure 3 below demonstrates the relationship between content knowledge and substantive knowledge, and how substantive knowledge underpins an issue-enquiry in Liberal Studies.

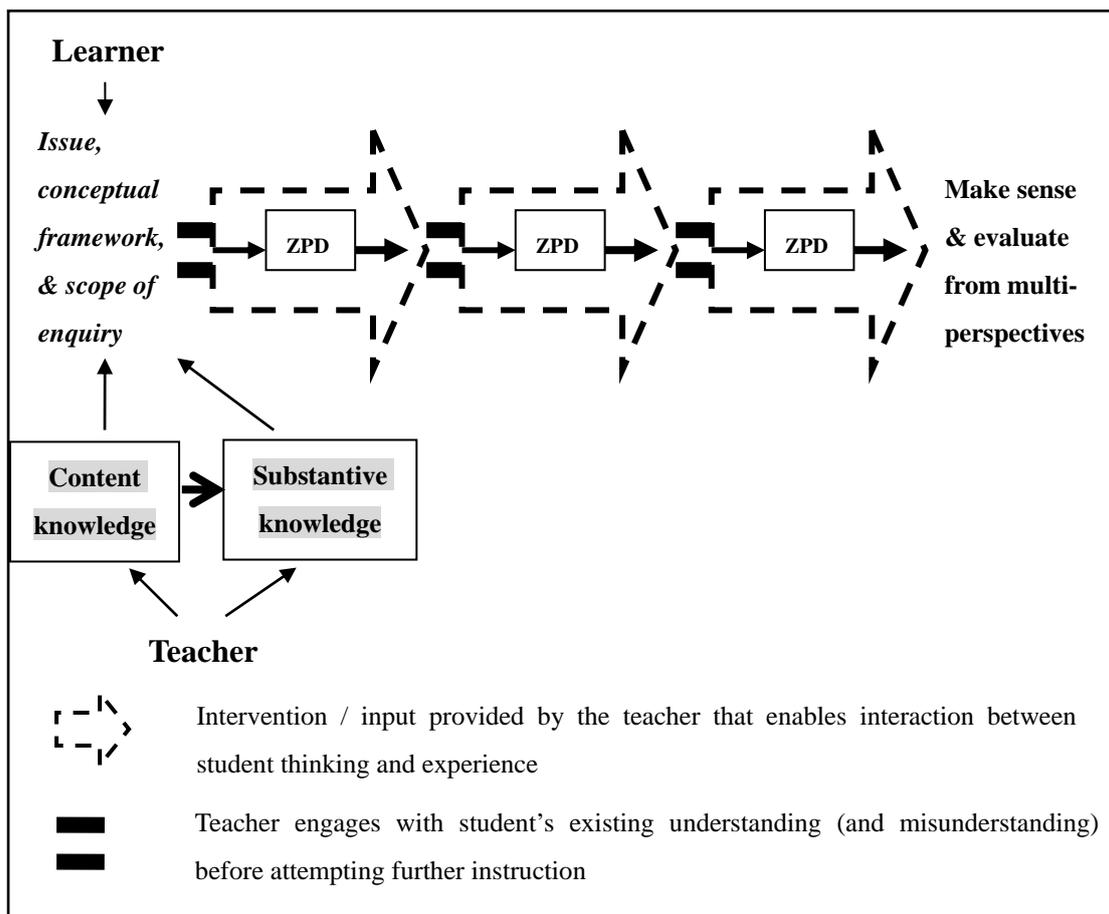


Figure 3: The relationship between content knowledge and substantive knowledge, and how substantive knowledge underpins an issue-enquiry in Liberal Studies

Taken together, Liberal Studies teachers with insufficient substantive knowledge of the curriculum may find it difficult to understand the components of the content and their intriguing relationships, the assumptions and the key concepts involved. Without a clear understanding of the curriculum, it would be hard for teachers to design the conceptual frameworks, the scope of enquiry, and then the learning situations for students to construct knowledge from multi-perspectives. In applying the issue-enquiry approach in classroom teaching, the construction of knowledge and the learning of skills cannot be separated. However, this is likely to appear when teachers fail to design appropriate learning situations. Knowledge construction is hard to realize, and even worse, rote learning and senseless memorization may occur. Accordingly, the “concept learning capability” (Hunt, 1974, cited in Sprinthall, 1995) of teachers, later described as “cognitive complexity” by Sprinthall (1995), would be critical for them to provide effective cognitive support when guiding students to construct knowledge with the issue-enquiry approach.

Notwithstanding this, to many teachers in Hong Kong, the process of teaching is usually targeted at “taking students systematically through a clear set of tasks, high in structure and directed toward examination” (Pratt *et al.*, 1999, p.248). The focus of attention has thus been put on the examination contents, types of questions, and student performance. When instructional design is directed toward the product of examination instead of the process of learning, it is likely to be guided by the examination requirements rather than the curriculum. As a consequence, fewer attempts would be made to understand the concepts, ideas, understanding, principles, and propositions that characterize the discipline. Currently, it would thus be a challenge to many Liberal Studies teachers in Hong Kong when they have to construct the substantive structures of the curriculum to inform the instructional design. This tension is well illustrated in a study by Hunt (1974):

Teachers at lower levels of concept learning capability resist innovation; employ “tried and true” direct methods for all; and are confused by flexible team teaching, learning centers, and cooperative methods. (cited in Sprinthall, 1995, p.104)

As regards the current study, given that the teacher participants designed their Liberal Studies curriculum collaboratively, their substantive knowledge was central to instructional design and delivery. The panel head reviewed their problems about design and delivery of the previous Integrated Humanities curriculum:

The curriculum structure was very loose at that time. There was no big concepts or principles behind it. Our way of working it out was to put the subject matter knowledge of various subjects concerned in the Integrated Humanities curriculum. Now, we have learnt to identify the relevant concepts of an issue, and then design instructional practices to have students exposed to these concepts in the initial stage of an issue-enquiry.

Despite such progress in their substantive knowledge construction, observational data revealed that their instructional design and delivery was not always guided by the conceptual frameworks. Learning contexts or activities thus created were more behavioral than cognitive. Teacher responses after a peer lesson observation indicated their difficulties to clarify the scope of enquiry and the content knowledge involved in an issue-enquiry. It was revealed that their chief problem was their failure to make sense, prior to classroom instruction, about the specific learning objectives encompassing the relationships among concepts and between concepts and thinking skills. In the same occasion, they also discovered that while lessons were delivered to complete a number of learning activities, which were product-oriented but not process-oriented, the learning activities failed to meet the original learning objectives despite task completion. The observed teacher thus made this reflection:

My students did not learn much because I just tried my best to complete the scheduled learning activities during the lesson without guiding them to think and make sense of the new experiences. I know debriefing is important but at that time I did not know what to do with it. My mind had gone astray.

To the teacher participants concerned, this kind of collaborative reflection is meaningful for it helps them understand the centrality of substantive structures in terms of instructional design and delivery. In view of the implications from this study, it would be critical for Liberal Studies teachers to construct the substantive structures of the curriculum and the enquiry issues prior to instructional design.

5.3 Tensions about teacher construction of syntactic knowledge

Grossman *et al.* (1989) point out that syntactic knowledge of a discipline refers to knowledge of the ways in which new knowledge is brought into the field. From the cognitive constructivist perspective, the syntactic structures in Liberal Studies refer to the central role that enquiry plays in the learning process, where the interplay between the subject matter and the students' thinking takes place systematically. Having a firm grasp of the syntax of Liberal Studies, teachers realize that the complex problems in a

selected issue may be remote from the experience of the students. To help students establish the conceptual matches, teachers have to provide intervention or inputs by creating learning contexts or environments that activate students’ cognitive processes toward the construction of meaning. These contexts match the authentic nature of the students’ world. They become where students’ thinking is anchored, meaning is created through interactions and dialogue (Ledoux & McHenry, 2004), and reasoned judgment is built on the ideas, concepts, and values constructed in the enquiry process. This occurs as students’ minds are engaged by the learning activities and as they try to make their own sense of the experiences arising from these activities (Nuthall, 1997). Hence, teachers facilitate or guide, not tell, in the classroom. Ledoux & McHenry (2004) thus assert:

“The knowledge and skills built into an interdisciplinary approach allows for the simultaneous construction of both propositional knowledge of facts, concepts and generalizations and procedural knowledge of how to apply selected concepts as strategies.” (p.391)

Figure 4 below exhibits the role of teacher’s syntactic knowledge in an issue-enquiry of Liberal Studies.

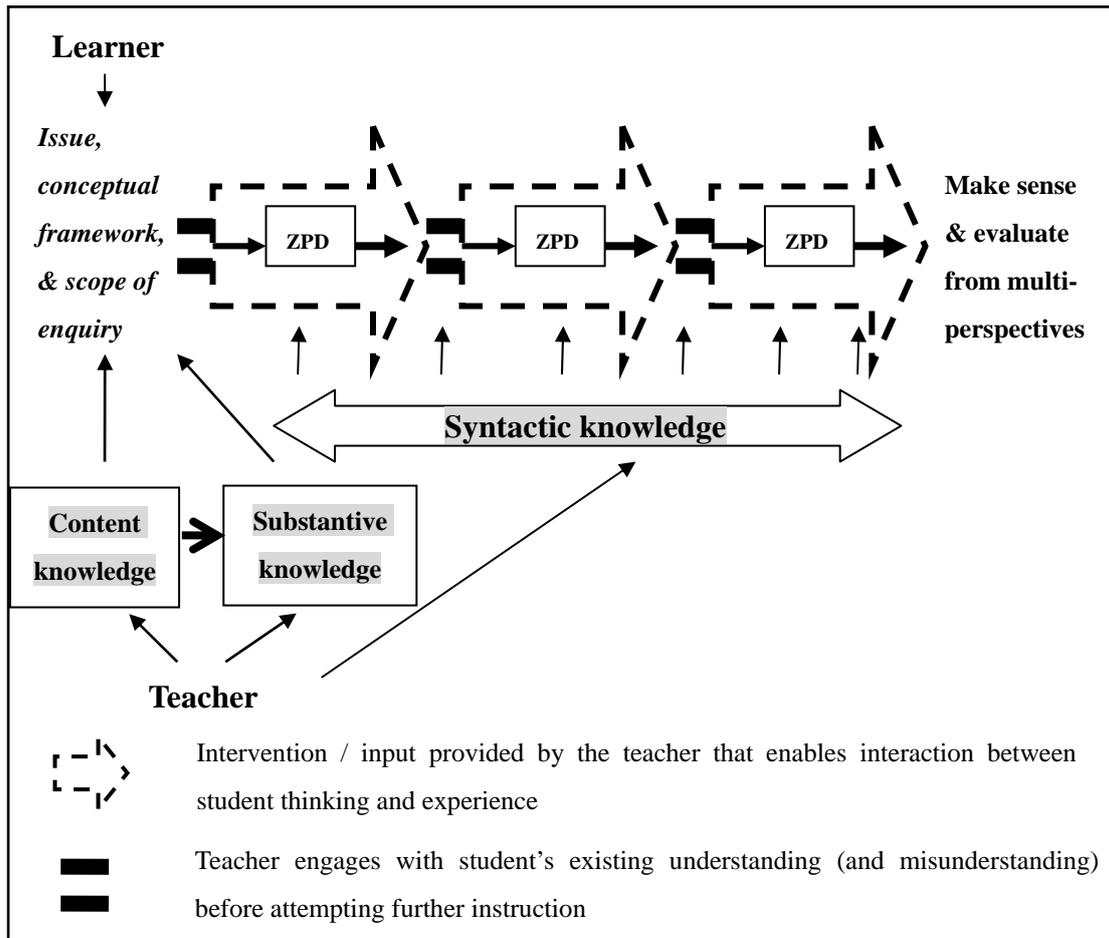


Figure 4: The role of teacher's syntactic knowledge in an issue-enquiry of Liberal Studies

Taken as a whole, teachers with insufficient syntactic knowledge of Liberal Studies may encounter difficulties with creating learning contexts or environments systematically that enable students to make productive use of their prior learning and cognitive strategies to construct meaning within a content discipline. As a consequence, it would be hard for learning to take place when their students, being unable to understand and interact meaningfully with the material or experience provided, fail to undergo the cognitive processes in constructivist learning. Provided that teaching does not start where the learner is functioning, this barrier to constructivist learning may appear in any instructional approaches. On this account, the centrality of the issue regarding teacher knowledge in an issue-enquiry of Liberal Studies is not merely knowledge of pedagogy, but also “knowledge of learners and learning” (Grossman *et al.*, 1989). With this type of knowledge, teachers would consider their students' cognitive and developmental stage when designing and presenting cognitive and social tasks.

Therefore, looking from this cognitive-developmental perspective, it would be vital for Liberal Studies teachers to provide sufficient inputs, through which students activate prior learning, or construct relevant knowledge, for higher cognitive processes to take place throughout the various stages of an issue-enquiry. Meanwhile, as for teacher knowledge construction, Liberal Studies teachers can also construct their syntactic knowledge by making on-going reflections through situated learning. The instructional strategies to prime constructivist learning with due regard to students’ cognitive stage have been well documented in a vast educational literature as follows:

In the first place, a significant attempt to translate the theory of the ZPD into classroom practice is the development of the concept of ‘scaffolding’. To facilitate student learning in an issue-enquiry, teachers may provide scaffolds (e.g. Rosensgine & Meister, 1992; Rasmussen, 2001) in the form of cognitive strategies (Morine-Dershimer & Kent, 1999) or social support (Rasmussen, 2001) for students to anchor learning. These scaffolds are temporary supports to reduce the difficulty of the task while students acquire the necessary skills and understanding to operate independently. Nonetheless, some empirical studies (e.g. Myhill & Warren, 2005) reveal that this move to independent learning rarely occurs since scaffolding has been used as a device to enable students to complete a task successfully, rather than a learning support mechanism. This happens when teachers follow their planned objectives as a teaching agenda instead of a learning agenda, rush to cover the curriculum content in a lesson, and thus insensitive to the needs and responses of their students. Overwhelmed by the need to get a predetermined answer, teachers then miss the opportunities to gain information or clues from students about their prior knowledge or understanding. As a consequence, despite scaffolding in an issue-enquiry, it would be likely for tensions to emerge during teacher construction of syntactic knowledge as long as learning is regarded as product-oriented rather than process-oriented.

To translate the theory of the ZPD into classroom practice, an alternative approach to enhance students’ capabilities for future learning is to engage students in more effective thinking about the subject matter. For this, Joyce, Weil & Showers (1992) provide a variety of teaching models associated with varied instructional goals for teachers to plan or arrange instructional procedures. First, models in the Social Family have won the esteem of those who regard constructivist learning is essentially social in nature. As previously mentioned, they support the notion that interpersonal learning environments enable students to construct knowledge through social interaction in

communities of learners. Cooperative learning (Slavin, 1990), role-playing, and jurisprudential inquiry are some of the popular instructional strategies applied by Liberal Studies teachers in Hong Kong. Second, models in the Information-Processing Family emphasize ways to “improve capabilities for acquiring and organizing information, identifying and solving problems, and forming and conveying concepts and generalizations” (Morine-Dershimer & Kent, 1999, p.28). Inductive thinking, concept attainment, and advance organizers are some of the instructional models of this family. Third, models in the Personal Family focus on developing self-regulating capabilities of the individual, which is consistent with the principle of self-directed learning in the issue-enquiry approach. As for models in the Behavioral Systems Family, they focus on developing capabilities for behavioral change based on feedback. As mentioned before, well-designed direct instruction (Carnine, Grossen, & Silbert, 1995, cited in Marzano, 2000, p.80) that enables students to construct meaning through cognitive processes can also foster constructivist learning. On this account, the models in the Behavioral Systems Family can also be used to guide students to construct knowledge in an issue-enquiry of Liberal Studies.

Nonetheless, as regards teacher knowledge construction on ways to increase student capabilities for higher cognitive processes, many educational researchers (see, for example, Duffy, 1997; Hopkins, 2001) have argued for empowering teachers to be in charge of their own instructional design. According to Duffy (1997), the question is not “Which instructional model should teachers use?” but, rather, “What should we teach teachers about how to use instructional models?” (p.351). Instead of passively following instructional models, teachers should make sense of them in their context of teaching. Hopkins (2001) adds that “the teacher’s task is not simply to teach, but to create powerful contexts for learning” (p.72), and that “it is the integration of ‘content, process and social climate’ that puts the ‘power’ into powerful learning experience” (p.73).

As for the current Hong Kong context, a large variety of courses and programs on Liberal Studies are offered by different educational bodies for teacher professional development. Many of them introduce new skills and strategies in disconnected learning contexts, and some even in a de-contextualized manner. Based on the often taken-for-granted assumption that teachers will transfer their learning to new contexts, however, their focus tends to be purely the knowledge of pedagogy. As a consequence, tensions about the translation of knowledge into practice in the actual teaching contexts exist when Liberal Studies teachers have no recognition about the “knowledge of learners and learning” (Grossman *et al.*, 1989).

Findings from the current study are consistent with the notion that syntactic knowledge is essential to an issue-enquiry in Liberal Studies. The discourse of the teacher participants reflected that they understood the need to embrace new skills and strategies as Liberal Studies teachers. In many occasions, they reiterated their idea that the traditional instructional approach of knowledge transmission does not work in Liberal Studies. Most believed Liberal Studies lessons should be student-centred, and various activities like discussions and role-plays have to be arranged to facilitate student learning. Apart from these, they asserted that learning through the issue-enquiry approach in Liberal Studies had to be based on previous knowledge. Some also recognized the integral role of critical thinking and judgment from multi-perspectives during an issue-enquiry. Notwithstanding their ability to articulate these skills and strategies, they admitted that it was strenuous for them to translate knowledge into practice. In their earlier dialogue, the problem with engaging students in the lesson activities was identified, which they attributed to students’ passivity and lack of interest in learning. With an intention to design more interesting tasks to engage students, they were then directed to improve the specific structures of activities. Accordingly, less discussion about on the overarching substantive structures of each lesson in an issue-enquiry was then observed. Besides, despite an increase in the varieties of lesson activities, the impact of prior learning upon new learning was disregarded. Lesson content also seemed to take precedence over student responses and learning. This was particularly evident in lessons while discourses and data in teaching materials were employed without adequate regard to their students’ cognitive stage and language abilities. Given that they had not drawn upon students’ prior knowledge and daily experiences in instructional design and delivery, the connections between prior learning and new knowledge was confounded, thus making it hard for students to improve learning. In some of the lessons observed, since the teachers mainly focused on the appropriate coverage of the lesson content, they missed opportunities for scaffolding student constructivist learning by eliciting or activating students’ prior knowledge, exploring misunderstandings, and developing their students’ thinking to higher-order cognitive levels. In view of these problems, tensions about the translation of knowledge into practice do exist during teacher knowledge construction when Liberal Studies teachers apply the issue-enquiry approach in instructional design and delivery.

5.4 Tensions arising from teachers’ beliefs during knowledge construction

There are many structures by which knowledge and ideas can be organized in a discipline. The way that teachers structure the knowledge and ideas has a strong

impact on their orientation of the subject matter. Such orientation involves the organization of content and the selection of instructional strategies (Gudmundsdottir, 1991). Experienced teachers develop pedagogical content knowledge (Shulman, 1987; Grossman, 1989) with which they reorganize the content to cater for the needs of students, classrooms, and curriculum. Nonetheless, such reorganization is influenced by their subject matter orientation and personal values. In the opinion of Schwab (1978), the substantive and syntactic structures are “value-laden organization of knowledge” (cited in Gudmundsdottir, 1991). As a consequence, teachers’ attitudes and beliefs have strong implications on the subject matter orientation of an issue-enquiry in Liberal Studies including what they choose to teach and how they choose to teach it. In a similar manner, Grossman *et al.* (1989) point out that this influence is particularly obvious for novice teachers. Their idea applies to many Liberal Studies teachers in Hong Kong who are novice teachers in the subject. Figure 5 below demonstrates the role of teacher’s beliefs in an issue-enquiry of Liberal Studies.

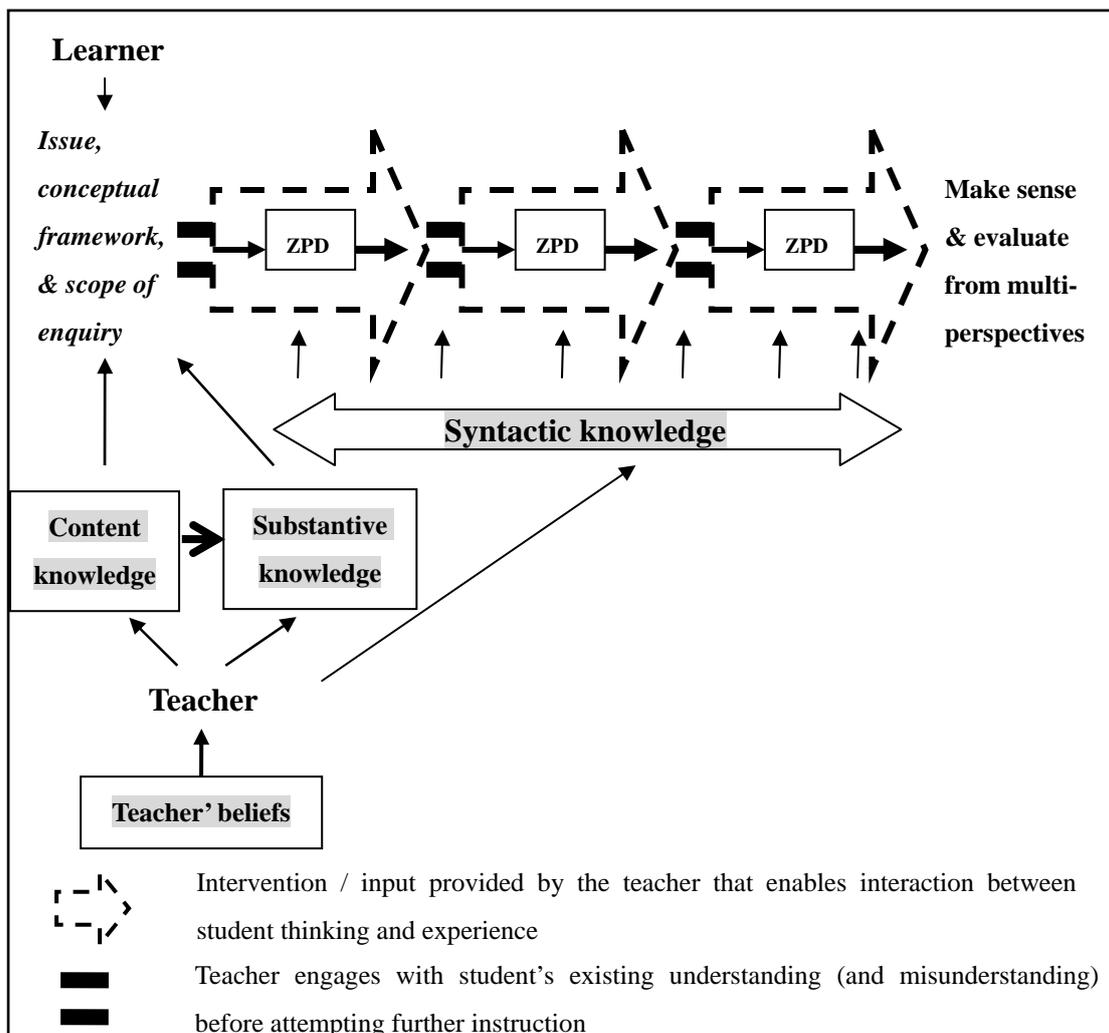


Figure 5: The role of teacher’s beliefs in an issue-enquiry of Liberal Studies

Teachers’ perception of teaching and learning

In guiding students in an issue-enquiry, the teaching and learning perceptions of many Chinese teachers in Hong Kong has to change from “the delivery and transmission of knowledge to a constructivist stance” (Prawat, 1992; Dijkstra, 1997; Brent & Sumara, 2003). The constructivist theory is based on the premise that recognizes a student’s value as thinker. Taking this stance, an important notion underpinning the issue-enquiry approach is the process-oriented conception of learning and teaching. This educational innovation thus requires changes in terms of teachers’ conceptions on student learning and on their own learning. Instead of trying to cover the curriculum content, teachers’ central concern in terms of instructional design and delivery is how to promote cognitive change in students. Besides, it focuses on meaningful learning and deep understanding which enable students to transfer what they have learnt to novel situations (Mayer, 1999). Prawat (1992), however, posits that the transmission views of teaching and absorptionist views of learning get in the way of teachers adopting a constructivist approach in an issue-enquiry. By the same token, Bolhuis & Voeten (2004) assert that teachers’ learning conceptions are closely connected to their teaching practices. Any inconsistency in between would serve as impediments toward teacher knowledge construction in applying the issue-enquiry approach in Liberal Studies. Accordingly, teachers’ conceptions of learning and teaching have strong implications on their knowledge construction. Given the close interrelationship between teachers’ learning conceptions and their teaching practices, the challenge to Liberal Studies teachers would be the conceptual change required, such that they would apply a pedagogical approach consistent with the dynamic nature of knowledge during the enquiry process.

As discussed earlier, although the teacher participants under study expressed their recognition of some essential elements to facilitate an issue-enquiry in Liberal Studies, they encountered difficulties with the translation of knowledge into practice. In many occasions, they expressed being confused with the relative importance of knowledge delivery and skills development in Liberal Studies. Without the notion that generic skills are to be developed for students to construct knowledge from multi-perspectives in an issue-enquiry, it was apparent that they had not developed a constructivist view of learning and teaching. Tensions between the constructivist view and their tacit knowledge about learning and teaching thus emerged, making it hard for them to translate knowledge into practice in the classroom.

Teachers’ perception of learning motivation and its influence on teachers’ regard for students’ developmental stage when planning instruction

Another issue of effective teaching and learning in an issue-enquiry is learning motivation. As discussed earlier in this study, the issue-enquiry approach starts with an issue or problem, with students engaged in self-directed learning and teachers being the facilitators in the learning process. The prerequisite is that students are active learners intrinsically moved by a desire to make meaning of the complexities of a wide range of issues, and thus eager to engage themselves in the cognitive processes. Dijkstra (1997) posits that the way to promote student engagement in the knowledge construction process is to “continuously presenting problems which require them to make categorizations, interpret phenomena and design artifacts” (p.12). Notwithstanding this, as for many teachers in a Chinese society like Hong Kong, it has been a common belief that extrinsic motivation strategies can effectively enhance student learning (Pratt, Kelly, & Wong, 1999; Watkins, 2000). A common practice in teaching is to emphasize the power of examinations and the eventual economic and social status. Consequently, the tensions arising from the extrinsic/intrinsic polarity in teacher beliefs may render it difficult for Liberal Studies teachers to construct the knowledge in applying the issue-enquiry approach.

Currently in Hong Kong, catering for student diversity is also regarded as a motivation strategy. However, while the study of individual differences in the cognitive domain (Gustafsson & Undheim, 1996) has occupied a central value in the research activity, the conative and affective domains (Snow, Corno, & Jackson, 1996) have been a missing paradigm. Given that constructivist learning in an issue-enquiry requires students to be active learners, their feelings in the learning process like sense of satisfaction, enjoyment, and self-efficacy actually serve to motivate them intrinsically. Because of this, teachers have to consider their students’ aptitude, perseverance, and the ability to understand instruction when planning the actual learning time and the quality of the learning tasks (Carroll, 1963; 1989). Further, it has been well documented that, through mutual peer support, small group collaborative activities like cooperative learning (Slavin, 1999) also help to increase student engagement in learning and cater for students’ individual cognitive, conative and affective differences in an issue-enquiry of Liberal Studies. However, as revealed by Watkins (2000), the Chinese teachers emphasize moral training in the classroom, and students have the duty to listen attentively, and show respect for the teacher and other students. On this account, many Liberal Studies teachers, living under the Chinese cultural context, tend to be less receptive to the notion of intrinsic motivation and catering for individual differences in the conative and affective domains. Without

due regard for students’ developmental stage and particularly individual differences, they thus find difficulties in constructing the syntactic knowledge necessary for creating appropriate learning contexts or environments that enable students to draw on prior learning to make sense of the new content. This notion supports the findings from the current study in which, as discussed earlier in this paper, the teacher participants had difficulties with being sensitive to students’ developmental stage, as well as their needs and problems in the learning process. Data collected from various sources during the study displayed that the motivational strategies they used to employ were extrinsic rather than intrinsic. The emphasis about the power of examinations was a common practice while bonus marks were sometimes given to encourage students to engage in lesson activities. Henceforth, it takes time for these teachers to build sensitivity to intrinsic motivation by attending to: first, students’ prior learning and experiences in instructional design; and second, student responses and learning during lesson delivery.

Teachers’ translation of knowledge into practice: Changes in beliefs and changes in practices

In a very real sense, teachers’ beliefs cannot be well understood without noting the heated debate revolving around “whether changes in beliefs precede or follow changes in practices” (Richardson & Placier, 2001, p.919). Richardson (2001) argues on the relative effectiveness of the empirical-rational approach and the normative-reeducative approach in terms of teacher change. The former is proved to be effective when teachers think a new practice is good and make the appropriate changes in their practices, which supports the idea that changes of practices follow changes of beliefs. However, the latter has been documented to be more successful in changing teachers’ beliefs, conceptions, and practices, which supports the assertion that changes of practices precede changes of beliefs (Guskey, 2002). According to the Model of Teacher Change suggested by Guskey (2002), “change in teachers’ attitudes and beliefs is primarily a result, rather than a cause, of change in the learning outcomes of students” (p.386). Nevertheless, Prawat (1992) asserts that it is hard for teachers to move toward a constructivist approach to teaching without the much-needed conceptual change. As for the Liberal Studies teachers in Hong Kong, they have to draw on several sources of knowledge underpinning the instructional design and delivery of the issue-enquiry approach. Given that the substantive and syntactic structures are “value-laden organization of knowledge” (Schwab, 1978, cited in Gudmundsdottir, 1990), it would be a perplexing issue to question how, when, and why Liberal Studies teachers in Hong Kong undergo the conceptual change and build the capacity to translate knowledge into practice.

Hargreaves and Dawe (1991) state that the cornerstone of technical coaching and similar professional development strategies concerns questions of means, techniques, and procedures while disregarding questions about ends, goals, and values in teaching. According to their discussion about the nature of teaching, professional judgments about what and how things are to be taught have strong ties with both ecological, contextual factors and personal, biographical ones. Thus, the thorny issue about teacher knowledge construction in applying the issue-enquiry approach has to be explored together with teachers’ conceptual change. In the light of this notion, after employing the technical coaching approach in the initial stage, the author espoused the approaches of collegial coaching and challenge coaching (Garmston, 1987, cited in Hargreaves & Dawe, 1990) in response to the teacher participants’ needs and difficulties. In retrospect, collaborative reflection and professional dialogue to improve practice have been gradually enhanced. Instead of introducing appropriate instructional strategies, the author built teacher capacity to translate knowledge into practice through peer lesson observation together with collective reflection. Teachers then discovered that some previous Liberal Studies lessons had proceeded with their students having no relevant conception and abilities. It was under this coaching approach that they were empowered and motivated to clarify their own impediments in instructional design and delivery. To engage students in the learning contexts and to scaffold learning, a shared objective of being more sensitive to students’ needs and responses in selecting issues for enquiry, instructional design and lesson delivery was confirmed in a recent co-reflection meeting. For instance, they explicitly conceded that class interactions to clarify what students are learning, particularly in debriefings, were indispensable to meaningful learning. Even though it takes time for these teachers to turn from novices into experts to translate knowledge into practice, their current developments in teacher beliefs and practices have built a solid foundation for them to further improve and sustain changes.

6. Possibilities of Knowledge Construction of Liberal Studies Teachers in Hong Kong

This study reveals that teacher knowledge construction in applying the issue-enquiry approach in Liberal Studies involves teacher change in the cognitive, metacognitive and affective domains. To examine the possibilities of knowledge construction of Liberal Studies teachers in Hong Kong, this part will discuss some implications stemming from this study with regard to professional development of Liberal Studies teachers.

6.1 Planning of professional development should be targeted at helping Liberal Studies teachers translate knowledge into practice.

This study indicates that the learning of new skills and strategies are inadequate since many Liberal Studies teachers are unable to transfer their learning in actual contexts relevant to both the curriculum and their students. According to Shulman and Quinlan (1996), “pedagogical orientation as well as disciplinary depth may depend on teachers’ content knowledge and their ability to translate this knowledge into age-appropriate representations” (cited in Mintrop, 2004, p.144). For educational improvement, professional development for Liberal Studies teachers should focus on knowledge construction encompassing

- (a) deep understanding of concepts, ideas, principles, and propositions that characterize the curriculum, such that teachers build conceptual frameworks that guide selection of appropriate issues and design of instructional practices;
- (b) a constructivist view of learning and teaching, such that teachers recognize the interacting relationships between the curriculum and students. When planning instruction, teachers consider students’ cognitive and developmental stage, including prior learning and experiences. Instead of following a predetermined path, they are sensitive to student responses and learning during lesson delivery; and
- (c) the qualities of collegiality, such that teachers learn collaboratively through staff discussions of teaching practices, co-planning of instruction and design of materials, mutual observation and collective reflection.

6.2 Professional development for Liberal Studies teachers should be targeted at activating teachers’ cognitive processes and sustaining change

In terms of knowledge construction, what is true for students is also true for teachers. Therefore, the planning of teacher professional development has to view teachers as learners “within a conceptual stage framework” (Hunt, 1974, cited in Sprinthall, 1995). The selection of content, learning contexts or environments, cognitive and social tasks, and tools to enhance teachers’ capabilities has to be based on and start from the teachers’ “concept learning capability” (Hunt, 1974, cited in Sprinthall, 1995), later described as “cognitive complexity” by Sprinthall (1995). Given this, professional development would be more competent at promoting stage growth of Liberal Studies teachers.

Other than this, Guskey (2002) postulates that professional development must be perceived as a process rather than an event, such that teachers receive continued follow-up and support toward continuing educational improvement. This appears to be definitely true for Liberal Studies teachers who need on-site coaching when they translate knowledge into practice. As demonstrated in this study, the approaches of collegial coaching and challenge coaching (Garmston, 1987, cited in Hargreaves & Dawe, 1990), being more responsive to teachers’ learning and needs, are proved to be more effective than peer coaching of the technical kind that focus mainly on the learning of new skills and strategies. Further, this study also illuminated an implication on the form of partnership between school and external advisor for teacher professional development. Since teacher learning and collaboration are teacher-driven, support from an external advisor will not be appreciated if the emphasis is put on the implementation of a task or plan initiated by the external advisor (Biott, 1992, cited in Lam *et al.*, 2002). Because of this, Biott advocates giving up the ‘implementation partnership’ for a ‘development partnership’ in which teachers and external advisors reflect collaboratively, explore problems, and work out solutions together. In this study, the forms of coaching and partnership have yielded constructive progress towards a collaborative team culture with teacher change in both beliefs and practices. It would thus be easier for the teachers concerned to translate their learning and experiences into pedagogical content knowledge (Shulman, 1987).

6.3 Knowledge construction requires Liberal Studies teachers to engage in collaborative reflection on the basis of common concerns and learn together within “communities of teachers as learners” (Shulman & Shulman, 2004).

Kowal (1994) posits that “an important instructional method for promoting learning as a constructive process in the classroom is to create a community of scholars” (p.173), and this applies to teachers in a similar manner. The effectiveness of teachers learning together within “communities of teachers as learners” (Shulman & Shulman, 2004) has been well documented in some recent educational literature (see, for example, Tillema & Westhuizen, 2006; Zellermayer & Tabak, 2006). In their assertion, collaborative reflection is an important means of bringing about improvements in teaching. Shulman (1987) defines reflection as:

What a teacher does when he or she looks back at the teaching and learning that has occurred, and reconstructs, then reenacts, and/or recaptures the

events, the emotions, and the accomplishments. ... Reflection is not merely a disposition ... or a set of strategies, but also the use of particular kinds of analytic knowledge brought to bear on one’s work. (p.19)

Nevertheless, a recent literature of Dimmock and Walker (2005) on learning and teaching in diverse cultures reveals that teachers in Hong Kong lack school-based professional development practices engaged in by their counterparts in other Asian countries. They, therefore, have less opportunity to improve practices through collaborative reflection. On the contrary, findings from this study have drawn attention to learning of Liberal Studies teachers that is job-embedded, collaborative, and reflective. This form of teacher development can be an impetus and continued support to learning.

6.4 Liberal Studies teachers need school support for collaborative knowledge construction

The highly bureaucratic structures and the rigid scheduling of timetables of many schools in Hong Kong render it difficult for Liberal Studies teachers to develop themselves as collaborative learners. In this study, the Liberal Studies teachers got the opportunities for collaborative knowledge construction because of school support. In addition to the arrangement of small class teaching and some relevant resources, the partnership with the QSIP has won acclaim from the teachers concerned for its timely and appropriate professional support. It would thus be essential for school leaders to provide structural and operational policies that promote and support high-density involvement (Leonard and Leonard, 2001), such that teachers are eager to extend their roles beyond the classroom and take on teacher leadership roles of being ‘reflective agents’ (Pollard, 2002) and collaborative learners.

7. Conclusion

Based on the theoretical underpinnings of the issue-enquiry approach which embodies a constructivist stance of teaching and learning and the dimensions of teacher knowledge fundamental to instructional design of an issue-enquiry, this study has explored the tensions and possibilities of teacher knowledge construction in conducting an issue-enquiry in Liberal Studies. The findings reveal that tensions exist during knowledge construction of many Liberal Studies teachers in Hong Kong. They act as impediments to teacher construction of the much-needed content knowledge, substantive knowledge, and syntactic knowledge. In a similar manner, teachers’ beliefs and perceptions about teaching and learning can also be the sources of tensions

because teaching with an issue-enquiry in Liberal Studies involves teacher change in terms of both beliefs and practices. Hence, the construction of teacher knowledge encompasses not only the cognitive domain, but also the metacognitive and affective domains. Finally, this study examines the possibilities of knowledge construction of Liberal Studies teachers in Hong Kong in the light of some implications stemming from its findings. Taken as a whole, this study is significant because knowledge construction of Liberal Studies teachers has not been an enquiry focus of the educational literature in Hong Kong. Given that the issue-enquiry approach will become a common instructional practice of Liberal Studies teachers in the New Senior Secondary curriculum, it would be critical for educational policy-makers, planners of curriculum development and teacher professional development, and practitioners concerned to attend to the issues illuminated in this study.

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