

**Teachers' Beliefs, Confidence and Practice and Students' Achievement in Cultivating
Critical Thinking in Primary Music Education in Hong Kong**

by

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ABSTRACT

Critical thinking is regarded as a higher-order thinking skill, which is important in developing a comprehensive competency in modern times. Nurturing children's critical thinking at an early stage thus becomes an essential target that should be pursued by all school teachers. Facing such a trend, the Education Bureau of Hong Kong started to reform the school curriculum in 2000 in order to develop students' generic skills through eight Key Learning Areas (KLA), one of which is Arts Education that includes Music. Nine generic skills, including critical thinking, have been identified that should be nurtured through all KLAs. Published in 2003, the *Music Curriculum Guide* (Curriculum and Development Council, 2003) proposed four learning targets for music. Among all, cultivating critical responses in music is the target achieved by the integrated learning activities of creating, performing and listening. Nevertheless, there are very limited studies investigating the extent to which current primary music teachers can nurture students' critical thinking in Hong Kong. Furthermore, Hong Kong music teachers may not be capable of developing students' critical thinking through these integrated activities. This study aims to examine the current situation of cultivating critical thinking in music in Hong Kong's primary schools and explore how critical thinking skills can be effectively developed. A questionnaire, interviews and class observation were used to collect data for current situation of nurturing critical

thinking skills in primary music lessons. The results of the study demonstrate a positive indication of the acceptance of and beliefs in the implementation of critical thinking skills in Hong Kong primary teachers. Difficulties are found that impeded the effectiveness of the implementation, namely, teachers' professional commitments by using critical thinking skills, teachers' understanding of and abilities for the implementation, students' involvement and differentiation, the schools' and government's support, related resources and school administration policies. Following an analysis of result and discussion, recommendations for writing instruction are presented in the study.

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Chapter 1

INTRODUCTION

1.1 Background of the Study

Before 2003, Hong Kong school music education relied on the syllabi issued by the Curriculum Development Committee of the Hong Kong Manpower and Education Bureau (named Hong Kong Education Bureau in 2007). The syllabi were published in 1983 for the junior secondary level (Curriculum Development Committee, 1983) and in 1987 for the primary level (Curriculum Development Committee, 1987a) and the senior secondary level (Curriculum Development Committee, 1987b).

In the early 2000s, the official music curriculum in Hong Kong entered a reform era. A new paradigm of experience-based learning in music was introduced to primary and secondary schools. The Education Bureau of Hong Kong started the education reform in 2002 and released the relevant publications, the *Arts Education Curriculum Guide* (Curriculum Development Council, 2002) and the *Music Curriculum Guide* (Curriculum Development Council, 2003).

According to the *Arts Education Curriculum Guide* (Curriculum Development Council, 2002), art education is addressed as one of the Key Learning Areas (KLAs).

As suggested in the curriculum guide, “Arts education contributes significantly to students’ aesthetic development, which is one of the five essential learning experiences for whole-person development” (Curriculum Development Council, 2002, p. 3). The same Curriculum also states that arts education helps students to “develop creativity and critical thinking skills, nurture aesthetic sensitivity, and construct cultural awareness and effective communication” (Curriculum Development Council, 2002, p. 3). Students are required to develop their generic skills where creativity, critical thinking, and communication skills are initially prioritized (Curriculum Development Council, 2002). The document recommended that schools should design, restructure, streamline and diversify their own school-based arts curriculum according to schools’ readiness and circumstance. Teachers should aim to develop students’ creativity, critical thinking and communication skills through a balanced arts curriculum (Curriculum Development Council, 2002).

The *Arts Education Curriculum Guide* and the *Music Curriculum Guide* addressed four Learning Targets, namely, 1) developing creativity and imagination, 2) developing skills and processes, 3) cultivating critical responses, and 4) understanding arts in context. As suggested in the *Music Curriculum Guide*,

cultivating critical responses in music is the target achieved by integrated learning activities of creating, performing and listening. Students should be able to “comprehend, respond to and appraise music so as to nurture aesthetic sensitivity and awareness” (Curriculum Development Council, 2003, p. 12).

Learning objectives for Key Stages 1–3¹ were well designed and proposed in the Curriculum Guide as a guideline for teachers in order to achieve the four learning targets. “In designing schemes of work, teachers should, with reference to students’ abilities and learning and teaching needs, apply the recommended learning objectives in this Curriculum Guide flexibly, or design suitable learning objectives of their own” (Curriculum Development Council, 2003, p. 13). Throughout the use of integrated music, activities including creating, listening and performing are suggested in the *Music Curriculum Guide*, in order to assist students to achieve the four learning targets. Students could deliver the music concept through performance and the creating of music such as composition.

Critical thinking is regarded as an important competence for the new century. The

¹ Key Stages 1–3: KS1 – Primary 1 to 3, KS2 – Primary 4 to 6, KS3 – Secondary 1 to 3.

Curriculum Development Council identified critical responses to music as one of the learning targets suggested in the curriculum guide and students should learn to provide critical responses by applying critical thinking skills (Curriculum Development Council, 2003). Students were encouraged to think more critically by investigating problems from daily life, through participating, self-experience, learning to appreciate and appraise works, giving comments, and creating and performing their own works. Through the project's learning strategy, students can develop and enhance the self-directed reflection, collaboration and communication skills named as essential critical thinking elements.

1.2 Purpose of the study

Since the release of the *Music Curriculum Guide* in 2003, an understanding and an evaluation of the current situation of implementation in nurturing students' critical responses are necessary. In this study, cultivating critical responses in music was studied as a focus with emphasis on how the music teachers lead their students to develop critical thinking skills. Effective teaching practices with difficulties and constraints have been reviewed and discussed for suggestion of solutions and a theoretical framework was provided.

1.3 Significance

This study aims to survey and evaluate the current practice of Hong Kong music teachers cultivating students' critical responses in music. Findings from the survey are crystallized into a theoretical framework of how critical responses can be cultivated in school music education. In addition, this study worked through how the theoretical framework could be delivered in an action inquiry design. Some suggestions regarding the procedure of teaching and learning, as well as essentials of critical thinking skill elements, will be identified. Teachers suggested applying the theoretical framework as a supplementary support or guideline of teaching.

Suggestions for effective teaching and learning strategies in cultivating students' critical thinking skills in music education have been formulated from this research. School music teachers would benefit from the study gaining a better understanding of how students can be nurtured and improved in terms of critical thinking, which is regarded as one of the key generic skills in the new century. Furthermore, music can then be more advocated in the school curriculum since learning music is proved to be beneficial to students' development of critical thinking. Consequently, different stakeholders of school education, including parents, would hopefully support music education in schools.

1.4 Research Design

In this study, the current situation of Hong Kong primary school music teachers in cultivating students' critical thinking skills is probed in two phases. Phase 1 aims to investigate the current situation of cultivating students' critical thinking and to seek good practices of teaching in Hong Kong primary schools through a questionnaire survey. In phase 2, voluntary teachers and students are invited to participate in a semi-structured interview and class observation where participants are asked to recall their personal experiences of teaching or learning related to cultivating and developing critical responses in music.

1.4.1 Phase I: Questionnaire survey

In phase 1, a questionnaire survey is used to investigate the views and current practices of Hong Kong primary school teachers in cultivating students' critical responses in music. The design of the questionnaire is based on the existing literature, including the theory of critical thinking by Facione (1990) and other scholars including Bloom (1956), Ennis (1985), Bundra (1993), Paul and Elder (2008) and Dennis (2011), with reference to the elements of learning targets and learning objectives stated in the Hong Kong music curriculum guide (Curriculum

Development Council, 2003). A number of elements or variables were identified as the categories and divided into eight parts, namely, demographic information, investigation of the teaching strategies, the understanding of critical thinking skills, analysing the current situation of students' critical thinking responses, examining the teachers' beliefs and ability in nurturing critical thinking, and other related situations affecting the implementation of critical thinking skills. Three open-ended questions are applied to obtain detailed information about the implementation of critical thinking skills, significance and difficulties that further supplement the findings from other parts.

All collected data is analysed by using the SPSS (version 21) and presented by using descriptive statistics for the summary frequencies, means and standard deviations of data. The correlation between parts are analysed by independent sample T test; one-way analysis of variance (ANOVA) and inferential statistics are used for presenting the inferences and predictions of the results.

1.4.2 Phase II: Semi-structured interviews and class observation

In phase II of this study, a number of semi-structured interviews with volunteer teachers and primary school students' focus groups are conducted along with class

observation in order to clarify the situation in depth. The semi-structured interviews and class observation aimed to further investigate the detailed practices of teachers and students, especially how teachers cultivate the elements of critical responses and how students develop their critical thinking under teachers' supervision. They also probed for the real situation of the implementation of critical thinking skills and students' responses reflected teachers' teaching strategies during class.

The semi-structured interviews are divided into two parts. Part I includes individual interviews with 12 current primary school teachers, and Part II comprises individual interviews with 164 students who were studying in primary school teacher training school. There were 7 teachers out of 12 who agreed to offer a non-participant class observation in this study.

During the interviews, teachers were asked to recall their personal experiences of teaching and learning related to cultivating and developing critical responses in music. The researcher asked the teachers to define and describe the critical thinking elements addressed in their music lessons. The teachers also described the instructions and teaching strategies of their music teaching and shared their experience of nurturing students' critical responses and their difficulties, also stating

the significance of using critical thinking skills. Furthermore, the teachers were also invited to share some of the good critical thinking cultivating strategies, especially the ones regarding time management and curriculum design.

For the students' interview, there were 12 to 16 students nominated by each interviewed teacher from his school, and they were divided into two groups for the interview, one junior grade group (P3-4) and one senior (P5-6) group of students; each group had 6-8 students. During the interviews, students were asked to recall their personal experiences of music learning during the music lesson, such as music activities, music project, and group discussion. The researcher asked the students to share their experience by a storytelling method (Kvale and Brinkmann, 2009), which is one of the effective methods of seeking real and rich qualitative data. According to students' description, the researcher focused on the content related to cultivating and developing critical responses in music; some designed in-depth questions led the students to provide more detailed and valuable information related to critical thinking elements addressed by their teachers in music lessons. From the observation of 6 classes, the real situation regarding the use of teaching strategies, process, and

arrangement from teachers as well as students' response, particularly to the integrated activities and teachers' questions, were investigated.

By the use of the semi-structured interview, some emergent and unexpected themes that could not be obtained from the questionnaire survey were collected. Some further detailed information could be obtained regarding the findings from the questionnaire. As a triangulation between teachers' and students' interview, class observation provided more accurate data for discussion.

1.4.3 Scope of the study

This study examined the current situation of critical thinking teaching in Hong Kong music education by investigating the current teaching practices of Hong Kong primary school music teachers and the characteristics of good practices of cultivating students' critical thinking skills in Hong Kong primary school music education. It provided a theoretical framework that can be effectively applied in cultivating students' critical thinking skills in music education. The study also made available a summary of the difficulties and important issues related to cultivating critical thinking in Hong Kong primary school music education as well as suggestions for

improvement of critical thinking cultivation in Hong Kong primary schools.

1.5 Organisation of the thesis

This thesis consists of five chapters. Chapter 1 contains an illustration of the background of the study, the purpose, and significance of the study, the research design, and the scope of the study. Chapter 2 provides a related literature review of the concepts of critical thinking skills that are related to music education and the assessment of critical thinking skills. Chapter 3 involves an investigation of the current situation of cultivation of critical thinking in Hong Kong primary schools. An analysis of a questionnaire survey of all primary school music teachers in Hong Kong in order to evaluate the extent of the cultivation of critical thinking skills addressed in music education was included. In Chapter 4, an analysis of interviews with primary school teachers and students provides a more detailed overview of the teachers and students' beliefs about critical thinking skills and provides some prospective ideas on the matter. Chapter 5 offers a discussion of findings from chapters 3 and 4 along with valuable opinions and implications arising from them.

CHAPTER 2

LITERATURE REVIEW

2.1 Music Curriculum in U.S. and England

In the 21st century, an unprecedented worldwide change in politics, economics, society, education and technology provides human society a new vision of livelihood.

Advanced technology accelerates the rate of economic growth and enhances the standard of living. The world-wide-web has become another learning source besides textbooks, while students' learning attitudes and visions have become more globalized. Thus, students need to develop mature analytical and critical thinking skills in order to grasp knowledge and information from the worldwide web. Facing this challenge, schools are shouldering an important mission to cultivate students' analytical techniques and enrich their critical thinking skills along with a strong sense of commitment (Curriculum Development Council, 2003).

Under this 21st century approach to education, nurturing critical thinking skills becomes an important learning target addressed in the curriculum. In the late 20th century, many countries were reviewing their educational systems, and a new reformation of educational approaches and policy was released in the early 21st century. England and the United States have both had a complete education policy

and curriculum since the 19th century, but under worldwide changes, the education department restructured the education policy and presented new education curriculum frameworks in the late 20th century in which nurturing children's critical thinking is addressed as a statutory target in both curricula. An overview of education issues in these two developed countries with a critical review of their new education policies in the 21st century will be discussed.

The National Curriculum for Music (Department of Education and Science, 1992) in England and the National Standards for Music Education (MENC - The National Association for Music Education, 2014) in the United States are the documents issued by the governments for music education under the framework of the National Curriculum in England and the National Standards in the United States. Both of them provide a clear and systematic education structure, rubrics and guidelines for teachers in their lesson planning.

2.1.1 The National Curriculum for Music in England

In England, the nationwide National Curriculum for primary and secondary schools was introduced in 1988 under the Education Reform Act, according to which all government schools of the local education authorities have a common curriculum;

also, standardized content is taught across schools to enable common assessment.

The National Curriculum consists of four basic key stages and twelve subjects, classified as “core” and “other foundation” subjects. Students are categorised into four key stages by their age: key stage 1 (aged 5–7), key stage 2 (aged 7–11), key stage 3 (aged 11–14) and key stage 4 (aged 14–16) (Department for Education, 2013).

The National Curriculum suggested that teachers facilitate students in improving their own learning and performance skills and problem-solving skills. Students are required to reflect on their own performance and improve by using critical evaluation skills. Thinking skills is one of the essential skills announced in the document as well. It includes reasoning skills, creative thinking skills, information-processing skills, evaluation skills and enquiry skills (Department for Education and Employment, 1999).

According to this curriculum, music is a statutory subject from key stage 1 to key stage 3, but it is optional for key stage 4, in which is categorised for art subjects requiring students to apply lots of thinking skills during the learning process.

Students are required to reach and achieve the standard of four content areas and

eight levels of attainment targets addressed in the document. Among the four content areas, responding and reviewing are categorised as essential skills.

The attainment targets are composed of eight gradual levels in the descriptions and a description for exceptional performance above level eight. In key stages 1 and 2, students are to be taught how sounds can be described using given, established or invented signs and symbols. In key stage 3, in addition to analysing, evaluating and comparing pieces of music, students should learn to apply critical thinking skills to express their own opinions (Department for Education and Employment, 1999).

2.1.2 The National Standards for Music in the United States

Unlike the National Curriculum for Music in England, the National Standards for Music in the United States is not a legislative education policy that schools have to implement in their school curriculum, but it is under the clear guidelines and missions present in the curriculum guide. In 1994, the complete *National Standards for Music Education* was published in the United States and reviewed in 2014. It is aimed at helping students can get the information they need in school music education. The curriculum also provides clear information about the knowledge, understanding, and skills that all students should obtain in the arts subjects and also

provide the basic learning and teaching concept for developing curricula (MENC Task Force for National Standards in the Arts, 2014).

The *National Standards for Music Education* was published in 1994 and reviewed in 2014, it consists of nine content standards. According to it, students are required to know and be able to complete all standards through four different activities, namely, creating, performing, listening and analysing music. Listening, analysing, synthesising and evaluating music are important skills addressed in the National Standards that “enable students to recognize and pursue excellence in musical experiences and to understand and enrich their environment” (Music Educators National Conference, 2014, p. 66).

2.1.3 Difficulties in implementation of music curricula in England and the United States

Although the *National Curriculum guide* in the U.K. and the *National Standards for Music* in the U.S. provide a complete and systematic guideline for teachers to design their music lessons, several research studies reflect some problems about how teachers’ personal professional knowledge in music teaching impeded their

effectiveness in teaching music. Stunell (2010) and Hallam (2009) observed that teachers feel that they lack confidence in classroom music teaching and have inadequate in-service and pre-service music teaching training and Wilson (2003), Frederickson (2010) noticed the teachers' lack of teaching experience. According to Hallam (2009):

In England during the early 1990s, it was acknowledged that many primary school teachers felt ill-equipped and insecure of having to teach music and that very few teachers in primary schools had any qualifications in music....A range of reports identified the need for additional in-service training and more input to initial teacher training (p. 221).

Hallam (2009) also stated that “there is an urgent need for continuing professional development or better initial training to address specific musical skills and musical vocabulary” (p. 222).

Kertz-Welzel (2008) found that many music teachers face difficulties in implementing the National Standards in their music lesson as well. According to his study, *The implementation of the National Standards for Music Education in American Schools* (Kertz-Welzel, 2008), many teachers are not well prepared to implement the National Standards in music lessons, even if they have completed a teacher education program. The National Standards do not provide any specific

teaching method for teachers. They are not capable of teaching the standards of the curriculum, especially beginner level teachers. They feel the implementation of the standards is difficult, there is not enough time to complete all standards, not enough space to use in music rooms and not enough music equipment and resources that the school can provide. The study concludes that all these problems impede implementation effectiveness. (Kertz-Welzel, 2008)

Adderley (2003) studied teachers' beliefs about the implementation of different teaching and learning strategies in music education and found that teachers would like to try and apply different teaching strategies that are integrated with different teaching materials. However, from his study, the most important problem affecting the implementation of the standard was the qualification of music teachers in schools. Most of the teachers could correctly apply different kinds of teaching and learning strategies during classes, but the proficiency of teachers' music background was significantly differentiated, especially in some basic musical definitions and knowledge. Some of the teachers were not music majored, and they were only capable of teaching some lower grade music lessons and felt inadequate in applying professional music ideas in music curriculum design. (Adderly, 2000)

Compared with England and the U.S., music education in Hong Kong has just entered the implementation period. Many schools that are still structuring their school-based music curriculum foresee that some upcoming problems may emerge. Regarding the problems in England and the U.S., those difficulties of the implementation of teaching and learning strategies required a high level of teachers' participation and discussion and a mature school education policy that can provide teachers' support and good teaching guidelines. The current study will examine these music education problems existing worldwide and discuss the current situation of Hong Kong music education.

2.2 Critical thinking

In the 21st century classroom, critical thinking is regarded as a higher-order thinking skill for human development. Nurturing children's critical thinking at an early stage thus becomes an essential target that should be addressed by all schoolteachers. In order to motivate students to think and respond critically in the classroom, appropriate critical thinking skills are necessary and theories should be applied in teaching and learning (Curriculum Development Council, 2003, p. 13).

Although developing critical thinking skills has been regarded as an essential educational goal in teaching and learning, there is no concrete definition or terminology for critical thinking (Petress, 2004; Colwell, 2011; Kokkidou, 2013). Educators interpret critical thinking as a process of investigation (Scriven & Paul, 1987; Halpern, 1988; Reed, 1998), sometimes encompassing philosophical or psychological concepts. In philosophical and psychological views, different scholars characterise critical thinking by their own theories. For example, according to Reed (2012), “philosophers have tended to focus on the nature and quality of the products of critical thinking, for example, analysis of arguments. Psychologists, on the other hand, have concentrated on the process of cognition, the components and operations used to address academic and practical problems” (p. 15).

The cognitive domain is applied in both philosophical and psychological views as a process of critical thinking (Bloom, 1956; Paul, 1993; Halpern, 1996; Kuhn, 1999). Paul and Elder (1998) concluded that critical thinking is a way of thinking and that it includes skills like gathering, conceptualising, organising, applying, analysing, synthesising and evaluating. Critical thinking is defined as “self-corrective thinking, self-disciplined, self-directed and self-monitored, it requires rigorous standards of excellence and mindful command” (Paul & Elder, 2008, p. 2). Critical thinkers have

effective communication skills, problem-solving abilities and commitment.

According to Paul and Elder (2008), “a well-educated critical thinker” should be able to:

1. raise vital questions and problems, formulate questions and problems clearly and precisely;
2. gather and assess relevant information using abstract ideas to interpret it effectively;
3. reason conclusions and solutions well;
4. think open-mindedly within alternative systems of thought, recognising and assessing; and
5. communicate effectively with others in figuring out solutions to complex problems (Paul & Elder, 2008, p. 2).

In the late 1980s, the American Philosophical Association (APA) conducted a Delphi research study,² which was reported by Facione (1990). From the study, 46 international experts, representing disciplines in the sciences, humanities, social sciences and education participated in a two-year qualitative research study. About 52% of the participants were philosophers and 20% were psychologists. By using the Delphi method, all experts could collaborate on this project and came to a consensus even if they lived in different places and worked over a period of two years. After a

² A Delphi research study is a forecasting method based on the results of questionnaires sent to a panel of experts. Several rounds of questionnaires are sent out, and the anonymous responses are aggregated and shared with the group after each round. The experts are allowed to adjust their answers in subsequent rounds. Because multiple rounds of questions are implemented and because each member of the panel is told what the group thinks as a whole, the Delphi Method seeks to reach the "correct" response through consensus. The word "Delphi" refers to the Oracle of Delphi, a site in Greek mythology where prophecies were passed on (Facione, 1990).

two-year research period led by the central investigator, a consensus based on all experts' arguments was summarised. Critical thinking was defined as a “process of purposeful, self-regulatory judgment and also a pervasive and purposed human phenomenon” (Facione, 1990). Six core elements for critical thinking skills were identified from the study, namely, interpretation, analysis, evaluation, inference, explanation and self-regulation (Facione, 1990). All elements were identified as an essential stage in the critical thinking process. As Facione (1990) mentioned, a well-educated critical thinker could be skilfully manipulating all elements in daily life and become “habitually inquisitive, well-informed, trustful of reason” (p. 3). He also concluded that the experts have reached a consensus on the significance of critical thinking, indicating that critical thinking is “essential as a tool of inquiry,” “a liberating force in education and a powerful resource in one’s personal and civic life,” and “a pervasive and self-rectifying human phenomenon.” (Facione, 1990, p. 26). According to Facione’s report, an ideal critical thinker is “habitually inquisitive, well informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of criteria, focused in inquiry, and persistent in seeking results, which are as precise as the subject and the circumstances of

inquiry permit” (Facione, 1990, p. 26).

Similarly, experts also defined critical thinking as a disciplined, active process with analysis, synthesis, evaluation and conclusion of the data, in which analysis, synthesis, and evaluation are regarded as higher-order thinking skills (Bloom, 1956; Ennis, 1985; Meyers, 2003; Colwell, 2011). It is a learning process beginning with information comprehension and reasoning skills, collecting data by observation, experience, reflection and judgment (Ennis, 1985; Sternberg, 1985; Paul & Elder, 2001). Halpern (2003) noted that “a critical thinker could be willing to plan, to consider new options, try new things in new ways, and reconsider old problems, persistence and self-correction” (p. 29). Furthermore, a critical thinker can, in Kok’s (2008) opinion, be able to recognise differing viewpoints, being analytically reflective, generating meaningful questions and, finally, formulating logical and reasonable conclusions.

All in all, in our opinion, critical thinking is an essential thinking and learning procedure that can analyse, synthesise and evaluate all information actively and skilfully, which should be collected by observation and experience. Cognitive skills and strategies are the main elements in the critical thinking process. A critical thinker

should be capable of exploring a problem, integrating information, and generating a meaningful solution or hypothesis. Moreover, another important element in developing oneself as a good critical thinker that can monitor oneself by self-examination and self-correction is self-regulation. A critical thinker should have a positive critical spirit and should always seek the truth with objectivity, integrity, and fair-mindedness.

2.2.1 Critical thinking in education view

Critical thinking is regarded as an essential ability to investigate a problem and develop problem-solving and decision-making skills, which has a very close relationship with every field of living in our daily life (Warnich & Inch, 1994). Other than the philological and psychological view regarding the critical thinking skills, the educational view of critical thinking skills is also a very important empirical research issue that many scholars are concerned about and interested in.

In 1933, John Dewey's approach to educational view stated that the learning approach at school should change from content-oriented outcomes to child- or learner-centred outcomes; student need is thought to drive the process of induction, of rethinking personal experience. Dewey's approach provided a new paradigm in

education view and brought a large influence to the reflection of traditional educational approaches all over the world. Many scholars from philological and psychological dimensions started to examine the importance of critical thinking skills to the educational development. Bloom and his colleagues investigated the importance of students' information processing skills named in Bloom's Taxonomy (1956) and suggested that critical thinking skill should be one of the essential skills developed and facilitated by teachers at school. Some philological, psychological, and educational scholars worked together and probed the importance of critical thinking skill training in school.

From the result by different scholars from all dimensions, critical thinking skills can be promoted in all subjects and nurtured in students by different strategies, including gathering information, analysis, application, synthesis, and evaluation (Noddings, 2006; Stenberg, 2000; Lipman, 1991; Bailin, 1991). The students' achievement in different subjects were significantly improved by using critical thinking skill strategies, particularly in mathematics and science (Bruner, 1977; Bailin, 2002).

Developing students' critical thinking skills is an important target as part of their

preparation as a conscientious and responsible citizen (Ennis, 1985; Sternberg, 1985; Paul & Elder, 2001; Halpern, 2003). Elder and Paul's (1966a; 1966b) educational research identified the importance of critical thinking skills in educational view as a facilitator of that learning approach; a teacher should be able to:

1. state and explain the aims and ambitions
2. clarify the questions
3. evaluate in-depth the meaning and the importance of information for students
4. define hypotheses
5. demonstrate comprehension of certain concepts
6. examine questions from many points of view
7. examine and check for accuracy
8. express their thought with rational arguments
9. take others' points of view into account
10. deal with the complex nature of problems and issues

To achieve the complex goal of nurturing students to respond critically, teachers should be well-equipped and sometimes have to be assisted by different educational theories and research (Astleitner, 2002). If teachers receive special critical thinking course training, a larger effect should be achieved significantly (Abrami, 2008).

Critical thinking learning cycle in education view was summarised into a model that consists of “procedure of critical thinking skills” and “learning attitudes of a critical

thinker.” A complete critical thinking learning cycle can nurture students to become a good critical thinker, and the effectiveness not only benefits the students in their school learning, it also has a lifelong application in their daily life.

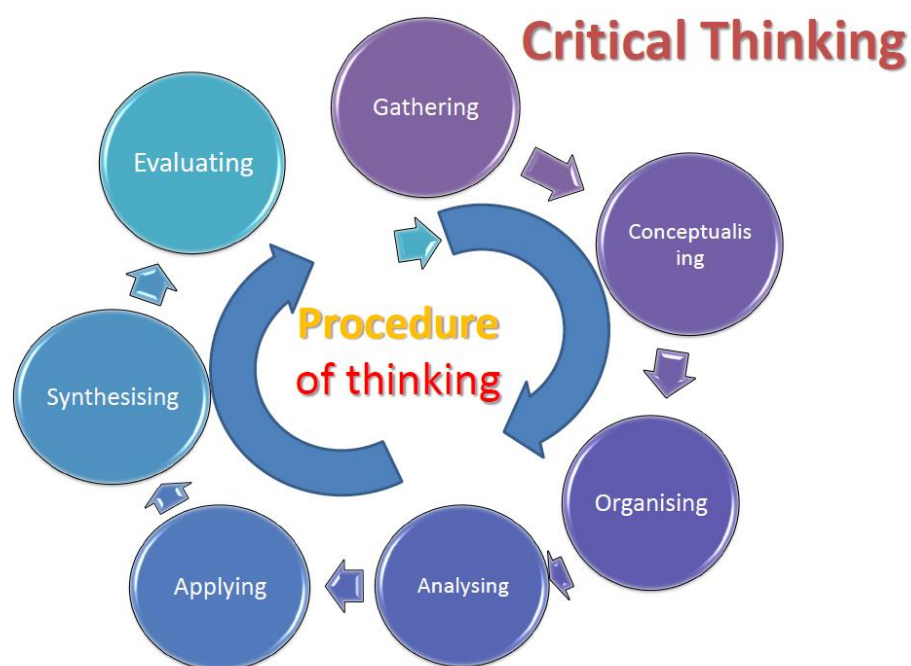


Figure 1: Procedure of critical thinking (Paul & Elder, 2008; Colwell, 1985; Facione, 1990)

Critical Thinking Learning Attitude

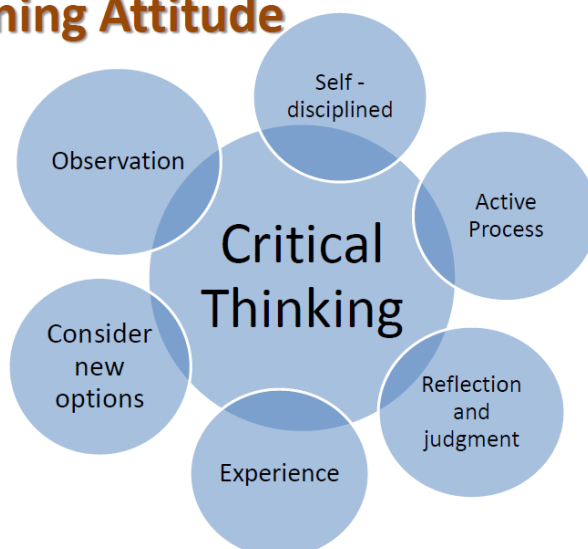


Figure 2: Critical thinking learning attitude (Paul & Elder, 2008; Colwell, 1985; Facione, 1990)

2.2.2 Constructivism and Critical thinking

The constructivist approach has been characterised as an effective learning strategy that, with the use and teaching of higher-order cognitive skills, includes critical thinking and reasoning skills (Fosnot, 2005; Sheldon & DeNardo, 2005). In the constructivist approach, teachers are responsible for developing students' knowledge and providing opportunities for them (Morford, 2007). Students are required to be more creative and motivated as active learners. Christie (2005) mentioned that under the constructivist learning approach, people construct their knowledge through experiences and reflection. In the classroom, teachers should encourage students to use active techniques (experiments, real-world problem solving) to generate knowledge and reflection and should also share with them the understanding and learning process. Constructivist teachers act as facilitators and guide their students through their progress (von Glasersfeld, 1987). Under the constructivist approach, teachers should provide a student-centred learning environment, motivate students to be adaptive learners, reflective learners, active learners, responsible learners, and be negotiators of knowledge, knowledge creators and seekers (Thirteen Ed Online, 2004). The main idea of constructivism is to address students on the learning of “how to learn” (Holly, 2013).

Constructivism has been characterised as an effective pedagogical approach associated with the use of critical thinking skills in higher-order thinking skill training (Sheldon & DeNardo, 2005; Johnson, 2011; Webster, 2001). Savry and Duffy (1995) stated that between constructivism and critical thinking skills, there are four main objectives of the instructional principles that are related to each other; they are as follows.

1. Give the learner ownership of the process used to develop a solution.
2. Design the learning environment to support and challenge the learner's thinking.
3. Encourage the testing of ideas against alternative views and alternative contexts.
4. Provide opportunities for and support reflection on both the content learned and the learning process (pp. 5 – 7).

Under the concept of constructivism, student-centred learning is the main learning approach, which is closely related to critical thinking. Providing students with opportunities to learn may encourage self-reflection, which can help to develop critical thinking skills. Van Gelder (2001) found that critical thinking skills can be improved under a well-established practice. He reviewed the research literature on cognitive skill acquisition and summarised the practice as follows.

- Motivated – the student should be deliberately practicing in order to improve his skills.
- Guided – the student should have some way of knowing what to do next.
- Scaffolded – particularly in the early stages, there should be structures preventing inappropriate activity.

- Graduated – tasks should gradually increase in complexity.
- Feedback – the student should have some way of telling whether a particular activity was successful or appropriate (p. 540).

2.2.3 Project learning and Critical thinking

To provide opportunities for inquiry learning in school, project learning is named as one of the essential and most common teaching strategies applied in different levels of education from primary to university, which is integrated with the elements of constructivism and critical thinking skills together. Through a complete inquiry cycle for a particular topic, students are required to learn by experience and design their own presentation of the findings.

In the Hong Kong education policy, project learning is named as one of the Four Key Tasks proposed in *Learning to Learn* (Curriculum Development Council, 2001). The implementation of the four key tasks in schools helps students develop independent learning capabilities. According to the same curriculum, project learning becomes a common and essential learning experience for all students where students can develop their creativity, critical thinking, and problem-solving skills.

In some other countries, project learning is also named project-based learning.

Project-based learning presents the learners' responses to real-world problems with a

complex task or focus question. It was a learning strategy based on constructivism (Hmelo-Silver, 2004), which was first proposed by John Dewey at the end of the 1890s (Douglas and Stack, 2010). The strategy encouraged the application of the skills of asking and refining questions, conducting a discussion for the problems, collecting information, doing analysis, drawing conclusion, and presenting the findings. (Bluemnfeld, 1991; Jones, Rasmussen, & Moffitt, 1997; Jones, Rasmussen, & Moffitt, 1997; Thomas, 2000).

Project-based learning was a student-centred (Van Kotze & Cooper, 2000; Danford, 2006) process that took place individually or in groups with a final practical outcome, such as a presentation or a performance. Cook and Weaving (2013) emphasised the importance of students' direct learning and the fact that students should be more active in project-based learning and develop as autonomous learners. (Kolmos, 1996; Bell, 2010). Students' role changed from learning by listening to learning by doing (Stauffacher, 2006). Teachers became facilitators instead of knowledge distributors and helped students in their learning process by initiating reflection processes and by providing feedback and nurturing students' cooperation skills in small groups. (Frank, Lavy & Elata, 2003).

Hovey and Ferguson (2014) pointed out that there were different interpretations of project-based learning with various overlapping terms, for example, problem-based learning, inquiry-based learning, problem learning and the project method (Anita Habók and Judit Nagy, 2016). Indeed, project-based learning and problem-based learning were identified under the same principles (Thomas, 2000; Graaf & Kolmos, 2009) that could also foster critical thinking skills during the researching process. (Helle, Tynjala, & Olkinuora, 2006). However, an interchangeable relationship between project-based learning and critical thinking skills was announced by Von Korze and Cooper (2000): “The need of critical thinking has been identified as an important driver for project-based learning.” A good project that develops critical thinking competencies is designed around cognitive tasks that required deliberative thought. Project-based learning is a powerful pedagogy that helps students to learn how to be critical thinkers (BIE). Students learnt to do self-assessment and peers’ assessment on their presentation and performance (Mergendoller, 2012).

From some empirical studies’ findings, the implementation of problem-based learning strategies in a project-based learning could provide a tangible environment for students to develop critical thinking skills and could also suggest that it was one of the most effective ways of fostering critical thinking (Chenoweth, 1995). With

similarities of the elements between problem-based learning procedure and critical thinking procedure, applying problem-based learning in project-based learning could promote students' critical thinking ability (Goodman, 1978; Garcia & Intrich, 1992). Actually, this method was derived from constructivism (Neimer et al., 2010). Both constructivism and problem-based learning could help students develop critical thinking responses for students to become independent learners and critical thinkers when they experience the application of analysis, synthesis of information, application and evaluation. Learning critical thinking is known as a “higher order thinking skill” and has always been the ultimate goal of education (Wertsh, 1985; Spendlove, 2008; Sulaiman, 2011).

2.3 Critical thinking in music education

In the 21st century classroom, the development of students' critical thinking skills becomes an essential educational goal (Paul & Elder, 1998; Kamehameha Schools, Research & Evaluation Division, 2010; Ennis, 2011). Scriven (1985) stated that “training in critical thinking skills should be the primary task of education” (p. 11). Developing students' critical thinking skills can help them in reasoning, formulating questions and effectively solving problems (American Dental Education Association, 2006; Husband, 2006; Rashid & Hashim, 2008; Kok, 2008). In Bundra's (1993)

opinion, in the music context, the processes of comparing, evaluating, judging and classifying for listening, composition and creative music projects provide students opportunities to apply critical thinking skills.

The research in music education shows that, in general, teachers can enrich students' musical experiences by the implementation of critical thinking (Wiggins, 2015). Daniel (2011) applied critical thinking instruction in a listening activity and encouraged students to answer questions in different solutions and points of view. He found a significant and positive effect on students' listening response that can be achieved when teachers applied critical thinking instruction to the listening activity, such as motivating students by using inquiry and analytical skills in reasoning and answering questions, using open-ended questions, improvisation and response activities. From his findings, a more detailed and in-depth listening response was demonstrated by having an activity, which applied critical thinking instruction as a base. Bundra (1993) found that during the listening activity, students were able to describe their own ideas, make and express judgments about the music and to interpret their ideas about the listening process. Similarly, Kokkidou (2013) and Elliott (1995) also concluded that critical thinking strategies should be employed in various fields of music activities, including creativity, performance, and appreciation

and listening; students can reflect their critical responses by using appropriate presentation media in different musical fields. Besides, learning and understanding music could develop students' problem-solving skills through the process of different music activities (Bamberger, 2003).

Elliott (1995) stated the importance of students' critical response to music; students should response critically to all aspects of integrated music activities, including listening, performance, and creative activities. Music activities offered students opportunities for active participations, experience, and the value of promoting critical thinking in music was translated into action and practice (Kokkidou, 2013) and not merely theoretical.

In fact, teachers should learn how to facilitate students' thinking in a more critical way (Elliott, 2011). The music teacher should be familiar with the strategies that know how music can contribute to the quality of life, integrate life's experiences, and help facilitate students' enjoyment of the process of critical thinking response (Colwell, 2011). However, many music teachers are not well prepared and are incapable of facilitating creative thinking by using explicit instruction (Colwell, 2011); this could be explained by the fact that critical thinking is not supported and

taught systematically in schools (Astleitner, 2002).

2.4 Assessment of Critical Response

Assessment of critical response is a major concern in evaluating the standards of students' critical thinking skills (Reed, 2011). From the result of assessment of critical response for students, we can:

1. Diagnose the levels of students' critical thinking;
2. Provide students with feedback about their critical thinking prowess;
3. Motivate students to be better at critical thinking;
4. Inform teachers about the success of the efforts to teach students to think critically;
5. Do research about critical thinking instructional questions and issues;
6. Provide help in deciding whether a student should enter an educational program; and
7. Provide information for holding schools accountable for the critical thinking prowess of students (Ennis, 1993, pp.180–181).

There are few common approaches for critical thinking assessment. The first approach is using standardised tests for general knowledge such as the California Critical Thinking Skills Test (Facione, 1990), the Cornell Critical Thinking Tests (Ennis & Millman, 2005), the Ennis-Weir Critical Thinking Essay Test (Ennis & Weir, 1985) and the Watson-Glaser Critical Thinking Appraisal (Watson & Glaser, 1980). All these assessments employ a multiple-choice design to assess the critical thinking aspects, including inference analysis, interpretation, evaluation, and

recognition of assumptions. Those assessments are used for testing people's critical thinking ability (Facione, 1986; Ku, 2009).

The California Critical Thinking Skills Test (Facione, 1990) was designed for college students and advanced and gifted high school students as well. The examinee needs to complete 34 multiple-choice questions in 45 minutes; each item has four or five choices. The examinee has to read a short passage and answer the questions related to the passage. Three basic critical thinking skills, namely, analysis (nine items), inference (fourteen items) and evaluation (eleven items), are examined. The following is a sample question:

Question: Jeanne weighs 120 pounds. Her brother, Frank, weighs 20 pounds more than Jeanne. Their sister, Suzanna, weighs less than Frank.

Possible answers:

- A) Suzanna weighs more than Jeanne.
- B) Suzanna weighs less than Jeanne.
- C) Frank weighs more than Jeanne and Suzanna.
- D) Jeanne weighs less than Frank and Suzanna.

Correct answer: C

There are two levels of difficulty in the Cornell Critical Thinking Tests: Level X and Level Z (Ennis & Millman, 2005). The Level X test is aimed at testing grades 4–14 students, while Level Z targets advanced or gifted high school students, college students, and adults. Level X test employs 72 multiple-choice questions, while Level Z test employs 52 multiple-choice questions for assessment. A subscale of the test includes deduction, induction, credibility, observation, assumption identification and definition. The Level X test also includes a concise written test for the student's answer to each question. The following is a sample question:

Question: Suppose you know that all cats can jump. All animals that can jump are brown. Then would this be true? All cats are brown.

1. True
2. False
3. Maybe

Answer: 1. True

The Ennis-Weir Critical Thinking Essay Test (Ennis & Weir, 1985) is an essay test that requires the examinees to complete an evaluation of arguments presented in fictitious letters in 40 minutes. This test is aimed at grade 7 through college students.

This test examines whether participants can offer a good rationale for responding

appropriately and grasping the points, reasons, and assumptions from the essay.

Another function of the Ennis-Weir Critical Thinking Essay Test is that it acts as a teaching instrument. It is an informal assessment device that requires scoring judgments by examiners who should have had at least a college-level course in informal logic, critical thinking or the equivalent.

The Watson-Glaser Critical Thinking Appraisal (Watson & Glaser, 1980) is targeted at grade 9 students to adulthood and is used as a critical thinking measurement, including recognition of assumption, deduction, interpretation, judging, and inference. The examinee has to complete 40 short questions. The following is a sample question:

Question: Should all young adults learn a trade?

Answer: No, excessive studying permanently warps an individual's character.

(This argument is not directly related to the question because learning a trade does not necessarily require excessive studying.)

Although two of those four critical thinking skills tests can generally assess the basic aspects of critical thinking skills, Kennedy et al. (1991) believed that these tests are not comprehensive and cannot assess for subject-specific knowledge, and none of

these tests are designed for grade three level students or below. For critical thinking assessment, Ennis (1993) proposed using short answer exercises; essays and performance tests are more convincing than multiple-choice questions.

Norris and Ennis (1989) proposed another approach by using open-ended essay questions to examine critical thinking skills. Teachers and instructors can design their own open-ended essay questions specific to the interviewee (Ennis, 1993; Stein, 2003). By using short essay questions, open-ended questions or improvisation exercises, students are motivated to express their own opinions. A more in-depth response from the students' view can be achieved in this approach (Johnson, 2003, 2011). A comprehensive assessment of students' effectiveness in using critical thinking skills and students' circumstance in developing dispositions using critical thinking skills appropriately can also be examined.

The third approach to assessing students' critical thinking abilities is the students' self-assessment, which we believe is the most difficult approach. In this approach, the teacher is to provide well-structured rubrics for the students. Students can follow the rubrics and assess their own work. This approach comprises an integral part of teaching critical thinking skills for students, and it requires a deep

understanding of critical thinking. However, one may argue that students sometimes ask for the teacher's feedback during the self-assessment process (Paul, 1996). In addition, Reed (2012) noted that "this method of assessment, for many obvious reasons, does not meet the requirements of rigorous educational research" (p. 37).

2.5 Current situation about Critical thinking assessment applied in Hong Kong music education

In Hong Kong, most of the schools consisted of two or three semesters in an academic year. In order to assess the level of students' learning progress and improvement, most of the schools will apply several types of assessments, such as mid-term test, mid-term exam, and final exam. As in as many countries, summative assessment becomes the main strategy for assessments; similar high-stake examinations are extremely prominent in many countries. According to Fuhrman and Elmor (2004), the high-stake assessments penetrate all aspects of social, corporate and political life. Harnisch and Mabry (1993) point out that the dominant means of evaluating public education has been standardised testing. By using written tests, the level of students' learning ability, performance and improvement were reflected according to the numbers of correct score regarding the questions. Teachers will compare candidates' answer to the standard of benchmark particular to the written test. Undoubtedly, summative assessment of an easy and the direct assessment

strategy reflect student's level of learning.

With the changing times of education mission, in the 21st-century education environment, assessment is concerned about students' progress of thinking. In focusing on students' learning process, the teacher provides comments and suggestions for students' on-going learning. Crooks (2001) describe this idea as "assessment OF learning versus assessment FOR learning". It is to improve students' abilities to think their way through content, using disciplined skill in reasoning.

Instead of a summative assessment, the 21st-century education trends and many educators proposed a multi-assessment strategy that proves to be reliable and that validates the assessment paradigm used for evaluating students' learning outcomes. Formative assessment, task-based assessment, self-assessment and peer assessment were four general assessment strategies proposed to be used for evaluating students' learning effectiveness progressively in each unit; students' records were supposed to be stored by using a portfolio. Students' participation in each learning stage, their learning progress, and their performance had to be systemically recorded (David, 1994).

Reported from the study by Marsh (2006), the formative assessment can help students to learn more effectively. These include:

- higher-order questioning techniques
- problem-solving techniques
- peer assessment
- feedback comments rather than grades
- oral feedback from teachers
- sharing of assessment criteria
- redrafting of work
- developing communication skills
- being more inclusive in teaching (Clarke, 2001, Times Educational Schools Supplement, 30 January 2004)

Shepard (2008) made distinct connections between the idea of formative assessment and the constructivist movement. It is suggested that learning is an active process, building on previous knowledge, experience, skills, and interests and that formative assessment effectively feeds into this cycle (Giebelhaus & Bowman, 2002). With the similar objectives between constructivism and formative assessment, formative assessment could provide students a significant indication as to their learning; when

properly employed in the classroom, it would help students learn what was being taught to a significantly improved extent and an in-depth meta-analysis (Black & Wiliam, 1998; Herrington & Oliver, 2000; Shepard, 2000; Yorke, 2003; Mims, 2003).

However, reported from Fok (2002), regarding the norm of applying summative assessment for the investigation of students' learning progress in Hong Kong. A comprehensive promotion and development of the formative assessment should be applied in schools. In 2003, the formative assessment was suggested as an assessment strategy for assessing and evaluates students' performance in different Key Learning Areas from the curriculum guide. By using several assessments in an academic year, such as project based activities, experiments, written tests and oral tests, teacher used to design some assessment particular to their students (Curriculum Development Committee, 2003). In order to evaluate students' critical thinking effectiveness, a continued assessment for varies areas regarding student's performance was required (Giebelhaus & Bowman, 2002). Formative assessment provides an appropriate assessing objective for the evaluation.

By creating a critical thinking learning environment and applied with the formative assessment for students' learning progress. Students were able to connect knowledge

from different areas and understand a topic from different perspectives, students could adopt more holistic attitude towards their learning and strengthen the skills of critical thinking response (Cheung & Jhaveri, 2014).

2.6 Current situation about Critical Thinking cultivation

Critical thinking acts as an important learning process in human thinking development. Thinking and responding critically will benefit students' learning effectiveness. In fact, it also benefits the whole society as well (Facione, 1990). According to Kokkidou (2013), "Many researchers and theorists of education stated the importance of the development of students' critical thinking as part of their preparation as conscientious and responsible citizens" (p. 3). The development of critical thinking skills is a life-long endeavour (Glaser, 1941; Scriven & Paul, 1987; Elder, 2007). Developing good critical thinking skills by the different strategies and approaches is an important goal in education. Many educators and scholars provide different theories and teaching strategies in order to strengthen teachers' ability to teach critical thinking. From different education contexts and research studies, critical thinking skills have been addressed as the fundamental learning and teaching approach that students need to have to be educated. Unfortunately, cultivating critical thinking efficiently for students seems not an easy task regardless of the country.

Many teachers cannot apply explicit instructions for critical thinking skills in classroom teaching (Astleitner, 2002; Zinn & Macedo, 2005).

In Hong Kong, education reform appeared in the early 2000s when the music education curriculum in Hong Kong entered a reform era. A new paradigm of experience-based learning in music was introduced. Cultivating critical response has been identified as a learning target in the music curriculum. The *Music Curriculum Guide* provides a teaching guideline for schools in music teaching. Based on the guidelines, learning objectives for Key Stages 1–3 are well designed and suggested for teachers in order to achieve the four Learning Targets.

In the 21st-century education environment, new teaching and learning strategies can help students learn effectively. Providing opportunities for students to think and respond critically is one of the essential education reforms nowadays. By adopting different approaches and theories about critical thinking skills and related concepts mentioned previously in this chapter into Hong Kong primary school music education, students' critical response ability must be tangibly improved.

In the following two chapters, a brief analysis of “the cultivation of critical thinking

response in Hong Kong primary school music education” will be discussed from different angles. An analysis for the effectiveness of critical thinking skills in different music learning areas and also for the personal growth of the students will be illustrated.

CHAPTER 3

SURVEY

This chapter explores the current situation of cultivating students' critical thinking responses and good practices of teaching in Hong Kong primary schools by reporting the results of a questionnaire survey. A questionnaire comprising of 42 multiple-choice questions that include not only statements with semantic differential scales, ranking and grids, but also three open-ended questions were designed for the survey. All questions were based on the existing literature, including the theory of critical thinking by Facione (1990) and theories of other scholars including Bloom (1956), Ennis (1985), Bundara (1993), Paul and Elder (2008), and Dennis (2011). Furthermore, the elements of learning targets and learning objectives from the Hong Kong music curriculum guide were used as a reference. A number of elements or variables were identified as the categories. The objective, design, and methodology of the conducted survey will be briefly presented in this chapter. The results of this survey will be summarized and discussed at the end of the chapter.

3.1 Objectives of the survey

The questionnaire survey aims to investigate the current situation of cultivating students' critical thinking responses in Hong Kong primary schools as well as the

circumstance of teaching that consists of critical thinking skills throughout the music lessons and according to the school's music curriculum.

To that end, all the questions in the survey were related to the current situation of cultivating students' critical thinking responses in Hong Kong primary schools and probed for: 1) the use of teaching strategies during lesson; 2) teacher's beliefs about cultivating critical thinking skills; 3) teacher's ability to cultivate critical thinking skills; 4) the understanding of the critical thinking skills; 5) the learning attitude of students under the critical thinking teaching and learning environment.

Questions about current practices of teaching by using critical thinking skills probed issues including: 1) applying critical thinking skills and elements during the music lessons; 2) approaches of nurturing students' learning through critical thinking skills; 3) reflections of teaching and learning by using critical thinking skills. The three open-ended questions aimed to obtain qualitative data about the implementation of critical thinking skills as well as their significance and difficulties.

3.2 Sampling

The population of Phase I included all the Hong Kong primary school music teachers. According to the statistics from the Education Bureau, there were 571 primary schools in Hong Kong in the academic year of 2015–2016³. One questionnaire was disseminated to each primary schools inviting one music panel or teacher to respond. There were 215 returned questionnaires from both online survey and hard copies. Since the survey was implemented anonymously, the identity and the affiliation of respondents were unknown. If all of them came from different schools, a response rate of 38% can be assumed.

In Phase II, 12 teachers and 164 students from 10 schools were invited to participate in semi-structured interviews. In each school, 12-16 students from grades 3 to 6 were invited to participate in a focus group interview, in which students were divided into two to three groups according to their learning grade.

³ Please refer to the website of the Education Bureau of Hong Kong:
<http://www.edb.gov.hk/tc/about-edb/publications-stat/figures/pri.html>

3.3 Versions of the Questionnaire

The researcher prepared the questionnaire in both Chinese and English (see Appendixes A, B) and then established an online version – with the option of a hard copy, PDF version (see Appendix C) – for music teachers to respond. An electronic invitation letter (see Appendix D) was attached to an e-mail and sent to all primary schools inviting all music teachers to respond to the questionnaire.

3.4 Questionnaire Design

Based on the theories of critical thinking by different scholars and on the elements of the learning targets and learning objectives postulated in the Hong Kong music curriculum guide, all the questions were divided into eight parts as follows:

Part I consisted of the demographic information (questions 1 – 4), including gender, age group, teaching experiences and music teaching related qualification.

Part II explored the teaching strategies applied during music lessons (questions 5-6); teachers were required to rank the frequency of use of the teaching strategies and the

format of worksheets and tests. The findings of these two questions reflected the situation of nurturing students by learning using critical thinking skills.

Part III, the understanding of critical thinking skills (question 7), represented a direct reflection of teachers' understanding of the elements of critical thinking skills. There were seven correct critical thinking skill elements out of twelve choices, namely, concept-based learning, interactive and negotiation learning, open-ended answer, comprehension, application, assessment on process, analysis. The remaining five choices, namely, multiple choice or fixed answer, skill-based learning, directive information delivery, repetition-based learning, and test and exam, were identified as uncritical thinking skill elements by Faction (1990).

Part IV is analysing the current situation of students' critical thinking responses (questions 8 – 33) by investigating seven elements of the critical thinking procedure and six elements of critical thinking learning attitude.

Part V examines the teachers' beliefs in nurturing critical thinking (questions 34, 36 and 39) by requiring teachers to provide their beliefs and perception regarding critical thinking skills in their current teaching school. The degree of importance of

critical thinking skills for each teacher's belief was reflected.

Part VI pertains to the teachers' ability to apply critical thinking skills (questions 35, 37 and 38). Teachers were asked to reflect on their ability in teaching and assessing students' critical responses and to evaluate their level of teaching experience.

Part VII was examining other related situations affecting the implementation of critical thinking skills (questions 40 – 42), in which teachers were required to express their opinions regarding the situations that might affect the development of critical thinking skills in their schools.

Part VIII, open-ended questions (questions 43-45), aimed to obtain detailed information about the implementation of critical thinking skills, significance and difficulties that further supplement the findings from other parts.

3.4.1 Forms of questions

Questions 1 to 4 were dichotomous questions that enabled nominal data to be gathered. Question 5 and 6 were designed to be answered by ranking up the provided choices according to teachers' practices. There were four choices in each question

with a total of 24 combinations; each combination represented teachers' relative degree of preference and priority of their teaching strategies and was assigned a score for analysis.

Question 7 was designed to be answered by choosing seven correct critical thinking skill elements out of twelve multiple choices.

Questions 8-42 were designed to be answered by using Likert scales. The respondent had to choose the appropriate answer from a scale of 1 (strongly disagree) to 5 (strongly agree) to represent their level of agreement to the question.

Questions 43-45 were designed as open-ended questions; respondent can express their view in their own wording as well as explain and express their responses without the limitations of the pre-set choices.

Most of the questions were presented in a positive way, but several questions were designed in a negative way. Black (1999) suggested balancing the number of negative questions with the number of positive ones. This approach of alternating item wording provides more reliability to the findings by minimizing response bias

which disrupts a response set where subjects answer in the same way to all items (Marsh, Barnes, Cairnes & Tidman, 1984).

3.4.2 Language use in questionnaire

Originally, the questionnaire was designed in English. In addition, a Chinese version was prepared for teachers as well. The Chinese version was proofread by a Chinese editor and two experienced current primary school music teachers. For the international schools, only the English version was sent out to respondents.

3.4.3 Framing of questions

During the designing of the questionnaire, in order to provide respondents a simple, clear question and make them comfortable in answering questions, some prudent considerations for each question of the wording and presentation were checked before dissemination to the public. The leading questions, complex questions, biasing questions, and ambiguous questions which create for respondents an uncomfortable feeling during answering (Cohen, 2011) were not applied in this study. In the current questionnaire, after a thorough consideration and proofreading of each question, all questions were presented in simple wording, keeping a neutral standpoint, providing respondents precise choices to represent their decision for each question, and

avoiding confusing contradictory questions.

3.4.4 Sequencing of questions

To some extent, the ordering of questions in a questionnaire is very important and may affect the respondents' answer to the entire questionnaire. As to ensuring that the respondents will continue to cooperate and complete the whole questionnaire, initial questions should, therefore, be simple, interesting and designed to encourage participation. Respondents will build up confidence and motivation to answer the questions that follow; the middle section of the questionnaire should contain the difficult questions; the last section can be some questions that can provide room for respondents to express their ideas or opinions to the research questions.

Krosnick and Alwin (1987) suggested a common sequence of the questions as follows, and their sequence was applied for the current questionnaire:

1. To commence with factual questions such as nominal data, namely, age group, gender, occupation, qualification.
2. To use closed-ended questions, including multiple choices, rating scales; these usually elicit responses that require opinions, attitudes, perceptions or views.
3. To use open-ended questions, questions aimed at seeking responses on opinions,

attitudes, perceptions and views that cannot be reflected in the pre-set choices.

3.4.5 The Layout of the questionnaire

The appearance of the questionnaire is also important. An attractive layout encourages the respondent to answer the entire questionnaire, a simple and clear layout with an easy answering method is always encouraging to respondents. Form-filling questions reduce the respondents' interest in responding to the questionnaire, and respondents expect to use a mark such as "put a tick" instead of writing words. Group the related questions into different sections with a short description of purposes or focuses (Dillman, 1999).

The current questionnaire consisted of two different versions, the online electronic version and a postage hardcopy version. Using the pre-set layout design tools from the online survey platform, the online questionnaire contained four pages. For the hardcopy version, a short version with two pages (the amended final version after the pilot test) was re-arranged by the researcher.

3.5 Collection of Data

The questionnaire was sent to all primary schools using an online survey platform, namely, Do Survey, which is a free online platform for university students from Taiwan.

3.5.1 Dissemination of the questionnaires

A QR-coding and online survey link were generated by the Do Survey system. The questionnaire was sent out to all selected recipients by inputting their e-mail addresses into the system, and the online survey link was attached to the e-mail. The questionnaire could also be sent through social networking sites such as Facebook, WeChat, and Twitter by posting the online survey link.

3.5.2 Compiling data and analysis

The raw data was compiled and converted into Excel format by clicking the provided function from the Do Survey system. Before analysis, checking for completeness, accuracy, and uniformity of collected data was indispensable. All collected data was analysed by using the SPSS (version 21). Descriptive statistics were used for presenting the summary of the frequencies, means and standard deviations of data,

and the correlation between parts were analysed by independent sample T test, one-way analysis of variance (ANOVA) for presenting the inferences, and predictions of the results.

3.6 Pilot Test

3.6.1 Validity and reliability of the questionnaire

Before sending out the questionnaire to schools, my supervisor and two experienced teachers applied a verification of the reliability and validity of the questionnaire suggested by Haynes et al (1995) by reviewing the content of the questions.

My principal supervisor, Professor Leung Bo Wah helped doing a critical review of the questionnaire by providing comments and suggestions for question design. In addition, two experienced current primary school music teachers were invited to comment and make suggestions on the wording and presentation of questions for the Chinese version.

3.6.2 Pilot test

After the first draft of the questionnaire (see Appendix E) was completed, 29 experienced primary school teachers (around 10-13% of the final study size) were

invited to join a pilot test aimed to assess the adequacy of instrumentation, to evaluate the feasibility, validity, effectiveness of the intervention materials, to calculate the statistical estimates for the study and to obtain preliminary data (Lackey & Wingate, 1998)

All pilot test participants could choose to respond to either an online questionnaire or a hardcopy. In addition to the validity of checking with the questionnaire, participants were asked to give comments about the structure, presentation, wording and their understanding of questions as well.

Some modifications have been made based on the comments from the participants of the pilot test.

- 1) Wording – some wording was changed in order to provide a clearer and accurate meaning of the questions.
- 2) Sequence of questions – a re-ordering of few questions according to their importance and purpose, such as the questions “the understanding of critical thinking elements,” it has been re-ordered to a former ranking from the final version.
- 3) Numbers of questions – in order to balance the number of questions for different

sections, three more questions were added to the final version for the “procedure of the critical thinking skills and learning attitude of the critical thinking skills.”

The total numbers of questions changed from 43 to 45.

- 4) Bilingual version – a bilingual version (in Chinese and English) was applied in the pilot test. For the final version, the questionnaire was separated into Chinese version or English version, and the Chinese version was selected to be the particular version both for the online and postage questionnaire.

3.6.3 Reliability test

A reliability test of all 28 valid sets of data was compiled by using SPSS software before the final version of the questionnaire was sent out. The internal reliability was analysed by calculating the Cronbach’s Alpha. The Cronbach’s Alpha of this pilot test was 0.755, which was considered to be of high reliability. Following this test, the final version of the questionnaire was uploaded to the online platform and sent to the targeted respondents.

3.7 Results

3.7.1 Demographic information

Demographic information included gender, age group, music related qualification of

teachers, and teaching experiences. As shown in Table 3.1, out of 215 valid completed questionnaires, 51 (23.7%) were males and 164 (76.3%) were females, which represented a male to female ratio of 1:3.

As shown in Table 3.1, 93 (43.3%) music teachers belonged to the age group “30 – 39,” while 64 (29.8%) music teachers belonged to age group “40 or above”; these were the two largest respondent groups, totalling 73% of the total numbers of respondents. On the other hand, only 15 (7%) of the respondents belonged to the age group of “25 or under” and 43 (20%) music teachers belonged to age group “25 – 29.”

Table 3.1. Age Group

Age Group	Frequency	Valid Percent
<25yrs old	15	7.0
25-29 yrs. old	43	20.0
30-39 yrs. old	93	43.3
40 or above yrs. old	64	29.8
Total	215	100.0

As shown in Table 3.2, 102 (47%) of the respondents had more than ten years of music teaching related experience, while 76 (35.3%) of the respondents had four to ten years of experience and only 37 (17.2%) had 0-3 years music teaching related experience, which indicates that most of the respondents were experienced in music teaching having at least four years' music related teaching experience.

Table 3.2. No. of Years of Teaching

Teaching Years	Frequency	Valid Percent
0-3 yrs.	37	17.2
4-10 yrs.	76	35.3
>10 yrs.	102	47.4
Total	215	100.0

Table 3.3, shows the respondents' highest qualifications in music related subjects. While 77 (35.8%) of the respondents held the teaching certificate, 65 (30.2%) had a bachelor's degree and 34 (15.8%) held a master's degree; only 39 (18.1%) of the respondents had some other music-related qualification, implying that 46% of the respondents held a degree while 54% had some other qualifications related to music subject.

Table 3.3. Highest qualification that is music teaching-related

Highest qualification	Frequency	Valid Percent
Teaching Certificate	77	35.8
Bachelor's Degree	65	30.2
Master's Degree	34	15.8
Others	39	18.1
Total	215	100.0

3.7.2 Teaching strategies applied during music lessons

For questions 5 and 6, respondents were required to rank the priority of their teaching strategies according to the frequency of teaching of their practice. Question 5 concerned the “teaching strategies of critical thinking” and Question 6 concerned the “answering formats used in critical thinking.” There were four choices from 1 to 4 where 1 represents the most frequently used and 4 represents the least frequently used. From the result obtained by calculating the mean score for each ranking in Questions 5 and 6, an indication regarding the strategies of teachers’ practice was clearly identified.

For Question 5, the means for each choice were:

Table 3.4. The mean score for teaching strategies of critical thinking

Choice	Teaching strategies of critical thinking	Mean score
1	Verbal information delivered from teachers directly	1.76
2	Questioning from teachers	2.11
3	Teachers encourage students to ask when learning	2.82
4	Information search by students before lesson and sharing during lesson	3.31

For Question 6, the means for each choice were:

Table 3.5. The mean score for the answering formats used in critical thinking

Choice	Answering formats used in critical thinking	Mean score
1	Multiple choice	1.79
2	Fill in the blanks with provided words	2.31
3	Fill in the blanks without provided words	2.59
4	Open ended questions	3.32

As shown in Tables 3.4 and 3.5, the results showed the same tendencies regarding respondents' practice of the teaching strategies of critical thinking. The tendency in both questions indicated that most of the respondents applied non-ideal critical thinking teaching strategies in class and applied a non-ideal critical thinking-answering format in class also. The results presented a circumstance in

which most of the teachers applied a non-ideal critical thinking teaching strategy during the music lesson.

3.7.3 Teachers' understanding of critical thinking skills

Critical thinking skills, according to the literature (Paul & Elder, 2008; Richard, 1985), may include seven elements, namely, gathering information, conceptualising, organising, analysing, applying, synthesising and evaluation. This area required the respondents to select seven elements they thought belonged to the critical skills. A total of 12 elements were listed for their choices. Table 3.6 shows the teachers' understanding of critical thinking skills; the result reflects that more than 50% of the respondents could identify the seven correct critical thinking elements. The Table 3.7 shows that more than 50% of the respondents could identify five or more correct critical thinking elements. It indicates that most of the teachers understand the basic elements of the critical thinking skills.

Table 3.6. The elements of critical thinking based on teachers' understanding

	The elements of critical thinking	Frequency	Valid Percentage
1	Skill-based learning	40	18.6%
2	Concept-based learning*	108	50.2%
3	Directive information delivery	30	13.9%
4	Interactive and negotiation learning*	171	79.5%
5	Repetition-based learning	32	14.8%
6	Comprehension*	141	65.5%
7	Application*	166	77.2%
8	Test and exam	9	4.1%
9	Assessment on process*	131	60.9%
10	Multiple choice or fixed answer	14	6.5%
11	Open-ended answer*	142	66%
12	Analysis dominate*	163	75.8%

Number of respondents: N= 215

* Basic elements of the critical thinking skills based on literature

Table 3.7. Number of correct of critical thinking understanding elements

Correct nos. of critical thinking elements	Frequency	Valid Percentage
1	3	1.4%
2	7	3.3%
3	20	9.3%
4	41	19.1%
5	36	16.7%
6	43	20.0%
7	65	30.2%
Total	215	100.0

3.7.4 Current situation of critical thinking responses

The current situation of critical thinking responses was collected from questions 8 to 33, with the categories of critical thinking procedure and critical thinking learning attitude reported by their teachers. Questions 14 - 27 solicited the former aspect of the critical thinking learning attitude and questions 18 to 23 and questions 28 - 33 sought out the latter aspect of the critical thinking procedure.

The mean score indicated the students' performance under a learning strategy using the critical thinking procedure and displaying critical thinking learning attitudes. From the results, the mean score of 1 or 2 indicates a weak to average performance, while 3 or above indicates a good to high performance in applying the critical thinking skills' learning procedure and displaying a learning attitude of critical

thinking skills. Respondents were asked to answer the questions by using Likert scales; they had to choose the appropriate answer on a scale from 5 to 1 (5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree) to represent their level of agreement to the question.

From Table 3.8, the results of the critical thinking procedure and critical thinking learning attitude recorded a mean score of higher than 3 (3.43 and 3.21) which reflects the fact that students in Hong Kong tended to have a good performance under the critical thinking skills of learning and there is a positive relationship between two parameters.

Table 3.8. The current situation of critical thinking responses from students

	N	Minimum	Maximum	Mean	Sd. Deviation
Learning Attitude of Critical Thinking	215	2.08	4.42	3.43	.48
Procedures of Critical Thinking	215	1.64	4.57	3.21	.49

3.7.5 Teachers' belief in nurturing critical thinking and teachers' ability to apply critical thinking skills

Questions 34, 36 and 39 contributed to teachers' belief in nurturing critical thinking, while questions 35, 37 and 38 contributed to teachers' ability to apply critical

thinking skills. The mean score reflects the teachers' beliefs about the implementation of critical thinking skills in music lessons and teachers' ability to apply critical thinking skills during lesson.

As shown in Table 3.9, the teachers' beliefs and the teachers' ability in critical thinking skills also recorded a mean score higher than 3.0 (3.85 and 3.36). This reflects that most of the music teachers in Hong Kong agree that nurturing students using critical thinking skills is an important teaching aim. Most of the music teachers also believe that they are capable of applying the critical thinking skills in their teaching and assessing student's critical responses. The correlation between these two parameters will be discussed in the next session.

Table 3.9. The results of teachers' belief and teachers' ability in critical thinking skills

	N	Minimum	Maximum	Mean	Sd. Deviation
Teachers' beliefs	215	2.00	5.00	3.85	.60
Teachers' ability	215	1.67	5.00	3.36	.61

3.7.6 Results of Part VII, other related situations affecting the implementation of critical thinking skills (questions 40 – 42)

The respondents were required to answer three different questions about the situation in Hong Kong primary schools. Each question reflects their opinions regarding the elements that might affect the development of critical thinking skills in their schools.

Table 3.10 shows that the mean score of Question 40 is 3.44, which is above the average score and indicates that most of the music teachers do not have enough time to apply critical thinking skills in their music lesson.

The mean score of Question 41 is 2.67, which means that most of the teachers think the music curriculum guide does not provide sufficient information, teaching materials or guidelines about critical thinking teaching for the music teachers. A more in-depth analysis on the matter will be discussed in the next chapter after exploring the results of the semi-structured interviews with twelve current primary school teachers.

The mean score of Question 42 is 3.47, revealing that most of the Hong Kong primary schools support applying critical thinking skills in music teaching.

Table 3.10. The result of the situation of implementation of critical thinking skills in Hong Kong primary schools (N=215)

	Mean	Sd. Deviation
Question 40	3.44	1.04
My music lessons do not provide enough time for the teacher to apply critical thinking skills.		
Question 41	2.67	.86
The music curriculum guide provides sufficient information, teaching materials and guidelines about critical thinking teaching.		
Question 42	3.47	.91
My school supports applying critical thinking skills in music teaching.		

3.7.7 Results of comparing the means between parts

ANOVA and T-test were applied in this section in order to examine whether any significant differences existed between each demographic element and the five main studied parameters, namely, the teaching beliefs, the teaching ability, the understanding of critical thinking skill elements, the learning attitude of critical thinking skills and the procedure of critical thinking skills in this research.

3.7.7.1 Gender and the five main studied parameters

Table 3.11 Summarises the results of gender and each parameter and shows the

significant results for each category. The results can be summarised as follows: the only significant difference found was regarding teaching beliefs ($p < .019$) and critical thinking understanding elements ($p < .003$); other three parameters were not significant. It showed that compared to female teachers, male teachers recorded a significantly higher score on teaching beliefs and understanding about the critical thinking skill elements.

Table 3.11. ANOVA result for gender and five main studied parameters

	Gender	N	Mean	SD	p-value
Teaching Belief	Male	51	4.0327	.59723	.019
	Female	164	3.8049	.60209	
Teaching Ability	Male	51	3.4379	.73179	.357 (NS)
	Female	164	3.3476	.56885	
Critical Thinking Understanding Elements	Male	51	5.843	1.4611	.003
	Female	164	5.098	1.5477	
Learning Attitude of Critical Thinking	Male	51	3.5507	.52204	.060 (NS)
	Female	164	3.4050	.46758	
Procedures of Critical Thinking	Male	51	3.2199	.44051	.871 (NS)
	Female	164	3.2069	.51669	

NS = not significant

3.7.7.2 Age group and the five main studied parameters

Table 3.12 shows a significant difference between the age groups and teaching beliefs ($p<.008$), the understanding of critical thinking skill elements ($p<.009$), the learning attitude of critical thinking ($p<.017$) and the procedures of critical thinking ($p<.008$).

Teachers in the age group of 40 or above achieved the highest mean score both in the “understanding of critical thinking skill elements,” “learning attitude of critical thinking” and “procedures of critical thinking,” and had the second highest mean score in the “teacher belief” parameters.

The teachers belonging to the age group under 25 achieved the highest mean score at the parameter “teaching beliefs” but achieved the lowest mean score at both the parameters “learning attitude of critical thinking” and “procedure of critical thinking.”

Table 3.12. ANOVA results for age group and the five main studied parameters

	Age group	n	Mean	SD	p value
Teaching Belief	<25yrs old	15	4.1556	.56155	.008
	25-29 yrs old	43	3.8837	.55341	
	30-39 yrs old	93	3.7133	.61501	
	40 or above yrs old	64	3.9844	.59814	
Teaching Ability	<25yrs old	15	3.4444	.80343	.155 (NS)
	25-29 yrs old	43	3.2403	.62710	
	30-39 yrs old	93	3.3297	.55928	
	40 or above yrs old	64	3.4948	.61145	
Critical Thinking Understanding Elements	<25yrs old	15	5.600	1.4041	.009
	25-29 yrs old	43	5.116	1.2575	
	30-39 yrs old	93	4.957	1.5942	
	40 or above yrs old	64	5.766	1.6109	
Learning Attitude of Critical Thinking	<25yrs old	15	3.2889	.51838	.017
	25-29 yrs old	43	3.3837	.44771	
	30-39 yrs old	93	3.3817	.50381	
	40 or above yrs old	64	3.5964	.44001	
Procedures of Critical Thinking	<25yrs old	15	2.9333	.56143	.008
	25-29 yrs old	43	3.1944	.43485	
	30-39 yrs old	93	3.1575	.50481	
	40 or above yrs old	64	3.3616	.48040	

3.7.7.3 Teachers' experience and all five main studied parameters

Table 3.13 shows that the teachers' experience was only significantly different when compared to the procedure of critical thinking skills ($p < .013$), but there was no significant difference from the other four parameters.

Although it was not significantly different in most parameters, as shown in the results, teachers with a teaching experience of 0 to 3 years achieved the highest mean score of teaching belief and understanding of critical thinking skill elements. They also achieved the lowest mean score at teaching ability, learning attitude of critical thinking skills, and procedure of critical thinking skills. The result reflected an extreme contrast of consistency for teachers with 0-3 years teaching experience.

Teachers with more than 10 years teaching experience achieved the highest mean score both in teaching ability, learning attitude of critical thinking skills and procedure of critical thinking skills. It reflected that teachers with more than 10 years teaching experience were mature in nurturing students by using critical thinking skills.

Table 3.13. ANOVA results for teachers' experience and the five main studied parameters

	Teachers' experience	n	Mean	SD	p value
Teaching Belief	0-3 yrs	37	3.9459	.60611	.618(NS)
	4-10 yrs	76	3.8289	.61462	
	>10 yrs	102	3.8497	.60549	
Teaching Ability	0-3 yrs	37	3.1802	.74781	.065(NS)
	4-10 yrs	76	3.3509	.60343	
	>10 yrs	102	3.4510	.54832	
Critical Thinking Understanding Elements	0-3 yrs	37	5.378	1.2770	.847(NS)
	4-10 yrs	76	5.303	1.4968	
	>10 yrs	102	5.216	1.6981	
Learning Attitude of Critical Thinking	0-3 yrs	37	3.3356	.49980	.071(NS)
	4-10 yrs	76	3.3860	.50896	
	>10 yrs	102	3.5172	.44981	
Procedures of Critical Thinking	0-3 yrs	37	3.0598	.59250	.013
	4-10 yrs	76	3.1485	.51939	
	>10 yrs	102	3.3102	.42460	

3.7.7.4 Teachers' qualifications and all five main studied parameters

Table 3.14 shows a significant difference between teachers' qualifications and all five main studied parameters – teaching beliefs ($p < .004$), teaching ability ($p < .008$), understanding of critical thinking skill elements ($p < .02$), learning attitude of critical thinking skills ($p < .003$) and procedure of critical thinking skills ($p < .000$).

From the result, teachers with a master's degree in education had the highest mean score in "teaching beliefs," "teaching ability," "learning attitude of critical thinking skills" and "procedure of critical thinking skills" and registered the second highest mean score in "understanding of critical thinking skill elements."

Table 3.14. ANOVA result for teachers' qualification and the five main studied parameters

	Qualification	n	Mean	SD	p-value
Teaching Belief	Teaching certificate	77	3.7359	.56800	.004
	Bachelor of Education	65	3.7949	.63654	
	Master of Education	34	4.1667	.50084	
	Others	39	3.9402	.63463	
Teaching Ability	Teaching certificate	77	3.2727	.53456	.008
	Bachelor of Education	65	3.3179	.60791	
	Master of Education	34	3.6863	.59708	
	Others	39	3.3675	.69583	
Critical Thinking Understanding Elements	Teaching certificate	77	5.208	1.7346	.020
	Bachelor of Education	65	4.892	1.4156	
	Master of Education	34	5.529	1.4613	
	Others	39	5.821	1.3352	
Learning Attitude of Critical Thinking	Teaching certificate	77	3.3994	.40019	.003

	Bachelor of Education	65	3.3923	.52720	
	Master of Education	34	3.7206	.29221	
	Others	39	3.3526	.60832	
Procedures of Critical Thinking	Teaching certificate	77	3.1707	.40789	.000
	Bachelor of Education	65	3.1626	.55537	
	Master of Education	34	3.5672	.26723	
	Others	39	3.0549	.58362	

3.7.8 Results of correlations

A Spearman's rank correlation coefficient nonparametric correlations test was applied in this section in order to examine whether any correlations existed between:

1. Each demographic information (gender, age, years of teaching, music education qualification) and the five main studied parameters (teaching belief, teaching ability, understanding of critical thinking skill elements, learning attitude of critical thinking skills and procedure of critical thinking skills in this research).
2. The current situations of the music teaching environment (questions 40 – 42) and the teaching beliefs.
3. The five main studied parameters: teaching beliefs, teaching ability, the understanding of critical thinking skill elements, learning attitude of critical thinking skills and procedure of critical thinking skills.

4. Teachers' understanding of the elements of critical thinking (question 7) and the teaching strategies (questions 5 and 6)

3.7.8.1 The relationship between demographic information and the five main studied parameters

Table 3.15 shows significant p values between age and the understanding of critical thinking skill elements ($p < .015$, $r = .165$), learning attitude of critical thinking ($p < .006$, $r = .187$), and procedures of critical thinking ($p < .004$, $r = .195$), while there were no correlations with teaching belief ($p > .995$) and teaching ability ($p > .122$).

Table 3.15. Correlations table for age group and the five main studied parameters

	p-value	Correlation Coefficient (r)
Teaching Belief	.995 (NS)	.000
Teaching Ability	.122 (NS)	.106
Critical Thinking Understanding Elements	.015	.165*
Learning Attitude of Critical Thinking	.006	.187**
Procedures of Critical Thinking	.004	.195**

*, Correlation is significant at the .05 level (2-tailed).

**, Correlation is significant at the .01 level (2-tailed).

NS = not significant

Table 3.16 shows a significant p-value between teaching experience and teaching ability ($p < 0.019$, $r = 0.160$), learning attitude of critical thinking ($p < 0.025$, $r = 0.153$)

and procedures of critical thinking ($p < 0.001$, $r = 0.218$), but there were no correlations with teaching belief ($p > 0.701$) and understanding of critical thinking skill elements ($p > 0.910$).

Table 3.16. Correlations table of teacher experience and the five main studied parameters

Teachers' qualification:

	p-value	Correlation Coefficient (r)
Teaching Belief	.701 (NS)	-.026
Teaching Ability	.019	.160
Critical Thinking Understanding Elements	.910 (NS)	-.008
Learning Attitude of Critical Thinking	.025	.153
Procedures of Critical Thinking	.001	.218

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

NS = not significant

Table 3.17 shows that there was a correlation only between the teaching qualification and the teaching belief ($p < 0.006$, $r = 0.186$), while the other parameters were not correlated.

Table 3.17 Correlation table of teachers' qualification and the five main studied parameters

	p-value	Correlation Coefficient (r)
Teaching Belief	.006	.186**
Teaching Ability	.050 (NS)	.134
Critical Thinking Understanding Elements	.099 (NS)	.113
Learning Attitude of Critical Thinking	.137 (NS)	.102
Procedures of Critical Thinking	.528 (NS)	.043
*. Correlation is significant at the 0.05 level (2-tailed).		
**. Correlation is significant at the 0.01 level (2-tailed).		
NS = not significant		

3.7.8.2 Correlation between current situations of the music teaching environment (questions 40 – 42) and the teaching beliefs

1. The correlation between question 40 “My music lessons do not have enough time for me to apply critical thinking skills” and teaching belief had a significant level ($p < .002$, $r = -.211$). Since this statement was designed in a negative way, the result had an inverse proportional presentation. The result shows that music lessons did not provide enough time for teachers to cultivate the implementation of critical thinking skills. Under this teaching condition, teachers' belief in nurturing students' by using critical thinking skills was affected.

2. The correlation between question 41 “The music curriculum guide provides sufficient information, teaching materials and guidelines about critical thinking teaching” and teaching belief recorded a significant level ($p > .220$, $r = -.84$). The result shows that there is no significant correlation between “teacher’s belief” and the provision of music curriculum information, teaching materials, and guidelines for critical thinking teaching. From the results, teachers’ belief in nurturing students by using critical thinking skills were not related or affected by the music curriculum guide.

3. The correlation between question 42 “My school supports applying critical thinking skills in music teaching” and teaching beliefs was at a significant level with $p < .000$ ($r = .330$). The result shows that teachers agree that their schools support the application of critical thinking skills in the school-based curriculum. The correlation between Q42 and the teaching beliefs was positive with ($p < 0.000$, $r = 0.330$), which indicates that each school’s support increases the teacher’s beliefs in nurturing students by using critical thinking skills.

Table 3.18. Correlation between current situations of the music teaching environment (questions 40 – 42) and the teaching beliefs

	p-value	Correlation Coefficient (r)
Q40 “My music lessons do not have enough time for me to apply critical thinking skills	.002	-.211 **
Q41 “Music Curriculum guide provides sufficient guidelines	.220 (NS)	-.84 **
Q42 “My school supports applying critical thinking skills in music teaching.”	.000	.330 **
*. Correlation is significant at the 0.05 level (2-tailed).		
**. Correlation is significant at the 0.01 level (2-tailed).		
NS = not significant		

3.7.8.3 Interdependent relationship between the five parameters

The interdependent relationship between the five parameters included the teaching beliefs, the teaching ability, the understanding of critical thinking skill elements, the learning attitude of critical thinking skills and the procedure of critical thinking skills.

According to the results (see table 3.19), there were no significant correlations between “the understanding of critical thinking skill elements” and “the teaching ability” or “the learning attitude of critical thinking skills,” but all of the other parameters recorded a high significance level ($p < .000$) between each other, proving

their interdependency.

Table 3.19. Interdependent correlations table of the five main studied parameters

		Teaching Belief	Teaching Ability	Critical Thinking Understanding Elements	Learning Attitude of Critical Thinking	Procedures of Critical Thinking
Teaching Belief	Correlation Coefficient Sig. (2-tailed)					
Teaching Ability	Correlation Coefficient Sig. (2-tailed)	.415**				
Critical Thinking Understanding Elements	Correlation Coefficient Sig. (2-tailed)	.211**	.096			
Learning Attitude of Critical Thinking	Correlation Coefficient Sig. (2-tailed)	.245	.315**	.116		
Procedures of Critical Thinking	Correlation Coefficient Sig. (2-tailed)	.290	.377**	.163	.681	
		.000	.000	.017	.000	
*. Correlation is significant at the 0.05 level (2-tailed).						
**. Correlation is significant at the 0.01 level (2-tailed).						
NS = not significant						

3.7.8.4 Relationship between the teachers' understanding of the critical thinking skill elements and the teaching strategies

In this session, I compared the data from “the teachers’ understanding of critical thinking skill elements” (question 7) and “the teaching strategies applied during music lessons” (questions 5-6) to examine the extent of the correlation between these two areas.

In order to execute the correlation comparison test by using a quantitative method, the results of questions 5 and 6 were converted into a set of numeric data. A score for each combination was assigned for those questions on a scale of 1 to 24, where 1 represented the non-ideal teaching strategies of critical thinking and 24 represented the ideal teaching strategies of critical thinking.

From table 3.20, the results showed that there was a significant correlation between “the teachers’ understanding of critical thinking skill elements” and “teaching strategies Q5” ($p < .030$, $r = .148$), but there was no correlation with “the format of worksheet and test Q6” ($p > .591$, $r = .037$). The results also showed that there was a significant correlation between “teaching strategies Q5 and Q6” ($p < .002$, $r = .208$).

Table 3.20 Correlations table of “the teachers’ understanding of critical thinking skill elements” and Questions 5 & 6

		The teachers’ understanding of critical thinking skill elements	Teaching strategies Q5	Teaching format Q6
The teachers’ understanding of critical thinking skill elements	Correlation		.148*	.037
	Coefficient			
	Sig. (2-tailed)		.030	.591
Teaching strategies Q5	Correlation	.148*		.208
	Coefficient			
	Sig. (2-tailed)	.030		.002
Teaching format Q6	Correlation	.037	.208	
	Coefficient			
	Sig. (2-tailed)	.591	.002	
*. Correlation is significant at the 0.05 level (2-tailed).				
**. Correlation is significant at the 0.01 level (2-tailed).				
NS = not significant				

3.7.9 Results of open-ended questions

Three open-ended questions (Questions 43 – 45) were designed to obtain more opinions about the implementation of critical thinking skills in schools and to enable respondents to explain and express their responses without limitations of the pre-set choices. Based on the elements of “the procedure of thinking” and “learning attitude of critical thinking,” all the answers to questions 43 and 44 were summarized and classified into different categories according to related elements.

3.7.9.1 Results of question no. 43

Question 43 “What kind of critical thinking strategies have you applied in music teaching? In what kinds of activities (performing/creating/listening)? Please explain.”

There were 143 respondents to this question. From the results, most of the respondents applied peer evaluation (55 respondents), others applied self-evaluation (5 respondents), criticizing and inquiry of works (18 respondents), group discussion (18 respondents) and analysis of musical works and performance (19 respondents).

Some respondents based their answers on the guidelines of the music curriculum 2003, according to which different kinds of music activities were designed for the implementation of critical thinking skills, including performing (47 respondents), creativity activities like sound projects and sound effect projects (48 respondents), composition activities such as rhythm pattern, melody composition and improvisation (33 respondents), listening activities (30 respondents) and music appreciation (10 respondents). Besides, open-ended question, project-based learning, imagination, and music presentation were also applied to music lessons and implemented with critical thinking skill elements.

3.7.9.2 Results of question nos. 44

Question 44 “What is the significance of using critical thinking skills during the music lessons? Please explain.”

There were 146 respondents to this question. The results indicated that most of the respondents reflected on the fact that students showed improvements in their learning attitude (22 respondents), acquisitiveness and motivation for learning, engagement and commitment (25 respondents). Teachers also indicated that the students became more pro-active and expressive when answering teachers’ questions (11 respondents), started to think more critically, became more open minded, accepted peers’ advice and became capable of applying self-evaluation in their own works (34 respondents). Furthermore, it was noticed that students could apply a multi-dimensional perspective for judgement (33 respondents), could grasp the use of knowledge and implement it to their works and performance (26 respondents), enhanced their performance through listening and creative activities (4 respondents) and also improved their ability in music appreciation (14 respondents). By applying critical thinking skills in learning, it was also indicated that students have more rooms for creativity (11 respondents) and were more capable of implementing their life experience to learning (7 respondents). In conclusion, regardless of students’

performance in their music presentation or thinking procedure, learning attitude has a substantial improvement.

3.7.9.3 Results of question nos. 45

Question 45 “What are the difficulties in using critical thinking skills during the music lessons? Please explain.”

There were 156 respondents to this question and all the answers were summarized and classified into 6 different categories, namely, time management, limitation of teaching time, students’ basic knowledge and ability, teaching skills, classroom management, and resources.

Time management (74 respondents) was one of the major issues that emerged from the results; it affected the implementation of critical thinking skills during the music lessons, that is, most of the respondents considered that implementing critical thinking skills in the music lessons was time-consuming and that sometimes time management was hard to control. Some respondents mentioned that they not only did not have extra time for the implementation of critical thinking skills but could not even complete the existing music curriculum based on their schools’ timetable.

Moreover, 52 respondents explained that the limitation of teaching time for each music lesson could not provide an ideal teaching condition for implementing critical thinking skills.

Students' ability and basic music knowledge (60 respondents) were also other major difficulties teachers faced during the implementation of critical thinking skills.

Differentiation, basic evaluation technique, application of basic music knowledge for peer evaluation, difficulties in nurturing lower form (P.1-2), students not thinking critically and not being capable of completing the task affected the application of critical thinking skills. On the contrary, teachers' ability to nurture students to respond more critically was another factor that impeded the success of applying the critical thinking skills (20 respondents). The respondents also mentioned that teachers should be well trained and proficient in facilitating students with the procedure of critical thinking skills during lessons; teachers must also be capable of maintaining a good critical learning environment that always provides students with opportunities to respond critically. Some respondents were not able or confident enough to manage a well-planned lesson based on a critical thinking teaching strategy and, as a result, some classroom management problems occurred (6 respondents).

A lack of related teaching materials and teaching aids also affected respondents' inclination to apply critical thinking skills (10 respondents). Respondents also reflected that their schools did not provide a clear guideline related to critical thinking skills; the education department in Hong Kong did not provide enough workshops and programs about critical thinking skills and the teachers could not find related elements and teaching resources about critical thinking skills in the textbooks.

3.8 Discussion

From the results of the questionnaire survey, several implications concerning the current situation of cultivating students' critical thinking responses can be summarised and discussed.

3.8.1 The current situation of cultivating students' critical thinking responses in Hong Kong primary schools

According to the questionnaire survey results, most music teachers in Hong Kong have a positive attitude towards the implementation of critical thinking skills. Teachers are willing to apply critical thinking skills in their lessons and are also keen on adjusting the music curriculum on their own using critical thinking skill elements.

As evident from the results, teachers are capable of implementing critical thinking skills in their lessons and assessing students' critical responses. Most of the teachers reflected that their students present positively both in the critical thinking procedure and in the critical thinking learning attitude. In fact, schools play a very important role that affects teachers' beliefs in cultivating students' critical thinking responses. The administrators of most schools agree with teachers integrating the critical thinking skills according to the needs in different units and activities. Teachers can design appropriate lessons based on students' ability and characteristics, input different elements of critical thinking skills for teaching and learning and reinforce students' critical thinking skills.

"Cultivating critical responses" is one of the four learning targets addressed in the *Arts Education Curriculum Guide* (Curriculum Development Council, 2002) and the *Music Curriculum Guide* (Curriculum Development Council, 2003). According to our questionnaire survey, teachers and schools advocate the implementation of critical thinking skills in their school music curriculum. The current study's results showed a positive effectiveness on students' performance in applying critical thinking skills in teaching and learning.

In general, most schools implemented the critical thinking skills by integrating with their own school-based curriculum and tailor-making an appropriate music curriculum for their students, but according to different factors emerging from students, teachers, school policies and government policies, the effectiveness of each school was different. The way all those factors influenced the implementation of critical thinking skills will be discussed in the following section of the study.

3.8.2 Demographic factors affecting the effectiveness of implementation of critical thinking skills in teaching

There are 143 out of 215 respondents who provide a qualitative response that they applied critical thinking skills in their teaching and nurtured their students to respond critically. However, some internal factors affect the effectiveness of implementation regarding the demographic data analysis results.

3.8.2.1 Gender

Reflected from the data analysis, male teachers have a higher performance than female teachers in all five main studied parameters, namely, teaching belief, teaching ability, understanding of critical thinking skill elements, learning attitude of critical thinking skills, and procedure of critical thinking skills in this research. From the

results of this factor, it extends a hypothesis that male teachers address the implementation of critical thinking skills in a more skilful way than female teachers.

3.8.2.2 Age group

The report from the analysis of age group showed an extreme phenomenon about the age groups “under 25” and “40 or above.” Teachers under 25 achieved the highest score in “teacher belief” and second highest in “teacher ability” and “understanding of critical thinking skill elements,” but achieved the lowest score in “learning attitude of critical thinking skills” and “procedure of critical thinking skills.” This result extends a hypothesis that teachers under 25 are keen on applying critical thinking skills for their lessons, but they also believe that they are capable of nurturing students. Indeed, in our opinion, they have a room for improvement in nurturing students by using critical thinking skills.

Teachers of age group “40 or above” achieved the highest score in “teaching ability,” “understanding of critical thinking skill elements,” “learning attitude of critical thinking skills,” and “procedure of critical thinking skills”; they also achieved the second highest score in “teaching belief.” Regarding the correlation analysis of age group and the five main studied parameters, there are no direct correlations between

age group and “teaching belief” or “teacher ability,” but there is a positive relationship with “understanding of critical thinking skill elements,” “learning attitude of critical thinking skills” and “procedure of critical thinking skills.” The results reflect the fact that the maturity of teacher affects the effectiveness of implementation of critical thinking skills.

3.8.2.3 Teaching experiences

Similar to the results from the age group, the effectiveness of implementation of critical thinking skills is also affected by maturity and teaching experience. Teachers were divided into three groups according to their teaching experiences; 0-3 years of teaching; 4-10 years of teaching; and more than 10 years of teaching. Teachers with teaching experience 0 – 3 years achieved the highest score in “teacher belief” and “understanding of critical thinking skill elements,” but achieved the lowest score in “learning attitude of critical thinking skills” and “procedure of critical thinking skills.” Teachers with more than 10 years teaching experience achieved the highest mean score both in “teaching ability,” “learning attitude of critical thinking skills,” and “procedure of critical thinking skills.” The results from the correlation also indicate that only “teaching ability,” “learning attitude of critical thinking skills,” and “procedure of critical thinking skills” are correlated to the teaching experiences.

Drawn from the results of “age group” and “teaching experiences,” mature teachers with longer years of teaching seem better able to manage the most effective lessons applying critical thinking skills. The results show a consistency in the more mature teachers’ needs for doing well in cultivating critical thinking skills in Hong Kong primary schools. But for those teachers called “non-mature” in the study, although they had high beliefs in cultivating students’ critical thinking, as shown by the findings, those “non-mature” teachers could not implement the procedure of critical thinking well in class and facilitated students in an appropriate critical learning attitude. The findings identified a real situation of the cultivation of critical response in Hong Kong primary school music education. In the next chapter, an interview analysis with some “non-mature” teachers will suggest some teaching ideas for improvement.

3.8.2.4 Teachers’ qualification

The results from the correlation of teachers’ qualification and the five main studied parameters show a significant difference between the teachers’ qualification and effectiveness of implementation of critical skills: teachers with a master’s degree in music education are the most confident in nurturing students with critical thinking skills and in assessing students’ work. A result beyond the expectation shows that out

of all parameters, only “teaching belief” is correlated to “teaching qualification.”

This finding implies that the teachers’ qualification is not a major factor affecting the effectiveness of implementation of critical thinking skills.

3.8.3 School policy and government policy affecting the effectiveness of implementation of critical thinking skills in teaching

Besides the teachers’ demographic factors, school policy and government education policy also play important roles that affect teachers’ belief and decisions in the implementation of critical thinking. Four related questions were addressed in the questionnaire. The results show that the effectiveness of implementation of critical thinking skills is affected according to different policies applied in schools, the government policy, and different difficulties teachers face during implementation.

The confidence of teachers’ beliefs in nurturing students by using critical thinking skills is well established by the school support and by the teaching environment and is evident from the questionnaire survey results. Also from the results of the open-ended question 45 “What are the difficulties in using critical thinking skills during music lessons? Please explain,” it is evident that the limitation of teaching time, the lack of related teaching materials, teaching resources, and clear guidelines

related to critical thinking skills from both schools and the education department of Hong Kong and, lastly, the lack of sufficient teacher training workshops and programs provided by the government or other organisations are all factors that contribute to a decrease in teachers' confidence in the implementation of critical thinking skills.

3.8.4 Student's ability and teacher's ability

A very common but major factor that influences the effectiveness of implementation of critical skills is the student's ability. While replying to the open-ended question 45 "What are the difficulties in using critical thinking skills during music lessons? Please explain," respondents raised some problems they faced during music lessons: differentiation in learning, involvement in classroom activities and ability for evaluation. These mentioned problems provided teachers with a complex teaching environment. Therefore, teachers felt the need for more teaching time to gain experience and more training and workshops to allow them to get the necessary knowledge of how to apply critical thinking in their lessons.

3.8.5 Good practices of teaching by using critical thinking skills

The current situation of cultivating students' critical thinking responses in Hong

Kong primary schools was investigated from the questionnaire survey results. Good practices of teaching by using critical thinking skills derived from the questionnaire in which the two open-ended questions (Questions 43 and 44) provided major information for discussion.

The survey questions 5 and 6 were designed to investigate the situation of critical thinking teaching strategies applied in the music lessons. A pre-set ideal and non-ideal critical thinking strategies based on existing literature, including the theory of critical thinking by Faction (1990) and ideas of other scholars including Bloom (1956), Ennis (1985), Bundara (1993), Paul and Elder (2008), and Dennis (2011), were addressed. Question 7 was also designed to investigate the teachers' understanding of critical thinking skill elements and was used in triangulation with questions 5 and 6.

A contradictory result emerged from these questions: more than 50% of teachers were able to nominate the correct critical elements out of several choices (question 7), but only 5% of the responding music teachers applied the ideal critical thinking teaching strategies in their teaching and assessment for students. Contrarily, more than 45% of the respondents apply the non-ideal critical thinking teaching strategies

and assessment for students (questions 5 and 6). Under this circumstance, the results derived from the open-ended questions provided more information for probing good practices of teaching by using critical thinking skills.

There were 143 suggestions from teachers concerning the critical thinking strategies.

Based on the theories of critical thinking by different scholars, all the suggestions can be categorized under the elements of critical thinking skills.

- Most of the teachers can integrate the critical thinking skills with different music activities, such as music performance, listening games, creative projects, sound projects, composition activities, and activities that are named as integrated activities in the *Arts Education Curriculum Guide* and the *Music Curriculum Guide*.
- Teachers can apply the use of critical thinking skills according to students' ability and level of achievement and support it with appropriate guidelines.
- Some teachers may promote individual students to an advanced level based on the students' performance.
- An application of formative assessment can be used as an assessment tool.
- Teachers can always provide more opportunities for students to answer by using

critical responses and questioning techniques.

Question 44 offered 146 suggestions from teachers who agreed with the effectiveness of the implementation of critical thinking skills in teaching and learning and with the fact that by applying critical skills students become more positive in their learning, achieving a more balanced personal growth and becoming more engaged and more committed.

Reflected from the answers of the two open-ended questions, a number of criteria for a good practice of teaching by using critical thinking skills were summarized. Most teachers motivate their students to answer more critically in the music lessons.

The contradictory results of the two questions about “the teaching strategies” and “the format of answering” cannot be explained through the quantitative survey. In order to expound on this matter, a related question was raised in the interview session with some selected teachers. The interview analysis will be discussed in the next chapter.

3.9 Summary

The results from the questionnaire survey provide a general view of the current situation of cultivating students' critical thinking responses in Hong Kong primary schools. Most teachers and schools support the implementation of critical thinking skills in music lessons; the results from the questionnaire survey present a positive improvement in students' learning attitude and outcomes under the learning strategies of critical thinking skills. It is more confidence for schools to apply a critical thinking skill approach in the 21st-century school curriculum. However, some adjustments based on each school's own school culture, organization requirement and education policy for the implementation of critical thinking skills used to be considered.

Summarized from the results, some difficulties hindered the effectiveness of the implementation of critical skills including the teachers' beliefs, ability, experience, teaching time limitation, students' ability, differentiation, involvement, and commitment. The teaching support is very important; however, the insufficiency of teaching materials and resources, the clear teaching guidelines in the textbooks, the school's support, the school policy, as well as the insufficient support from the Education Department also influence teachers' confidence in the implementation of the critical thinking skills.

An analysis of 12 teachers and 164 students' interview with recordings from the semi-structured interviews will be revealed in the next chapter, which will support the findings from the questionnaire survey and will be followed by a discussion of the cultivating students' critical thinking responses in the last chapter of this research.

CHAPTER 4

SEMI-STRUCTURED INTERVIEWS, NON-PARTICIPANT CLASS OBSERVATION

This chapter documents the design and implementation of a number of semi-structured interviews and class observation with 12 current primary school music teachers and their students. The chapter will firstly introduce the objective, theoretical underpinnings and administration of the semi-structured interview and non-participant class observation, which will be followed by a detailed description of the methodology, analysis and presentation of data, a discussion and a conclusion.

4.1 Objectives of the semi-structured interviews and non-participant class observation

This semi-structured interview aimed to investigate the detailed practice of teachers and students regarding the cultivating of critical thinking in the music lessons, the teaching strategies, procedures and outcomes and their extent of applying the elements of critical thinking skills during classes. In addition, it investigated how students develop their critical thinking response skills under the teachers' guidance. From teachers and students' conversations, some emergent and unexpected themes

that could not be obtained from questionnaire findings were collected. By using non-participant class observation, the real situation regarding the implementation of critical thinking teaching strategies, process, and arrangement from teachers, as well as students' response particular to the integrated activities, teachers' questions were examined. Furthermore, a triangulation (Olsen 2003; Perone, 2003) between the semi-structured interviews and the classroom observation was used to validate the qualitative data and enhance the credibility.

Besides, some supplementary opinions specific to particular questions were collected in the interviews, in which some of those results were contradictory to the data collected from the questionnaire.

4.2 Theoretical underpinnings of employing semi-structured interviews and non-participant class observation

The reason for choosing a semi-structured interview and non-participant class observation for this study was governed by the objectives of this part. Through the use of semi-structured interview, teachers and students could, based on their behaviours and experiences, freely express their views, opinions, and understanding

of the interview questions; by using open-ended questions, some unexpected, special opinions emerged. The non-participant class observation as a triangulation verifies the purpose for the data collected from teachers' interview and students' interview and investigated the real situation of the implementation of critical thinking in Hong Kong primary school music education.

4.2.1 The design of the interview and interview questions

In this interview, the researcher provided the interviewee with a prepared interview guide with a clear set of instructions so that the interviewee could prepare ahead and be more knowledgeable and confident during the interview.

In this research, according to the school's policy, most of the teachers and students participated only once, which conforms to the recommendations made by Bernard (1984) regarding the flexible conditions of interviews for collecting appropriate qualitative data.

In order to have a well-managed and smooth semi-structured interview, the following sections' criteria for designing interview questions and interview format were

considered. All the designed questions were related to the research questions of the study according to the context, while the open-ended questions provided more opportunities for the interviewees to express their views and opinions.

4.2.1.1 The types of question formats

In the current research study, different types of question formats were applied for both teachers and students, aiming to guide the interviewees into presenting their views and opinions easily and clearly. The following five types of question formats were applied in this interview, namely, grand tour questions, mini tour questions, example questions, experience questions and native language questions, following the formats recommended by Harrell (2009).

Grand tour questions and mini tour questions:

Grand tour questions are relatively simple and direct questions to which interviewees could answer easily, and were always applied as beginning questions followed by mini tour questions and later on by example questions and experience questions.

In the current interview with teachers, question 1 – “Does your school implement the use of Critical Thinking Skills in school policy?” – was designed under the grand

tour question format, and question 3 – “Did you apply Critical Thinking teaching strategy? In which activities (performance/creativity/listening)” – was a mini tour question following the grand tour question; as such, interviewees could present their opinions from a general to a specific area.

Example questions and experience questions:

With the aim of collecting some particular examples and experiences from teachers and students related to their music lessons in this study, example questions and experience questions were designed also for both teachers and students. Some guided wording was used to keep the interviewees focused on particular questions, such as “Can you give me an example...,” “What kind of,” “Can you share some experience about”

In the current teachers’ interview, questions 5 to 8 required interviewees to share their experiences and provided some examples regarding the critical thinking implementation. Correspondingly, in the current interview with students, most of the questions required students to share their learning experience and provided some examples regarding the critical thinking learning experience.

Native language questions:

Sometimes, the interviewees, especially the students, will use their own terminology to describe an example or an experience, not being able to use proper terminology for description. In this case, the questions were designed to guide them to express their views and opinions firstly using their own words and thereafter providing them with appropriate terminology in the rounding up of the questions. However, in some cases, students were still lacking the terminology for their explanations; therefore, during data analysis, some interesting new special terminology created by the students was interpreted.

In the current interview with teachers and students, some of the interviewees described their teaching and learning experiences by using their own terminology. The following questions were designed under the format of a native language question: question 2 from teacher interview, “Please describe the understanding of Critical Thinking Skills” and question 4 from student interview “Can you describe your project learning process.”

4.2.1.2 Content Validity of the Questions

In the current interview, there were twelve interview questions addressed to the

teachers and five interview questions addressed to the students. All interviewees were requested to provide their own opinions on each question related to the cultivating of critical thinking skills in Hong Kong primary schools; all questions were grouped into different categories, as follows:

Interview questions for teachers (see Appendix F) - (1) The implementation of critical thinking elements in schools and personal understanding of the critical thinking elements, (2) Reflection of the teaching strategies, difficulties, significance and improvement of critical thinking, (3) The impact of schools' support in the implementation of critical thinking skills, (4) Personal beliefs and opinions on how Hong Kong education department can increase the significance of using a critical thinking teaching strategy.

Interview questions for students (see Appendix G) - (1) Description of teaching and learning experiences in the music lessons, (2) Personal beliefs on music learning, (3) Reflection of the application to daily life and synthesis of the acquired music knowledge.

4.2.1.3 The types of interview formats

Individual interviews with teachers and a group interview with students were adopted in this study. The reason for which an individual interview was chosen for the teachers was that this type of interview format could provide a private environment for teachers to express their personal views and opinions related to the interview questions directly and without any influence or bias from other interviewees and it is in agreement with Kvale and Brinkmann (2009).

A group interview was conducted with students in this study; all students selected for particular groups were accompanied by the same music teacher (under the same application of teaching strategy by that teacher) and could listen to each other's comments to complement their views with additional points or information in line with Arksey and Knight (1999). Watts and Ebbutt (1987) also state that, under the implementation of group interview, varied opinions and a wider range of responses can provide the researcher a rich qualitative data for discussion.

All interviews were conducted under a face-to-face interview meeting and by using story-telling interview methods, which, according to Kvale and Brinkmann (2009), are meant to seek real and rich qualitative data. During the interviews, the

interviewees were asked to recall their personal experiences of teaching and learning related to cultivating and developing critical responses in music.

4.2.2 The arrangement of the non-participant class observation

In the current study, there were seven teachers who participated in the class observation stage. Three teachers from the junior grades (P. 1 – 3) and four teachers from the senior grades (P. 4 – 6) in lessons of approximately 35 minutes per lesson were selected for observation. All classes were recorded by jotting field notes during lesson. The objectives of class observation were to focus on the implementation of critical thinking skills during class by teachers and the responses from the students and to examine the effectiveness of the cultivation of critical thinking skills.

Before the class observation, the teachers provided a brief description of the learning target and objective for the lesson, so that the researcher could better understand the background of the students, the classroom routines as well as teaching and learning practices for the lessons. During the observation, the researcher sat at the back of the music room and took field notes without joining in any activities and influencing the students and teachers.

By using the non-participant observation method, the objectivity and neutrality could be maintained; the researcher made a detached and unbiased observation and could carefully judge the merits and demerits of each and every phenomenon in class (Liu & Maitlis, 2010). However, students and teachers unavoidably felt uncomfortable during the observation. To reduce the uncomfortable feeling of the students, the researcher met the students once before the class observation and a friendly relationship was established in advance.

4.2.3 Reliability of data analysis

All datasets were coded with consistency to ensure the reliability of data analysis. Due to the high amounts of data recordings, the researcher had to check every dataset periodically to maintain the consistency of each one, which is also recommended by Richard (2005).

In this study, the deductive analysis method was applied to gather all the answers of a particular question; that is, the researcher examines all the respondents' answers to the same question and confirms or refute a research hypothesis, which conforms with Margaret (2009). Open coding and axial coding were applied for data analysis.

4.3 Method and Design

4.3.1 Background of interviewees

The interview was divided into two parts: part I - the interview with teachers, and part II - the interview with students. In order to collect comprehensive opinions from different types of schools under the Hong Kong education system, the interview group was conducted with 12 teachers selected from ten primary schools. All selected schools were located in different districts of Hong Kong, included the South district in Hong Kong Island, Kowloon Central and West, and New Territories East, Central, and West.

In the current study, four types of Hong Kong local schools, which all applied whole or partial local curriculum integrated with their own school-based curriculum, were selected to participate, and they included government schools, subsidized schools, direct subsidized scheme schools and private local schools.

- Government schools are schools run by the Hong Kong government. The education curriculum provided from the Hong Kong education department were addressed to the government school.
- Subsidized schools are schools run by charitable and religious organisations with government funding. Most of the subsidized also apply the education curriculum

provided from the Hong Kong education department as the core education policy in school.

- Direct subsidized scheme schools (DSS) are some various non-government primary or secondary schools, which have attained a sufficiently high educational standard to join DSS under which the government provides subsidies in order to enhance the quality of school education since the 1991/1992 school year. Under this scheme, these schools are free to decide on their curriculum, fees, and entrance requirements.
- Private local schools are schools run by various private organisations. Admissions are based more on academic merit than on financial ability. Private schools can determine their own education policy and financial management according to their own needs.

Among all interviewees in this study, one interviewee is teaching in a government school, eight interviewees are teaching in subsidy schools run by different charitable and religious organisations, one interviewee is teaching in a direct subsidized school, and two interviewees are teaching in a private school.

In the current study, both of the participating government and subsidized primary

schools applied the local curriculum and followed the education policy issued by the Hong Kong Education department as their framework of teaching and learning. The direct subsidized schools applied their own school-based designed curriculum while the other two private schools applied their own school-based curriculum integrated with the local curriculum and their schools are using International Baccalaureate (IB) as their school education policy.

In part I of this study, a total number of 12 current primary school teachers were interviewed. According to the demographic information from the questionnaire, there were four male teachers and eight female teachers; three teachers were between 25 and 29, six teachers were between 30 and 39, and three teachers were above 40. Two teachers had less than three years of teaching experience, five teachers had four to ten years, and five had more than ten years of teaching experience. Four teachers graduated with a certificate of education, seven teachers had a bachelor of education, and one teacher was a master of education holder.

Among all the interviewed teachers' schools, eight schools applied the curriculum recommended by the Hong Kong Curriculum Development Council's (CDC) as their main teaching and learning guideline. One private school applied the International

Baccalaureate (IB) programme integrated with the Hong Kong curriculum in subject teaching, and one school applied its own school-designed curriculum for junior forms (Grades 1-4) and applied the Hong Kong curriculum in senior forms (Grades 5-6).

One teacher was now teaching at an IB school, but he earned his teaching experience at a subsidized school. On the contrary, another teacher who teaches at a subsidized school currently has previously taught at a private school that was using the International Baccalaureate (IB) programme. All 12 teachers were experienced in teaching intermediate forms (Grades 3-4) and senior forms (Grades 5-6) and only six teachers are experienced in teaching junior form (Grades 1-2).

In part II of the study, 164 students from primary 3 to primary 6 were invited to participate in the group interview. All of them are students currently studying in the twelve interviewed teachers' schools. There were 12 to 16 students nominated by each interviewed teacher from their school and divided into two groups for the interview.

4.3.2 Stages of data collection

Two stages were designed for interviewing the teachers and students sequentially: in stage 1 the individual interview with teachers was conducted and in stage 2 the group interviews with students took place. Complete datasets were gathered from the teachers' interview in stage 1 and each teacher's students in stage 2. All data from each set were transcribed and analysed concurrently. All interviews for the current study were completed after a four-month cyclical process.

4.3.3. Administration of the interviews and class observation

After 12 interviewees were selected for the teachers' interview in part I and the class observation, a formal invitation letter was sent to them containing a clear explanation of the objective, the procedure for the research study and an attached list of interview questions. After gaining the permission from the interviewees, the researcher contacted each of the interviewees to make appointments for the interviews. An approximately 30 minute-long interview was designed for the interviewees in which they were invited to express their views and opinions, understandings and beliefs about the cultivating of critical thinking skills in Hong Kong primary schools. For the interviewees who permitted a non-participant class observation, a brief discussion regarding their schools' policy and practice particular to the music lesson was held

before the class observation. A short introductory session with the class to be observed was arranged in advanced.

In Part II, a number of focus group interviews with students proceeded after the interviews with teachers when the teachers in each school provided a proposed students' name list. The researcher then prepared a formal invitation letter for each student interviewee, addressed to his or her parents and the school's principal containing a clear explanation of the objective, the procedure for the research study, and an attached list of interview questions. After gaining the permission from interviewees, parents, and schools, the researcher telephoned their teachers to make appointments for the part II interviews. An approximately thirty-minute interview was designed for each group.

4.3.4 Procedure and design of the interview

In part I, all interviews were undertaken in the interviewees' schools. A short casual chatting with each interviewee took place as a warm-up before the formal interview section. The interview started with a group of demographic questions to obtain interviewees' personal information related to the research study, followed by five questions aiming to achieve the situation of implementation of critical thinking skills

in their schools, the understanding of critical thinking skills from each interviewee, and the significance and difficulties in cultivating critical thinking skills. Before proceeding to the remaining seven questions, two diagrams about “the procedure of critical thinking” and “the learning attitude of critical thinking” were illustrated for each interviewee with an explanation from the researcher in order for the interviewee to have a quick evaluation of the concept of critical thinking skills. After the clarification of the critical thinking skill concept, the interviewee was invited to answer to the remaining seven questions in which he or she could apply the new concept of critical thinking skills to his or her answers. A reflection of the implementation of critical thinking skills for music lessons, together with personal views and opinions, complemented the collection of cultivating critical thinking skills.

In part II, all the interviews with students were undertaken in their current schools. All interviewees were gathered in the music rooms or conference rooms according to their teachers’ arrangement. All interviewees were divided into two groups according to their grades. In each interview, interviewees were requested to answer to a set of five questions; some questions were designed to be answered by all interviewees, and some questions were designed for particular interviewees, while others provided

complementary opinions.

All the interviews were granted permission by all interviewees, parents, and schools, and were permitted to record; the recording was transcribed later for analysis purposes. After the confirmation of a final version of transcription through a procedure of editing and correction, a thank you letter from the researcher was sent to all the interviewees to express his gratitude for their cooperation and assistance during the study.

4.3.5 Ethical considerations

Ethical issues have to be considered very carefully for this qualitative study. According to Leedy and Ormrod (2005), if a study involves human beings as the focus of the investigation, the researcher has to look closely to the ethical implications. In this study, the ethical consideration has been thoroughly addressed.

1. Permission for interview – a written permission from all interviewees, parents, and schools were obtained prior to the commencement of each interview.
2. Stop or withdrawal from interview – all interviewees could stop or withdraw

from the interview any time they chose.

3. Right to answer questions – all interviewees had the right to ask that the questions be repeated or to decline to answer any questions.
4. Recording of the interview – in this study, permission for tape recording and the taking of field notes were given by all interviewees.
5. Anonymity of interviewees' information – in order to protect interviewees' identities, all the interviewees' real names and school information were omitted and replaced by other names (teachers' interview) or group of codes (students' interview) in the analysis report.

The group of codes for the student's interview consisted of four columns. The first column presented the group of interviewees by using the numbers 1 to 16 consistently. The second column presented the grading of each student: the results from the junior group (grades 3 - 4) and the senior group (grades 5 - 6) were presented by using the letters "J" and "S." The types of school were indicated by letters in the third column: "G"- government school, "S"- subsidized school, "DS"- direct subsidized school, and "P"- private school. Each student

will be represented by a number in the analysis report in the fourth column.

6. Information protection – all the information provided by the interviewees was used solely for this study; all the information was securely stored by a high-security protection computer file separately from the hardcopy and was completely destroyed after two years following the completion of this research study.
7. Accuracy of transcription – all conversations from each interview were transcribed accurately. The tape recording and transcriptions were sent back to the interviewees for final checking before analysis.

4.4 Results: Presentation of data from the interviews and class observation

The result is presented in two separate parts: part one - results from the interview with teachers, and part two - results from the interview with students. The result from the non-participant class observation will be addressed in both parts. There are four different categories in the teachers' interview and three categories in the interview for students, which will be presented with the following results: (1) the situation of

implementation of critical thinking skills in schools, (2) the understanding of critical thinking skills from each interviewee, (3) the significance of the cultivating of critical thinking skills, and (4) the difficulties in cultivating critical thinking skills.

4.4.1 Part One: Results from the interview with teachers

From the result of the interview with teachers, a real and comprehensive situation regarding the implementation of critical thinking skills was observed. All 12 interviewees mentioned that they applied critical thinking skills in their music curriculum and most of them designed their own music curriculum and applied different teaching strategies according to their school-based requirements and circumstances.

Some interviewees disclosed that their school did not provide a clear direction and guidelines for a subject curriculum design or specific criteria or requirements of teaching and learning strategies implementation for each lesson, and there was no standard of practice for teaching and learning in school. Critical thinking was not mentioned as a compulsory teaching strategy in any official documentation in the school curriculum. However, most of the interviewees believed that critical thinking skills were important and effective and that they can motivate students to think more

logically. All interviewees applied different kinds of critical thinking skills in their music teaching based on students' ability and the objectives of the lessons.

4.4.1.1 The implementation of critical thinking skills strategies in ten interviewees' schools

Two interviewees, Tina and Keith, were teaching at the same school that applies the International Baccalaureate (IB) programme as their school policy with the use of suggested teaching and learning strategies under the IB policy. Their school curriculum integrated local curriculum and school-based curriculum in subject teaching, including music. Developing students' critical thinking skills was one of the essential teaching and learning strategies announced in the IB programme handbook. Every teacher was required to apply critical thinking skill elements in their lessons, a strategy named the "inquiry cycle." Students learnt through an inquiry cycle with six learning procedures, included tuning in, finding out, sorting out, going further, reflecting, and taking action. Besides, under the requirement of IB programme, students were required to be proactive learners and to develop ten learners' profiles, namely, knowledgeable, thinkers, communicators, principled, open-minded, caring, risk-takers, balanced and reflective. Compared to the procedure of critical thinking skills and learning attitude proposed by Facione (1990), most of

the basic elements of the IB programme and the critical thinking teaching and learning strategies possessed the same idea and the same objectives in each learning stage.

Rose, who taught in an IB school before teaching in a subsidized school currently, mentioned that under the IB programme's policy, all teachers implemented an inquiry-based learning strategy for each subject including music. All students applied critical thinking skills as a daily learning practice and expressed themselves by using critical thinking responses. A year ago, Rose started to teach in a subsidized school run by a Christian organisation; the school followed the education policy and curriculum provided by the Hong Kong Education Bureau. She mentioned that her school encouraged teachers to apply the critical thinking skills for teaching and learning but this was not an officially documented teaching strategy in the school's policy. As she had the experience of coming from a school using an IB programme, she always applied the critical thinking skills in her music lessons and cultivated students to respond more critically in her current school of teaching. However, she mentioned that there were only a few teachers applying the use of critical thinking skills during their lessons in the current school.

Ling was teaching in a DSS school that had its own school-based curriculum applied for teaching and learning where most of the teaching materials were designed by their teachers and implemented with critical thinking elements. Nurturing students' critical thinking skills and response was one of their school's objectives.

The other interviewees who taught in government and subsidized schools also shared their experience related to the implementation of critical thinking skill teaching strategies during the interview. All of them mentioned that their school followed the government school policy and the school curriculum provided by the Hong Kong Education Bureau. Based on the suggestions from the curriculum's guidelines, all of them also applied critical thinking skills in their teaching strategies.

4.4.1.2 Critical thinking skill strategies applied in the music lessons

As suggested in the *Music Curriculum Guide*, cultivating critical responses in music is the target achieved by integrated learning activities of creating, performing and listening (Curriculum Development Council, 2003). All interviewees in this study applied the critical thinking skills for the integrated learning activities in their music lessons. Based on the objective of each activity and on the ability of students, the teachers applied appropriate critical thinking skills for cultivating students to think

critically.

During the interview, interviewees were invited to share their experiences of cultivating students by using critical thinking skills in the integrated learning activities by sharing the lesson planning, teaching strategies, the difficulties, the students' performance while using critical thinking skills, and the learning outcomes of using critical thinking skills. In the latter part of this chapter, an analysis of each aspect will be discussed.

Among those three named integrated learning activities, listening (include aural training and music appreciation) was the activity where teachers applied the critical thinking skills in teaching and learning most. Eight interviewees mentioned that they frequently applied critical thinking skills in questioning students during the listening activities. They stated that by using critical thinking questioning techniques and strategies, such as open-ended questions, guiding students to do analysis before answering or applying pair-up or group discussion during class, students could develop their critical thinking skills progressively.

The teachers also confided that by using critical thinking skills in listening activities, teachers could be more flexible to respond to the students' inquiries and could give

them some insight. Keith mentioned that he often applied the open-ended questions during the listening activities and invited his students to share and express their own ideas; therefore, sometimes students would provide creative answers. Most of the time Keith would accept all reasonable answers even though the answers were not the same with the standard model answers:

... I do not give any pre-set multiple choices for the students; usually they will answer by brainstorming. I usually use open-ended questions for my students. I think sometimes music does not have an absolute answer and all reasonable answers should always be accepted. (Keith)

Keith mentioned that his students liked to share their ideas or opinions during classes; therefore, sharing became not only a practice in his lessons but also one of his important teaching strategies.

Observed from Keith's lesson, although he used the music textbook as a main teaching tool for the listening activity and asked questions taken from the printed music context, he applied the open-ended question format instead of the pre-set multiple-choice questions. He encouraged students to answer with their own wording, terms and express what they felt. Some of the students asked other questions but also

related to the main idea, and some students shared their experiences from their daily life.

Seven interviewees applied critical thinking skills to students' performance activities.

Four of them established a students' performance session during class every one to two lessons where nominated students could perform any kinds of music they had prepared at home. Besides, students were required to do an evaluation of each performance followed by guidelines from teachers. All of the four interviewees mentioned that a different level of critical thinking skill element was applied to students according to their abilities and grading.

...we have a "music plaza" performance session every one or two lessons, aimed at encouraging students to perform by using their own instrument or singing and sharing their music with classmates. Performers also needed to introduce their song, so they needed to prepare and do a research about the song. Audiences were required to give some comments to each performance and follow some criteria and rubrics. We emphasised peer evaluation, and by using those interactive strategies, students could establish an open-minded thinking and courage to express themselves. (Keith)

For doing the evaluation of the students' performance, teachers sometimes applied mixed critical thinking skill elements (critical and non-critical) to junior form students. Junior form students could more easily choose an appropriate description from the provided choices for the performance. However, it was noted that the students' grading and ability increased while the use of multiple choice and fill in the

blanks with given words (a non-critical questioning method) was reduced. Students required thinking more critically by applying analysis and reasoning skills for the peer-evaluation and responded more critically to teachers and classmates' questions.

... actually not every student was capable of doing so, sometimes I needed to apply some non-critical thinking questions, such as providing some multiple choices or leading them by using some terms verbally, especially in junior grade. Mostly, I would evaluate students' ability and apply appropriate teaching strategies for them. I tried my best to lead them as long as they understand the concept then encouraged them to express more in their own words. Compared with students who always answer by their own words, the ability of presentation was significantly different. (Rose)

Karen, Jan, and Mary also mentioned that they applied critical thinking skills during class singing. Students were invited to comment on their own performance and gave suggestions for the whole class. Students could comment on any aspect of the lesson such as singing techniques, tone color, intonation, rhythm, or posture. Apart from the development of students' evaluation techniques, developing a positive learning attitude of accepting peers' comments is also an important learning profile that a critical thinker should cultivate (Sheldon & DeNardo, 2005).

...for the integrated activities, our students always learn in a group; through the peers' cooperation and communication, students learnt how to accept peers' comments, do self-reflection, and respect each other. (Jan)

Creative activities applied by the interviewees included melody and rhythm composition, sound project, movement activities, environmental-instruments making and more. In each of these creative activities, students were required to have a basic concept for each assignment. According to the particular criteria of each assignment, students were required to apply critical thinking skills in each segment in order to complete the task.

Five interviewees shared their experiences in cultivating their students' critical thinking by using critical thinking skills in creative activities. Melody and rhythm composition were the most creative activities teachers applied for different levels of students. Based on the music curriculum of each grade, students used to apply different composition techniques for their works. Two of the interviewees shared their experiences on how to cultivate students' applied critical thinking skills in their composition. Ken shared his experience of a P. 4 curriculum of pentatonic scales composition and Jenny shared her experience of a P. 5 curriculum of repeated imitation and sequence phrasing composition during the interview.

Ken and Jenny were two mature teachers with more than ten years of music-related teaching experience. Although they were quite experienced in music teaching, they

expressed their opinion that every year, students had different occurring problems depending on their ability and involvement. Teachers had to teach the concept in advance so the students could apply it to their composition. To consolidate students' knowledge, some related exercises always apply as a drilling in the first stage. Ken and Jenny mentioned that the composition activity was a group work; students used to do group discussion and analysis, followed by giving comments to each other, determining and compromising a final work together. During the group work, students had to apply a good cooperation attitude, to learn how to respect group members, to accept different opinions and to engage with others.

In fact, students always face many problems during this process; Ken and Jenny mentioned that they acted as facilitators during the composition activity. Their duties were to provide some supported guidelines for students, to lead them to do correction, to provide suggestions, and to nurture students to think critically. They encouraged students to think from different angles or to share ideas with group members. Sometimes, when the outcome was not good, students had to find out the problem and to try to amend it by themselves. Through the application of the learnt concept into their work, students always experienced a critical thinking procedure with different stages.

Observed from a P. 4 class, Ken conducted of a composing by using pentatonic scales was addressed as a learning objective for a P. 4 class. At the beginning of the lesson, Ken provided a review session by playing two songs, one of which was composed by using the Pentatonic scale while the other was in the Major scale. Students were required to spell out differences by their knowledge. Most of the students could distinguish two songs and showed the concept of the Pentatonic scales.

After the warm up exercise, Ken told the students about the composition activity and the assessment criteria. To provide students more ideas about the composition, Ken improvised a short music phrase instantly using the piano and explained the difference between the Pentatonic scale and the Major scale for students again. As shown in the students' reaction, they were very concentrated and appreciated Ken's demonstration. A student asked if the Pentatonic scale could be composed of six notes. Ken answered this question by demonstrating with the piano again and showed the outcome for the students.

Ken motivated students by a real demonstration and explained the instructions and requirements of the composition before students worked in a group and started to compose. During lesson, Ken checked with every group and discussed with group members, gave some suggestions and inspired students' thinking with some examples.

The composition activity was planned as a four lessons' project in which students needed to perform their own composition by themselves. Each student was required to comment on all compositions with a set of assessment criteria. Through the class observation, students showed their participation within a group, although not everyone was keen on providing ideas; some students with leadership skills always helped in the decision making.

Twelve interviewees believed that group works could nurture students' critical thinking skills more effectively. Students learnt from peer discussion, sharing, and evaluation. A significant improvement in students' learning attitude and thinking skills and a better learning outcome reflected in the students' assignment.

Mostly group work was usually applied in creative activities among the integrated activities, while individual work was applied in listening and performance activities. All interviewees expressed the idea that a complete critical thinking procedure should consist of different learning stages, including gathering information, concept learning, applying concepts, analysis, and evaluation. However, even though they could not apply a complete procedure of critical thinking in every lesson, they selectively applied appropriate critical thinking skill elements in every lesson, aiming to cultivate in students a good critical response in their daily learning.

One of the interviewees, Ling, mentioned that applying critical thinking skills is a common practice that should be implemented in each lesson:

...normally critical thinking skills were applied in each lesson every day; no matter if the unit was a simple one or a difficult one, teachers ask the students to apply the thinking skills gradually by adding some critical thinking questions at the end of the lesson... (Ling)

Cultivating students' critical thinking skills became a normal practice applied in daily teaching; regardless of if it was a complete procedure of critical thinking skills or just a part of the learning stages, students could become more critical in their thinking and capable of responding critically.

4.4.1.3 The implementation of project learning in music lessons

Apart from implementing critical thinking skill elements into the regular integrated music activities, eight interviewees mentioned that they applied music project assignments, which required the students to apply lots of critical thinking skills during the procedure of the project one to two times a year. Each project had a particular objective based on the school music curriculum; each project lasted for four to five lessons or as an assignment for a long holiday. Students had to follow the instructions and requirements of the project and complete the task. The project was sometimes set as an individual project, but mostly required students to work in a group. All eight interviewees agreed that, during the process of project learning, students could learn how to plan for their own work, to experience different stages of the critical thinking learning procedures, to present their work about their findings, to evaluate peer's project and to give comments to classmates.

...our school designed some project assignments for P. 4 – 6 students, the project was related to each grade's music context. The world music for P. 4, Western orchestra for P. 5, and Chinese music for P. 6 the learning process was very important, teachers would only provide guidelines, students had to experience and discover by themselves.... (Jan)

Eight interviewees mentioned that they would provide a clear project objective, guidelines, and instructions for students in advance; all students were required to apply critical thinking skill procedures and attitude during the project assignment

from gathering of information to creating a final presentation or performance. During the project, the teacher as a facilitator would evaluate students' work based on their performance in each learning stage and would also evaluate their work's outcomes.

Table 4.1 shows the project applied in the music lessons by eight interviewees.

Table 4.1 Different summarized projects applied in the music lessons

Title of the project	Learning Targets	Grade	Group (G) / Individual (I)	Length of the project (lessons)	Outcomes
Sound projects (sound effects)	Creativity	2	G	4	Group performance
Sound projects (sound effects)	Creativity	3	G	3	Group performance
Sound projects (body percussion)	Creativity	3	G	3	Group performance
Western orchestra instruments	Music Knowledge	4	G	3	Group presentation
Pentatonic scale application	Listening	4	G	3	Group performance
Pentatonic scale composition & performance	Creativity and Performance	4	G	4	Group performance
DIY instrument	Creativity	4	I	2 weeks holidays	Individual presentation
DIY instrument ensemble	Performance	4	G	3	Group performance
Chinese opera	Music Context	5	I & G	2 weeks holidays	Group presentation
Chinese opera	Composition	5 & 6	G	3	Group performance
Chinese instruments	Music Knowledge	5	I	2 weeks holidays	Individual presentation
Composition (repeated, sequence, imitation)	Composition	5	G	3	Group performance

Music style (Opera/Musical/Blues/Jazz/Rock & Roll/Folk)	Music Context	6	I & G	2 weeks holidays	Group presentation
African Drum Performance	Music Context & Performance	6	G	5	Group presentation & performance
Garage Band	Creativity	5 & 6	G	3	Group presentation

Tina shared her experience in implementing critical thinking skills by using project learning with her primary three music students:

The curriculum for Primary 3 consists of many critical thinking skills. I remembered the first unit “Pitter Patter”; there were several sound effects included. I asked my students to investigate any body parts that could produce a good sound for accompanying this song. Actually, students have to go through many stages; although it was a small project, students had to apply critical thinking skills, gathering information, knowing the concept and understanding their own body, what kind of sounds can be produced from different body parts. In addition, they needed to do an organisation of information and analysis; to evaluate the quality of each selected sound effects and the kind of rhythm applied. During lesson, students were required to draw their selected body parts on a sketch paper with a description of the “sound” by using some symbols. Students could present the sound through a picture and had to accompany the song Pitter Patter with the sounds produced by the selected body part. Meanwhile, students were doing “applying.” Students experienced few stages of the critical thinking procedures at home. Besides, students were doing creative and performance activities as well. (Tina)

4.4.1.4 Teachers’ understanding of Critical Thinking skills

The interview results showed that all interviewees applied critical thinking skills in their music lessons, integrated critical thinking skill elements into different music

activities also by adding project learning, and tried to cultivate students to respond critically. The analysis of the Chapter 3 questionnaire results showed that the response to the question “the teachers’ understanding of critical thinking skills” reflected that more than 50% of the music teachers in Hong Kong primary schools could identify the correct critical thinking elements and that most of the teachers understand the basic elements of the critical thinking skills. However, the analysis of the interview revealed that although all interviewees could name the elements of the critical thinking skills such as using open-ended questions for questioning or learning from self-reflection and peer reflection, they applied logical thinking during classes separately and none of them could tell the complete learning procedure of the critical thinking skills and the learning attitude.

Five of the interviewees mentioned that they thought they were at the “beginning level” and were thus not very familiar with the application of critical thinking skills in their teaching. Three of the interviewees concluded that critical thinking strategies related to high order thinking skills were the same with some of the basic thinking methods and procedures. Tina mentioned that critical thinking should be one of the terms under the umbrella of definitions for different philosophical thinking approaches:

... I had some ideas of the critical thinking skills..... the critical thinking skills are similar to the Bloom's taxonomy from high order thinking strategy at the brain-based learning (BBL) thinking approach. Indeed, the inquiry cycle from the IB program is also quite similar to the critical thinking skills. I thought the procedure and terms slightly differ from each other; I believed the content and requirement of high order thinking and the inquiring cycle were the same. (Tina)

Although Tina named different philosophical thinking approaches and the elements of each approach and even if her school applied the inquiry-based system as a school policy in teaching and learning, she said she was not confident in cultivating students by using critical thinking skills, especially when doing the evaluation.

Teachers' training was related to their understanding of critical thinking. All the interviewees received their teacher training at the same university, except for Rose who received her teacher training at another university. All the interviewees learnt the general education teaching strategy skills during their study for the education program. Three of the interviewees who graduated before 1997 mentioned that, during their studies, they did not receive any lessons specifically related to the critical thinking teaching strategies. Six interviewees who graduated between 1998 and 2003 mentioned that they have learnt some education matters related to critical thinking skills, but the knowledge was restricted to a basic definition of several

elements of critical thinking skills and did not cover the whole concept of how to cultivate students by using critical thinking skills. Two of the interviewees who graduated after 2012 also mentioned that they received no specific lessons related to critical thinking teaching strategies during their training, except for some discussions on related concepts and teaching methods. Tina, who graduated from another university, mentioned that she also did not receive any lessons related to critical thinking teaching strategy, but the tutors always applied critical thinking skills as a teaching strategy during the lectures. She also specified that using different kinds of questioning techniques such as open-ended questions or comparative questions facilitated students' analytical thinking skills, logical thinking skills, and problem-based learning skills. When she started her primary school teaching, she applied the same teaching strategies that she had received from her lecturer.

After analysing the results of the study, a complete critical thinking learning procedure and learning attitude for a critical thinker that consisted of several particular orders and characteristics emerged. All of the interviewees mentioned that during their teaching they applied critical thinking teaching strategies using their own understanding; some of them reflected that sometimes they did not know if they were nurturing or guiding students in the right direction. Some of the interviewees

reported that they faced some problems such as time arrangement, classroom management, or content problems that may have affected the teaching quality and students' learning outcome. The "problems in cultivating students' critical thinking skills" will be discussed in the next section.

In order to offer interviewees clear information about the procedure of critical thinking skills and the learning attitude of a critical thinker, a model set of information was shown before the interview. All interviewees reviewed their teaching and learning strategies after reading the provided information on the procedure of critical thinking skills and learning attitudes of a critical thinker. Some interviewees mentioned that they were surprised about the high requirements of the critical thinking elements.

Keith and Karen were having their first year of primary school teaching. Both of them said they planned for their lesson in advance; however, sometimes the learning outcomes were out of their expectations, and considering their lack of teaching experience in a primary school, they sometimes felt helpless, not knowing where or when the problems would occur and what they should do next. Among all the interviewees, the two of them did not have a clear concept of the procedure of critical

thinking skills and learning attitude of a critical thinker. Consequently, all of the interviewees did not feel satisfied with the teaching outcome of the implementation of critical thinking skills.

The model on the criteria of critical thinking skill elements offered a clear understanding of the concept of critical thinking skills and provided all interviewees with the tools to identify a problem they faced in a particular stage of critical thinking procedure and the problem the students faced according to the learning attitude of a critical thinker.

4.4.1.5 Problems in cultivating students' Critical Thinking skills

During the interview, each interviewee shared their teaching and learning experience on cultivating critical thinking skills. Depending on their teaching experience, teaching school's background and school policy, each of them was facing different problems during their implementation of critical skills in the music lessons. All the problems were summarized into internal factors and external factors. The internal factors included the teachers and students' teaching and learning problems; the external factors consisted of the school policy, the teaching environment, and the school's timetable arrangement.

In their opinion, internal factors included, among others, teachers' ability. All the interviewees mentioned the ability to nurture students to think critically, the assessment of students' performance, the application of appropriate teaching strategies, the evaluation and reflection techniques and time management. They believed that all the above issues directly affected the teaching outcomes. As discussed in the previous section, only a few interviewees had received pedagogical courses related to the critical thinking skills during their studies. Most of them felt that what they have learnt in college was not enough for them to facilitate students' learning of critical thinking skills in their current schools. They also considered that during the process of cultivating students' critical thinking skills, teachers should always be capable of evaluating the effectiveness of the lesson, applying appropriate teaching strategies, and leading the students towards achieving a high standard of learning outcomes. All interviewees stated that teachers should apply a micro-adjustment of their teaching planning based on real situations and students' needs and should always provide students with a tangible learning environment.

Keith and Karen shared their difficulties about the implementation of critical thinking skills in their music lessons. Even though they were concerned about time

management, they welcomed their students to express their ideas and to share them with classmates; they would provide feedback to students' ideas and questions, even if sometimes they thought they spent too much time on responding to students' ideas. Therefore, as a result, they could not cover the planned teaching contents.

Jonny, Karen, and Ken mentioned that the assessment of students' critical thinking response was another major problem that many teachers were currently facing. In the traditional teaching practice, summative assessment was commonly applied to assess students' performance mostly at the end of the academic term and tests and exams were commonly used as tools to reflect students' ability.

In order to assist students in learning effectively and to evaluate their learning outcomes progressively, those three interviewees also suggested that teachers have to apply an appropriate evaluation strategy instead of a summative assessment. They mentioned that they have tried to record students' learning progress individually, but they spent too much time in the evaluation procedure, which caused changes in the teaching schedule. The teachers stated that disregarding the school's evaluation guidelines and standards also affected their ability and confidence in the matter.

Providing feedback for students' learning outcomes was an important strategy they

applied using a multi-assessment strategy but, without a clear guideline, it felt very difficult to provide an accurate conclusion for each student.

Tina and Ling suggested that teachers should receive an in-service teachers' training related to the critical thinking skills since they were not capable of implementing critical thinking skills during music lessons or they were lacking in certain related concepts, knowledge, and teaching skills. According to them, cultivating students by using critical thinking skills becomes an education trend. They consider that the teachers should be good facilitators to help students develop their critical thinking skills. They also mentioned that the most difficult problem for a teacher while doing the implementation of critical thinking skills was the time management of each inquiring procedure because the teachers had to design a well-planned schedule for each unit, to set up a teaching task for each lesson and to plan all the lessons for the entire teaching unit.

Tina shared her experience of the brain-based learning procedure. Brain-based learning was one of the thinking methodologies applied using high order thinking, and it had some common basic elements with critical thinking skills in the inquiry procedure, such as analysis, synthesis, evaluation, and application. She said that,

during the training period, class observation, discussion with tutors and colleagues, reflection and evaluation helped her to enrich her teaching techniques. The tutors and colleagues would give her comments to improve her teaching skills. Throughout a period of practice stage, she earned a lot of teaching experience by using high-order thinking skills and became fluent and confident to nurture her students to respond more critically. She said she did not have enough practice opportunities when she studied in college, but she gained the real teaching experience of the critical thinking skills after she started her teaching in the current school.

Ken mentioned that the lack of teaching practice opportunities of using critical thinking skills for a pre-teacher would affect their confidence after they graduated.

Keith and Karen who are teaching in primary schools starting from this academic year felt helpless in the implementation of critical thinking skills when they just started to teach. Compared to Karen's school, Keith's school applied the IB programme as a school teaching policy, which nurtured students by using high-order thinking (including critical thinking skills and inquiry-based learning skills) and was mandatory for teaching strategies outlined in the school's policy. The school provided him a tangible and supportive teaching environment to do the implementation, but even if he felt anxious when he started teaching in this school,

he overcame the problem shortly. On the contrary, the implementation of critical thinking skills in teaching was non-compulsorily outlined in Karen's school and she felt helpless when she faced some problems of teaching by using critical thinking skills when not many colleagues could provide her the needed support.

Teachers' beliefs were another internal factor that influenced the quality of implementation of critical thinking skills in the school. In her school, Rose faced a problem similar to Karen's: she mentioned that in her school (a local subsidized primary school) only a few teachers were willing to apply critical thinking skills in their teaching. Although the school encouraged the teachers to implement critical thinking pedagogical strategies during classes, teachers were conservative and did not have an open-ended thinking attitude or felt not confident to do the implementation of critical thinking skills without a pioneer leading; most of the teachers used non-critical thinking teaching strategies and elements and formative assessment such as tests and exams. Ken, Carl, and Jenny also mentioned a similar phenomenon.

Ken, Carl, and Jenny mentioned that many teachers from their school also believed that cultivating students using critical thinking skills could help them become

balanced, open-minded, wholly-developed critical thinkers and learners. Those colleagues were willing to apply critical thinking skills in their lessons and to provide a critical learning environment for their students, but given the lack of a school central policy on the execution in all subjects, the result of the implementation of critical thinking skills was significantly different in each subject.

They also mentioned that in order to complete the teaching schedule on time, some of their colleagues declined to apply critical thinking skills during their lessons. They were afraid the students would go out of their way to express their ideas under the critical thinking learning environment.

Students' learning attitude and ability were two internal factors of concern that affected the implementation of critical thinking skills mentioned by four interviewees, namely Jenny, Rose, Jan, and Karen. As discussed above, some schools did not provide an appropriate critical thinking and learning environment for students in their daily learning; therefore, students were not familiar with using critical thinking skills in their learning. Consequently, students felt very uncomfortable and embarrassed when they were required to participate in a self-reflection or peer evaluation.

Sometimes students were not open-minded enough to “provide” and “accept” peers’ opinion, thinking that providing critical comments to their friends would affect their friendship. Jenny, Rose, and Karen stated that students should be encouraged to be more open-minded to accept peers’ opinions and suggestions and to learn how to do a self-reflection on their own work and, as a result, the students could become more critical in their thinking and respond more critically.

As reflected from the class observation of Karen’s music lesson with a P. 5 class, music textbook was the main teaching and learning tool for music context. The topic was about the Western orchestra while there were some multiple choice questions inside the textbook. Karen required students to complete the question; she encouraged students to discuss with their neighbours and even work in small groups. Eventually, only one group was formed with discussions held; few students discussed with neighbours, but most of the students were doing their own exercise individually. Karen checked the answers with all the students; besides checking for the correct answers, she asked some other questions which were related to students’ daily experience. However, most of the students were shy and did not say much about their own experience. Furthermore, one of the students provided a wrong answer, and Karen asked the classmates to try to explain and spell out the reason. Finally, the

whole class kept silent and Karen answered by herself.

Compared with Karen's class, Keith's students showed high participation and sharing practices. His students were keen on discussing in a group and sharing ideas with each group member. As shown in the class observation mentioned in session 4.4.1.2, Keith's students would like to share their experience with their classmates. His school created an open-minded learning environment in the campus, where students accepted and respected the comments from both teachers and classmates.

Besides learning differentiation, weak basic music knowledge and passivity in learning were named by the interviewees as the students' learning ability problems. The learning motivation of an entire class would be affected during the music lessons if the problems were not adequately addressed. Interviewees shared their experience and suggested some teaching strategies for those students with learning ability problems.

All interviewees considered that using mixed-ability grouping or proactive learning motivated students and passive learning motivated students and provided them with more communication opportunities and would encourage students to express their

ideas to each other. The high-ability and proactive students would be the group leaders to help others during discussions. Although the academic result of the low-ability or passive learning motivated students might not be significantly different from the high-ability group, the involvement of the special needs students could enrich their participation as well as their motivation in their daily learning and could facilitate their critical thinking and response.

Furthermore, the interviewees believed that the schools' teaching and learning environment affected students' learning attitude directly. To facilitate students' critical response only in the music lessons is not enough; it is necessary for each teacher to create a comprehensive support of implementing critical thinking skills in each subject.

Besides internal factors, the following problems mentioned by interviewees were categorized as the external factors that affected the implementation of critical thinking skills throughout the music lessons, namely, the school policy, the teaching environment, and the school timetable arrangement.

Several interviewees disclosed that school policy was one of the factors that they

could not control. Although nurturing students by using critical thinking skills was clearly outlined in the Hong Kong school curriculum guide as a teaching strategy that could assist students in their thinking ability, the guidelines are non-compulsory and each school could decide its own level of implementation. Eventually, each school support is different. Some interviewees said their school did not provide them enough support; others said that there were no standard guidelines in the school's policy and no professional training support for teachers; some mentioned the lack of a systematic implementation policy for teachers, making it very difficult to cultivate students' critical thinking skills.

Carl and Ken mentioned that they joined some sharing workshops organized by Hong Kong Education Bureau, but they said those sharing workshops were mainly aimed at major subjects like English, Chinese, Mathematics, and General Studies, but not for Music. Although recently there were some music workshops held a few times a year, there were no particular sessions for the four learning targets, including critical thinking response. Certain music textbook publications set up some sharing workshops and teaching workshops for music teachers and invited different educational experts, professional musicians, or experienced teachers to share some "tips" on the matter, but the topics focused on critical thinking skills were not yet

mentioned or discussed during the workshops.

The teaching environment was one of the external factors that affected students' achievement of the critical thinking response as mentioned by several interviewees.

A good learning environment during music lessons should provide space for students to discuss. Rose mentioned that her school insisted on setting the chairs into several rows where students faced the teacher and receive direct learning from the teacher; sometimes, when she asked the students to have a discussion, according to the setting, students could only discuss with the neighbour next to them. Under this learning environment, interactive activities and group practice were rarely applied in her music lessons. As a result, students' performance level in using critical response was low.

Conversely, eight interviewees also mentioned that when their students were sitting in a group in the music room or even in the home room, it was easier to do a group discussion or group practice.

Out of all classes observed in terms of music room settings, only Rose's classroom desks and chairs were set row by row. Compared to other observed music room

settings, all other music rooms were set in groups or as a circle, and students could easily do a group discussion and work together; a circle setting may also provide more space for a group practice.

The class size was also one of the essential factors affecting the effectiveness of the implementation of school policy during class. As mentioned by Rose, there was around 32 students in class. Compared with the previous school she taught, the class size was much bigger. Eventually, during her classes, she tried to provide some group work for the students and was keen in listening to each groups' discussion. She delivered some advices for the students individually. However, according to the limitation of time, she could not afford enough time for each group in her lesson. This problem hindered her teaching effectiveness to a certain extent.

Compared to Rose's school, the class sizes of Tina and Keith's school were smaller; the maximum number of students for each class was 25. As mentioned by Keith, since he got fewer students, he was capable to provide more time for each group during the group activity. Obviously, student achievement and improvement, in particular of some special needs students drawn from the continued small class size scheme in his school, could be maintained.

Limitation of the teaching time was one of the common problems experienced by teachers during the implementation of critical thinking skills. Eight interviewees mentioned that they spent more time answering students' questions; also, in order to give students enough time to complete the procedure of critical thinking, teachers had to re-schedule the music lessons and ensure that the lesson would not be overrun.

Regarding this problem, Ken mentioned that a few years ago his school had tried to re-arrange Grade 4 music lessons, changing them into double lessons.

... Actually my school tried different ways of integrating critical thinking skills during the music lessons. A few years ago, we tried to re-schedule Grade 4 music lesson into a double lesson and there was a significant difference. After re-scheduling into a double lesson, there was enough time to cover different stages of the critical thinking procedure. For some simple music activities, students could do the discussion, analysis, sharing with classmates, peer and teachers' evaluation in a double lesson. The completion of the entire project could be finished in one to two double lessons. It was more efficient and ideal for teaching and learning. (Ken)

The final external factor mentioned by eight interviewees was the problem of the large amount of music contents. All interviewees reflected that there were too many music contents in the syllabi and most of the interviewees could not complete all units provided in the textbooks. According to the duration of each lesson in different

schools, Jenny, Jan, Ling, Tina and Keith also mentioned that they restructured the music curriculum based on their school timetable and policy. Eventually, some of the activities provided by the textbook were only partially selected and applied to the music lessons. Out of all interviewees, five of them designed their own music curriculum; they said it was easier for them to integrate critical thinking skill elements into the music contexts having designed their own music curriculum.

...our school decided to use one music textbook for grade 5 and 6 students; we chose the grade 5 textbook and with some supplementary materials during our music lessons. We re-designed the music curriculum by ourselves. ...after the re-scheduling of our music curriculum, students had a longer time for group discussion, sharing, applying and evaluation; we also provided students a platform to perform during classes. We found that our students were more interested in learning music under the new re-scheduled music curriculum. (Jan)

4.4.1.6 Significance of the implementation of Critical Thinking Skills

All interviewees reported that by using critical thinking skills teaching and learning strategies, students' involvement and motivation in class, students' learning outcome from various music activities significantly increased. Through the procedure of critical thinking learning students could experience different learning techniques, including gathering information, organizing and analysing of gathered information or data, applying and synthesising the results and could complete the task with a sharing session and self-evaluation or peer-evaluation. Students were more responsible for

their own work under the critical thinking learning environment; they learnt how to share with classmates their own ideas and findings and also enjoyed the process in a group work.

Regarding the learning attitude of critical thinking skills, being self-disciplined and being active were two of the elements that students should possess under the critical thinking learning environment. The teacher acted as a facilitator that nurtures students to learn by themselves and provide comments on their works. (Facione, 1990). As it was mentioned in the interview, each of the interviewees applied their own designed teaching strategies, which consisted of critical thinking elements for particular learning objectives. All of the interviewees reflected that students were more interested in the music lessons under a critical thinking learning environment; a significant difference between using critical thinking skills and not using critical thinking skill elements was found.

Karen started her teaching at the beginning of this academic year; initially, she didn't apply many critical thinking skill elements in her lessons, but after a few months, when she tried to apply more critical thinking skill elements, she found a significant change:

When I started to teach, I did not have any idea about how to encourage my students to think more critically. Besides, I applied some non-critical thinking strategies such as multiple-choice and fill in the blanks with provided words for questioning students. I thought my lessons were teacher-centred; students became less interested, and some students kept chatting during my class. I discussed with my colleagues and tried to apply some interesting classroom activities such as providing students more opportunities to discuss in groups, designing some group works and requesting students to explore and find the results by themselves through different media. Students became more involved and the motivation for learning significantly increased; students thought they could express their own ideas and felt more confident. As a result, a positive learning atmosphere motivated everyone during the music lessons, which became more interesting; the time for students to express their ideas and doing activities felt shorter. (Karen)

All interviewees mentioned that most of the students liked to express their ideas under the learning environment of critical thinking skills. Students liked to share their experience from daily life with each other and to interact with teachers.

There were two other significant changes mentioned by the interviewees for the implementation of critical thinking skills: the knowledge and the personal growth. In music knowledge learning, students enriched their musical experience and knowledge, increased their ability in composition, music appreciation and performance. Thinking and responding critically became a practice for students' learning: students learnt how to synthesise and apply the learnt knowledge into daily life and how to manage their information or data systematically.

The other significant change found was in personal growth. Some interviewees said their students became open towards accepting peers' advice and towards listening carefully to others' comments, which meant a significant improvement in cooperation with others. These positive changes in students' learning attitude helped students learn more efficiently not only music but other subjects too.

All interviewees believed that the implementation of critical thinking skills would provide students a lifelong influence in their learning. Most of the interviewees stated that their students could memorize the knowledge, namely the results from a topic in which all the information was researched by themselves and they were able to apply the results in their daily life. Under the critical thinking learning environment, more opportunities provided for students to present their own ideas in a critical thinking teaching and learning environment helped the students to establish a learning practice of expressing their own ideas and sharing with others.

The learning outcomes under the implementation of critical thinking skills were different from those of the non-critical thinking skills. Jan, Ken, Mary, and Tina said their students could present more creative ideas, always observed questions from

different angles and provided some special opinions and findings after their discussion.

All interviewees mentioned that the implementation of critical thinking skills provided a more concrete learning environment for students to think and respond more critically. Under the practice of nurturing critical thinking skills, students were trained to become critical thinkers naturally.

4.4.1.7 Teachers' ability towards the implementation of critical thinking skills

In order to facilitate students to think and respond more critically, teachers should be capable of applying suitable critical thinking teaching strategies in different music activities. Referring to the results of the questionnaire about particular questions, most of the teachers could name the elements of critical thinking skills, believed that nurturing students by using critical thinking skills could help them in their music learning and reported that they were capable of nurturing students by using critical thinking skills.

However, a contradictory result was derived from the questionnaire regarding two questions “the application of teaching strategies” and “the format of answering.” The result reflected that most of the teachers with much belief in critical thinking

understood and were capable of the implementation of critical thinking skills but seldom applied critical thinking elements during discussions and answering questions. Being concerned about this contradictory result, twelve interviewees were invited to share their teaching experience and provide their opinions about the “ability towards the implementation of critical thinking skills.” From the interview analysis, we could understand the extent of the interviewees’ ability towards the implementation and the problems they faced.

Referring to the analysis of the question on “the understanding of the implementation of critical thinking skills” mentioned previously, all interviewees could name the elements of the critical thinking skills but could not offer a complete concept of the learning procedure of the critical thinking skills and the learning attitude; neither did they feel confident towards nurturing students by using critical thinking skills during their music lessons.

According to Tina and Rose’s teaching experience, the school they taught in was applying the IB teaching policy, namely, the inquiry cycle under the IB program, which was similar to the procedure of the critical thinking skills. Tina and Rose also said that even if they were capable of planning a lesson or project to contain the

procedures of critical thinking skills there they faced other problems.

I could plan a music task for my students with procedures of critical thinking skills, such as gathering, conceptualizing, analysing, etc., but I found it was difficult for me to assess the level of my students and also the duration of each procedure. I liked to ask my students to present what they have done by themselves to assess their ability, but sometimes when students were unable to present their idea, I gave them some hints and led them to answer the questions. In order to help my students to answer my questions, sometimes I provided some multiple-choice answers for them. Sometimes I thought I talked too much and provided too many ideas and information to students and they followed my ideas and their works lacked in their own creativity and my lesson became teacher oriented. (Tina)

Other interviewees also mentioned the same problem. Students' ability in answering questions influenced teachers' beliefs in the implementation of critical thinking elements in questioning format and teaching strategies.

The questioning format from the music textbooks was also one of the factors of this problem:

I applied discussion, open-ended questions and music appreciation during my music lessons and students were capable of answering my questions and always provided their own ideas. Referring to the music textbooks, the usual questioning is done by using multiple-choice and fills in the blanks with provided words. Nevertheless, by using multiple-choice and fill in the blanks with provided words, it was easier for teachers to examine students' level of knowledge, but under the twenty-first-century education trend, formative assessment is known as a more reliable assessment method for students' learning ability. (Carl)

Jenny, Jan, Ling, Ken, and Jonny mentioned that they were capable of nurturing students by using critical thinking skills but did not know how to apply the

procedures or how to assess the achievements:

I thought I could apply all stages of critical thinking procedure in my classes; students liked to express their ideas and shared their works with each other. About the critical thinking procedure, there was no standard practice of duration for each stage, so I decided to proceed to the next stage according to students' performance and presentation in each task. Some music tasks were easier and required a shorter period of time, so I would shorten some stages ... actually each stage could be flexibly re-arranged according to the music task, but I insisted on giving students a longer time for their presentation and evaluation. I thought it was very important for students to present their learning outcomes and reflect on their own work. (Ling)

The interview reflected that most of the interviewees were capable of applying the critical thinking skills during the music lessons, but without a supporting documentation, guideline, and information regarding the critical thinking teaching and learning strategies, teachers sometimes found it difficult to nurture students by using critical thinking skills.

4.4.1.8 Related Course for the Critical Thinking Skills in Tertiary Education

Referring to the previous question about the lack of supporting information for the implementation of critical thinking skills, twelve interviewees were invited to share their learning background related to the critical thinking skills.

Five of the interviewees mentioned that they did not receive any courses related to the critical thinking skills and seven of the interviewees said they learnt some topics related to the critical thinking skills during a pedagogy course. However, regarding

the critical thinking skills implemented in the music lessons, all interviewees mentioned that they did not receive any specific courses for the teaching and learning of critical thinking skills for music lessons.

Ling, who graduated ten years ago with a Bachelor of Education and received her Master of Education five years ago, also shared her learning experience about the critical thinking skills:

I did not receive any specific course related to the critical thinking skills in music teaching, but there were some courses in which critical thinking skills were mentioned when I studied in the university. I merged the concept from two such courses and tried to apply it for my students in my music lessons. (Ling)

Keith graduated three years ago with a Bachelor of Education and now is teaching in a school that uses the IB program as a school policy:

I remembered there were two lessons that mentioned the concept and theories of some critical thinking elements, but I learnt only some basic concepts. Unfortunately, there were no opportunities for me to apply them during my teaching practice. After I started my teaching in this school, I tried to apply the critical thinking teaching strategies in my music lessons.” (Keith)

There were only a few particular courses related to the critical thinking skills in general education pedagogical courses and music faculty. Five interviewees graduated from two different universities, and those universities did not provide any solid teaching and learning materials regarding critical thinking skills for

pre-teachers. Interviewees mentioned that they did not have opportunities to apply any critical thinking skills during the teaching practice. Until they graduated and started their music teaching in school, the interviewees tried to integrate the concept they have learnt (related to the critical thinking skills) from different pedagogical courses and applied to their current schools of teaching.

4.4.1.9 Supplementary support for the implementation of Critical Thinking skills

Referring to the result of the analysis of the questionnaire in Chapter 3 and the interview questions on “Students’ performance by using critical thinking skills” and “Significance of the implementation of critical thinking skills in music lessons,” the implementation of critical thinking skills provided students a better and effective learning environment and the students’ learning outcomes were significantly improved. However, the analysis regarding the “teachers’ ability in nurturing students by using critical thinking skills” in Chapter 3 and the discussion of the interview question “The difficulties of the implementation of critical thinking skills” revealed that some teachers were not capable of nurturing students effectively by using critical thinking skills during their music lessons. Besides, some external factors from school organisation, school policy, or classroom setting also affected the effectiveness of the implementation of critical thinking skills.

At the end of the interview, twelve interviewees were invited to provide some suggestions for the implementation of critical thinking skills regarding the current situation of Hong Kong Primary Education.

All interviewees suggested that providing training for teachers might improve the effectiveness of the implementation of critical thinking skills given the current situation:

I believed in-service teacher training was a very important supporting scheme that could provide current teachers with opportunities to learn more about the critical thinking teaching strategies and to share the teaching strategies with others. Although some related concepts or topics were taught during the study of education pedagogy course at the university level, only a short or even no on-site teaching experience and practice could be provided. (Keith)

Moreover, teaching workshops, online discussion forums and sharing platforms were other useful means that could provide opportunities for teachers to share the teaching experience suggested by Carl, Ling, Ken, Mary, and Keith:

I joined some “Teaching experience sharing workshops” provided by the Hong Kong Education Department, but all were focused on English and Mathematics. Since I taught English and Mathematics at my school as well, I used to join these workshops with the hope that I can learn more about teaching strategies. I really wanted to join a workshop for Music, but there was no such a workshop, so I felt a lack of support in my music teaching; I tried to share some information with my colleagues, but unfortunately they could not always help me. I also joined some music sharing workshops provided by some publications,

but most of them were focused on discussing the music curriculum and not on the teaching strategies or critical thinking skills. I hope the Hong Kong Education Department and publications could consider and provide some workshops or sharing sessions regarding the four learning targets. (Carl)

Ken made the following suggestions:

... I suggested some publications that could provide an online sharing platform for teachers where teachers could share their teaching experience and upload some useful teaching materials. (Ken)

Ken also suggested that the current music curriculum should be reviewed and modified:

Some of the contents were outdated and should be edited; the current music curriculum was published in 2003, so it is the right time to do an evaluation and release a new version. I felt there were not enough teaching strategy guidelines for the four learning targets in the current music curriculum; therefore, I suggested providing clearer teaching guidelines for each of the learning targets, including the teaching strategies, the procedure of teaching, the assessment guidelines and some teaching examples. (Ken)

Three interviewees suggested that the music textbooks should be reviewed and modified. They reflected that the current music textbooks included too many non-critical thinking questions and teacher directed activities design. The publication should add some supporting materials and guidelines about the critical thinking teaching strategies, such as teaching and assessment guidelines and examples of critical thinking questions for each unit.

At the end of the interview, 10 interviewees from eight schools nominated 12 to 16 students from their schools to join the students' interview for this study. Two interviewees who could not obtain the approval from the school principal could only participate in the "teachers' interview." The analysis results of the students' interview will be discussed in the following part.

4.4.2 Part two: Results from the interview with the students

For the interviews with the students, all students were divided into 16 focus groups; eight groups combined grades 3 and 4 students and the other eight groups combined grades 5 and 6 students. Regarding the eight participating schools in the students' interview, there were one government school, five government-aided schools, one direct-subsidized school, and one private school with the IB program as a school policy⁴. All of them applied the local Hong Kong music curriculum syllabi as a framework for their music lessons for grades 3 – 6 and used a music textbook published by different Hong Kong local education publications based on the Hong Kong music curriculum as the main teaching materials. In addition, teachers would

⁴ There are four kinds of schools in Hong Kong. Government Schools refer to those schools run by the government, Aided Schools refer to those schools founded by private sectors but financially supported by the government, Directed-subsidized schools are founded by the private sector and receive both government subsidy and tuition fees from parents, while Private Schools are founded and run by the private sector.

apply some supplementary exercises or various listening and visual teaching materials.

The results are presented following the three main categories: (1) description of teaching and learning experiences in the music lessons, (2) personal beliefs on music learning, and (3) reflection of the application to daily life and synthesis of the acquired music knowledge.

4.4.2.1 Description of teaching and learning experiences in the music lessons

In the first interview question, all the interviewees were required to share their learning experiences about the teachers' teaching practice, procedures and questioning strategies.

All the interviewees mentioned that their teachers liked to ask some questions related to a new topic that they planned to teach in the next lessons. Regarding some music context topics such as Chinese Opera, African music, and Japanese music, most of the teachers encouraged the students to share their previous knowledge with classmates. Regarding some music elements learning or performance techniques, all the interviewees mentioned that the teachers demonstrated for them in advance and asked some questions related to the demonstration. Based on the students' sharing,

the teachers applied more information to enrich students' knowledge. Furthermore, the teachers applied different music activities with the students, nurtured the students to learn by using different teaching strategies, and ended up with an evaluation and assessment of the students' performance by using different strategies, such as performance or presentation. Some interviewees mentioned that their teachers would not provide them the correct answer directly; instead, they would use some leading questions to encourage students to think correctly.

Miss Tina will not tell us the answer directly; she leads us to answer the question by using some hints, sometimes applies with a demonstration by herself as well. Miss Tina will give us some time before answering. (2/S/P/3)

Another group also provided their learning experience about how their teacher facilitated their correct thinking.

The teacher will give some comments and ask me to modify the answer; sometimes if my answer was partially correct, the teacher would tell me where the problem is and how to try to fix it. She would not tell me the correct answer directly until I answer correctly. (7/S/S/5)

Analysing the description of the 16 focus groups about their music lessons, it was found that all of the lesson designs were student-oriented; teachers provided students opportunities to share their experiences, to learn by themselves for different music elements and nurtured students to present their own works. As shown in the class observation, all teachers applied critical thinking questioning techniques during class

and nurtured students by using different critical thinking teaching strategies.

Teachers tried to provide well-designed music lessons for the students to develop their critical thinking and afforded them a chance to present critically. However, from the interview it was clear that although most of the teachers provided students a platform to present their ideas first before introducing a new topic, the communication was directed only between the students and the teacher, not between the students. Reported by two groups of interviewees, their teachers applied questioning teaching strategy during lessons, but it seemed there was not too much interaction between classmates, and this phenomenon could also be observed from class observation.

Researcher: Is there any group discussion session during class?

Student (5): Very rare. The teacher will ask some questions at the beginning of the lesson. We can answer the questions and then the teacher will tell us if our answers are correct or incorrect.

Researcher: That means the teacher likes to ask questions but rarely does group discussion?

Student (7): Yup. Maybe we are too noisy sometimes; teachers do not like to have a discussion.

(6/J/S/5&7)

A reported from group 13

Researcher: Is there any group discussion session during class?

Student (3): The teacher will ask some questions during the class, but all the questions are from the music textbook; she asks us to open the music textbook and answer the questions. Sometimes she will sing a song for the rest for a few minutes or we practice the

recorder together. I have not tried a group discussion during my music lessons.

(13/J/S/3)

There was only one group mentioning that the teacher asked them to discuss among the group and to present their ideas and findings:

Miss Tina will ask the classmates to discuss her questions in a group; she will come over and discuss with us too. I remembered she always applied group discussion during her classes. I feel very interested and learn more during the discussion with classmates... I like this. (1/J/P/2)

Among of the eight class observations, only four of them applied student discussion session during lesson. Although most of the teachers in each class observation asking students' questions refer to the music context, the interaction was between the teacher and particular students only.

By using music textbooks as essential teaching materials for the music lessons, teachers always spent a longer time to complete the questions. All the interviewees reported that their teachers required them to complete the questions from the music textbook. As mentioned in the previous chapter, most of the questions from the music textbooks were raised in a non-critical thinking skill format such as multiple-choice and fill in the blanks with provided words. However, some of the interviewees

reported that their teachers applied some open-ended questions during lessons and also encouraged them to present their own ideas using their own wording:

The teacher will ask me a question and even though the question was taken from the music textbook and had some choice of provided answers, he encouraged me to answer using my own words and applying my own ideas as well. (3/S/P/4)

Another teacher also encouraged students to present using their own ideas:

Researcher: If your answer was different from the default answer, meaning your answer was presented using your own words and ideas, will your teacher accept it?

Student (7): She will tell me the difference between my answer and the default answer. If my answer had the same ideas and was related to the question, she will accept my answer.

Researcher: Did your music teacher ask you some questions without a standard answer?

Student (8): Yup. She sometimes asks our class to present our own ideas and to discuss with classmates. The teacher said that open-ended questions can help us to think critically.

(6/S/S/7)

As mentioned in the description of Keith's and Tina's class observations in the previous session, they re-designed the question format by asking students to use open-ended questions instead of providing choices for them. From Ken and Ling's class observation, they accepted any reasonable answers from students.

Regarding the integrated music activities including performing, creating and listening suggested in the *Music Curriculum Guide (2003)*, the interview report reflected that all teachers applied different music activities for their students, including performing activities: “10 minutes performances and mini-stage performances,” creating activities: composition by using pentatonic scale, repeated, sequence and imitation music techniques and sound effect projects and listening activities: some listening games for junior grade students and aural training for senior grade students. Although it was not a complete procedure of critical thinking or critical thinking learning attitude that could be adopted in each activity, teachers tried to apply part of the critical thinking elements and nurtured the students learning through a critical thinking procedure. Organizing, applying, and analysing were the most common critical elements often applied in different music activities. Evaluation was the element that has been applied in all music activities as a final assessment of students’ learning outcome.

All of the above activities were some routine exercises applied in a music lesson. Besides the integrated music activities, project learning was an essential music assignment mentioned in the students’ interviews as to have been applied to students’ learning. Consistently to the analysis from the teachers’ interview, the students’

interview report reflected the significance of the critical thinking skills of students' learning. Through the project learning, students could experience the complete procedure of critical thinking and critical thinking learning attitude.

The students' interviews reported that, in an academic year, eight groups had to complete two group project assignments and six groups needed to finish one project; two groups from the same school reported that they did not have a project assignment but teachers applied some group discussion and presentation of some short learning tasks during lesson. All the focus groups were invited to share their experience about the learning procedure of their project assignment.

Most of each group's interviewees were able to report the procedure of their project learning systematically from the first stage of "gathering information" to the last stage of "evaluation." Although students were not capable of using the same terminology of "procedure of critical thinking" and "learning attitude of critical thinking," students were capable of dividing their learning procedure into several sessions from general to particular stages and to mention elements of two core critical thinking models. As reflected from the report, most of the project required students to work in groups and apply different research techniques. Students were required to apply a peer evaluation and self-evaluation to provide an opportunity for

self-reflection. Results from the analysis of students' interview showed a consensus in that most of the teachers implemented the questioning technique as an essential teaching strategy during the music lessons.

Regarding the different teachers' practices, some teachers applied a direct "question and answer" session between the teacher and the students during the music lessons, and some of the teachers applied group discussion sessions as to provide an interaction opportunity for students. Teachers nurtured and encouraged students to present their learning outcomes through different types of integrated music activities.

Outlined from the results, most of the teachers could design a student-centered music lesson. However, without clear distinct ideas of the model for the critical thinking skills provided by schools and government, teachers did not know if they implemented the strategies correctly or incorrectly. Reflected in the analysis result of teachers' interview and class observation, most of the stages refer to the critical thinking skill models that have been addressed during teaching. However, conceptualizing and synthesising from the procedure of critical thinking skills could not be well addressed. Self-reflection, active process and considering new options from the learning attitude of critical thinking skills were not well developed and addressed during lesson. Referring to the analysis report of the teachers' interview and to the matters reflected in this chapter, there will be a brief discussion on the

difficulties of the implementation of critical thinking in the next chapter.

4.4.2.2 Students' beliefs in music learning

Reflected in students' interview, most of the interviewees enjoyed learning by experiencing and working in a group; questions from teachers could motivate them to think more critically. Most of the interviewees reported that they could answer the questions and present their ideas confidently under the implementation of critical thinking skills in the music lessons.

Regarding the learning attitude of the critical thinking model, active process learning was one of the essential attitudes that could benefit students' lifelong learning. Besides learning at school, students could learn by themselves through the use of media learning by browsing the internet – reading books, magazines from the library, sharing experiences with peers, friends, and seniors. As also reflected from the analysis, in order to provide opportunities for students, most of the teachers designed different integrated music activities and applied project learning in their music lessons. By using different active process learning strategies, students could search the information on particular topics. Consequently, through self-research procedures,

students could gain different information that was not mentioned in the music textbooks, information that would enrich students' knowledge. As an active process learning, through the self-investigation, students not only learning by doing only, they are thinking about what they are doing and why (Shulman, 1987).

Most of the interviewees agreed that active process learning and group work had a positive influence on them not only in music knowledge learning but also in lifelong communication, self-organize and social skills, cooperation between the group members (which was the most valuable experience they learnt from a group work).

The time management skills for the entire project assignment, assignment of duties for each group member, the planning for each procedure of the critical learning cycle, and their responsibility to report their works on time and to formulate a result for the presentation or performance can also be improved. A high demand for self-disciplined learning attitude enabled them to become considerate and balanced learners. Unfortunately, some group members were not self-disciplined and responsible and even slowed down the learning progress and affected the learning outcome of the group or even the entire class:

...one of the group members was very lazy: we assigned some works for him, but he did not do anything until the end. All of the members waited for him – actually, he was not our close friend but he just he did not have a group, so teacher assigned him to join our group – but working with him made us feel

very unhappy, anxious, and worried about our assignment (3/S/S/7)

The relationship between the group members was one of the important factors that influenced students' motivation in learning. As reflected from another group, three of the interviewees mentioned that working with close friends together could produce a “chemical effect”:

Student (5) : I can choose a suitable instrument by myself and can work together with my best friend and feel very happy.

Researcher: How about you, student (6) ?

Student (6) : I can try different instruments, and....if I need to perform a song, I need an ensemble; it is perfect if I can perform with my friends.

Researcher: That means you need to work in a group, is that right?

Student (7) : If I work by myself, I think I cannot handle it, I cannot create on my own, if I work with my friends, they can help me and we could create together, then I feel more confident.

Most of the interviewees mentioned that a good and close relationship between group members could provide them a higher motivation in learning, working with reliable friends made them feel more confident, while working in a group with strangers would make them feel unstable, anxious and directly influence the results of the group work. (Minter, 2011; Noveck, 2006; Jones, 2007).

Active process learning through different media became a dominant learning strategy in the 21st education environment and was named as a positive effective teaching and

learning strategy which could significantly develop students' critical thinking skills.

However, some interviewees reflected that teachers' monitoring during learning was very important:

Researcher: Did you obtain some fake or wrong information online?

Student (4): Wikipedia... really....

Researcher: Student (4) said there were some incorrect information from Wikipedia, how about you, student (5)?

Student (5): Yes! There was some incorrect information about Ocean Park before. Somebody modified the information once he found it was incorrect...I did not trust Wikipedia.

Researcher: That means you think there was some incorrect information out there...so what do you do when you doubt the information you search for?

Student (5): Yes! I will ask my teacher and I believe he could help me.

(5/S/P/5)

Another interviewee mentioned that the teacher could help him consolidate the knowledge, especially before the examination:

...before the examination, the teacher could help us consolidate the knowledge we learnt and review the content; we can jot down some important points for revision, but sometimes we would get some wrong information online or in the syllabus. The teacher is very important; he provides us all the correct information. (5/S/P/1)

Although providing students with self-learning opportunities is a significant learning strategy for students to develop their critical thinking skills nowadays, teachers still play an essential role as facilitators and provide guidance, suggestions as well as direction in students' learning (Sheldon & DeNardo, 2005; Charles, 2013).

4.4.2.3 Reflection of the application and synthesis of music knowledge to daily life

Most of the philosophers, psychologists and educators agree that critical thinking is the ability to be involved in meaningful, self-regulatory judgments (Bloom, 1956; Ennis, 1985; Sternberg, 1985; Facione, 1990; Paul, 1993; Halpem, 1996; Paul and Elder, 1998; Kuhn, 1999). As recognized as an important skill related to the human's social life and everyday life, most teachers think that nurturing students to think critically is one of the most desirable goals of formal schooling as mentioned in this study's literature review in Chapter 2. The last two questions in the students' interview examined the application and synthesis of music from school to students' daily life.

Several groups of students from different schools shared their own experiences regarding the music knowledge they learnt at school. Most of the students mentioned that they paid more attention to the music related to the topic from their project assignment:

- Researcher: Did you pay more attention to the Chinese instruments in your daily life after the project assignment?
- Student (2): Yes! I heard some people performing Chinese instruments in the street.
- Student (3): I heard somebody performed Erhu or Chinese bamboo flute in the subway sometimes.
- Researcher: How about before your project assignment? Did you pay attention to them?

- Student (5): No! I did not pay attention to them.
 Researcher: How do you feel about that?
 Student (6): I felt very interested, the music we learnt from school actually was always beside us in our daily life. Very close.
 Researcher: Is it useful?
 Student (5): Sometimes, such as when crossing the road....

(2/S/P/3)

Some other students mentioned about their discovery of some Cantopop songs and classical music that appeared in their daily life.

TIME IS LOVE, the advertisement of Solvil el Titus watch, the song I heard was the original from Jupiter from Planets by Holst, but Leo Ku's song was a new arrangement. (8/S/S/6)

SPRING, I heard this music at a shopping mall in a restaurant. Every time I heard it, it felt very familiar, but I could not tell the name. Right! It was from Vivaldi's Four Seasons suite as I learnt from my music lesson, so funny... (12/S/S/5)

AMAZING GRACE, I sang this song in church before; I loved this song because the melody is so sweet and touching. I like to sing hymns like that in Christmas time, but there are so many commercial Christmas songs now... some of the arrangements are so awful.... (13/J/S/2)

The JOYFUL NEW YEAR (歡樂年年), I searched online and found out that many years ago the Joyful New Year was a pop song originally by Adam Cheng and Liza Wang. My father said he sang this song when he was young too, but that one that we watched by Bobby Au-Yeung and Nancy Sit was a new version. I liked that song. When I hear it means that Chinese year is coming; the Chinese instruments sound very special, I like the Chinese New Year. (16/S/S/5)

Looking back at the discussion with students, it is noted that most of the students

could link up the songs they learnt from the music lessons to their daily life and gave out some information regarding the song which was not published in the textbooks. They mentioned that they checked out the information themselves on the internet, library or from relatives. Most of the students expressed their own feelings about the songs and their arrangements and provided some suggestions for the music. Two groups of students mentioned that they have tried to apply their own idea to the song and create their own version:

Researcher: What did you do in the Garage band project?

Student (1): The teacher gave us a list of songs to choose from; we chose one of the famous songs “Twinkle twinkle little star,” re-arranged it and selected different instruments for the song.

Student (2): Yes! We discussed the idea together, some classmates shared what they heard about this song in their daily life. I prefer to create a very new style by using some authentic instruments such as African drum with strings.

Researcher: Why did you have that new idea?

Student (2): I heard many versions; I wanted to have a very special sound, so I proposed this to my classmates.

Researcher: What did your group member feel?

Student (2): Hmm... some liked it, some did not.

Researcher: So... did you convince them?

Student (2): Yes! I tried to tell them about my idea, but I respect their ideas also. Finally, we compromised using two authentic instruments mixed with some classical instruments. The music was very interesting.

As reported from the interview, many teachers were eager to provide opportunities for students to develop their self-learning and self-regulatory judgment skills by

using different teaching strategies such as group discussion or project assignment. Students were encouraged to create their own music works by using different music elements, applying ideas from daily life and synthesising them into a new music work. All interviewees reported that they liked to create a musical work of their own, applying their own idea; they enjoyed the learning process of discussion with classmates while the teacher as a facilitator provided them support. The environment of school learning became more interactive between teachers and students.

In order to create a perfect learning environment in primary school music lessons, the coordination between the school, the teachers and the students' was very important. As a summary of the report from the interview with the teachers and the students, some of the essential issues schools are facing nowadays will be discussed in the following section.

4.5 Discussion

From the report of the semi-structured interviews with teachers and students, all the interviewees provided valuable and useful information for the implication of the implementation of critical thinking skills in teaching and learning. From different points of view of teachers and students, the real situation of the significance and

problems of the implementation of critical thinking was clearly reported in this chapter. Furthermore, in the report of the semi-structured interview, some real situations that could not emerge from the questionnaire data results in Chapter 3 will be discussed and all interviewee's responses will be as well discussed and summarised.

4.5.1 The implementation of critical thinking skill strategies in schools

As reported from the interviewees of the teacher interview, all the school heads agree that nurturing students by using critical thinking skills could develop positive and logical reasoning skills, which would assist students to think rationally. It could offer life-long benefits for students and develop personal growth generic skills to be applied to their social life. Developing students' critical thinking skills is clearly outlined and addressed in the schools' policy as a basic learning necessity; however, not every school could provide a clear direction and guidelines for the implementation of critical thinking teaching and learning strategies. Although participating schools support teachers to apply critical thinking skills in teaching, there are insufficient supporting documents and materials for teachers.

Among all interviewees, only two of them reported that their school applied the

critical thinking skill concept to all subjects and created a critical thinking teaching and learning environment in the classroom. The school of the two interviewees mentioned provides a distinct supporting document regarding the implementation of high order thinking, including critical thinking skills for teachers, and encourage teachers to participate in some international sharing forum and to share ideas with educators all over the world. Inquiry-based learning is one of the essential teaching and learning strategies clearly identified in the school education policy. Conversely, the other schools which applied the local curriculum and followed the education policy issued by the Hong Kong Education Department as their framework of teaching and learning. The policy addressed the importance of the implementation of critical thinking skills in students' learning journey and named it as one of the generic skills for a whole-person development. However, the document does not provide any official supporting document regarding the implementation of critical thinking skills in primary education for teachers, school administrators, and school heads. Besides, without any pre-service or in-service professional education training particular to the critical thinking skills provided for the teacher, school administrators, and school heads, most of the teachers, school administrators, and school heads felt incapable to nurturing students fluently by using critical thinking skills of teaching and learning.

In terms of teaching practice, it is apparent that some of the teachers rely on existing and traditional pedagogy rather than adopting critical thinking strategies. All twelve teacher interviewees reported that they applied critical thinking skills in their music lessons by using integrated music activities, including performance, listening, and creativity as major teaching strategies. From the triangulated report by the student interviewees, most of the students reported that their teachers do apply different kinds of music activities in the music lessons with critical thinking teaching strategies such as different questioning techniques (group discussions, open-ended questions, presentations, and peer-evaluations) to develop and strengthen their music skills and concepts. However, some students reported that their schools insist on using traditional teaching strategies such as “singing along with the teacher a few times during the lesson,” “having to follow the suggested model answers from teachers’ textbook,” “using multiple-choice or fill-in the blanks with provided words in the worksheet and using exam paper as a major questioning format.”

Reported from the interview, the concept of nurturing students by using critical thinking skills has been clearly stated in the policy for each school, according to the school-based policy; school administrator could decide their own implementation

policy and schedule. Without an official documentation for schools to address a systematic implementation of critical thinking skills in schools, an inconsistency of the implementation of critical thinking skills in different schools has eventually created an imbalance of teaching and learning circumstances in Hong Kong primary school music education.

Implementation of teaching and learning policy in schools is an important factor affecting the effectiveness of implementation directly. Although most of the schools emphasize the importance of critical thinking in student learning progress, without a solid, systematic guideline for school, school administrators and teachers would feel incapable of nurturing students fluently by using critical thinking skills of teaching and learning.

4.5.2 Teachers' beliefs, understanding and the ability of the implementation of critical thinking skills

Consistent with the results from the analysis of the questionnaire in Chapter 3, all of the teacher interviewees expressed their beliefs in the implementation of critical thinking skills in a music lesson. The analysis of the semi-structured interviews reflects that most of the teacher interviewees could grasp the basic elements of the

critical thinking procedure and learning attitude under their own understanding and are capable of implementing their elements in their music lessons. However, without official pedagogical training specific to the critical thinking skills, some interviewees are not confident of applying the critical thinking skills in the music lessons. Some of the interviewees notice that there are problems that occur during their teaching, such as time management, teaching techniques as well as assessment and evaluation of students, and most of the teachers are not capable of solving the problem, which eventually affects the teaching effectiveness.

Lesson planning, instructional decisions, and classroom practices are strongly interrelated with teacher's beliefs in the classroom (Pajares, 1992). As reported from the teacher interviews, all interviewees mentioned that they apply critical thinking skill elements in their music lessons, even if they are not skillful and matured in manipulating the critical thinking skills, they believe that they have created a critical thinking learning environment that could enhance students' higher-order thinking and assist students to achieve a positive effectiveness for their learning outcomes. All interviewees are willing to try "learning from teaching" in order to enrich the cultivation of critical thinking skills in their music lessons. Furthermore, they often share their teaching experiences with colleagues, evaluate things together and justify

the teaching techniques.

Reflected from the analysis of students' interview, it was noted that most of the students enjoy the learning strategy of using critical thinking skill elements. Under the critical thinking learning environment, students' motivation for learning, participation in class, and learning outcomes are significantly improved. By using student-centered activities, students become more self-disciplined and self-regulated in personal management while the teachers' role changed to that of a facilitator to assist the students in their learning and to guide them to respond critically. The learning outcomes for students are significant; it provides an encouraging confidence for teachers to implement the critical thinking skills during lesson. However, without a consistent teaching schedule particular to the critical thinking skills for all schools in Hong Kong, the effectiveness of the implementation remains unbalanced.

4.5.3 Difficulties and improvement of implementation of critical thinking skills

In 21st century education, nurturing students to respond critically is an important education target all over the world; cultivating students' critical thinking has become an essential task for the teachers. Regarding the education policy and environment in different countries, some difficulties in teaching and learning occur under certain

circumstances. As summarized from different teacher interviewees' opinions, their difficulties in music education lessons are related to school policy and support, the teaching environment and classroom setting as well as time management and school timetable arrangement, which coincide with the major problems in Hong Kong music education. Differentiation of students' ability or students' motivation in learning is a problem out of their control. However, regarding the critical thinking skills, the government's support is still insufficient. In the teacher interview, interviewees have provided some suggestions for improvement, namely, in-service training for current teachers, strengthening the pre-teachers' pedagogical courses in the education training, enhancing the quality of the implementation of critical thinking skills, sharing workshops and platforms such as online forums and teaching material websites, etc.

4.6 Summary

In general, the findings of the semi-structured interview in the current chapter are consistent with the results of the questionnaire survey in Chapter 3. A strong belief in the implementation of critical thinking skills is reflected in teachers and students in both the questionnaire and the semi-structured interviews. From the results of the questionnaire survey, most of the teachers believe that the implementation of critical

thinking skills can assist students, providing them a positive improvement of learning attitude. However, regarding the contradictory results according to the implementation of critical thinking teaching and learning strategies from the questionnaire, the semi-structured interviews with teachers and students have provided more in-depth information and reflected the real situation.

Some good teaching practices regarding the critical thinking skills were addressed from the result in this chapter. From the interview with teachers and students and the class observation, a more distinct and real situation of the implementation of critical thinking skills in Hong Kong primary school music education was reflected. It also clarifies a contradictory result about the implementation of critical thinking strategies, as most of the teachers applied the critical thinking strategies in their lesson, but the questioning format or materials were not more “critical.” In addition, some factors mentioned by teachers were summarised in this chapter and showed their difficulties. Some suggestions from teachers in the interview give a good inspiration on how to improve the policy among schools, publisher, and education department, and create a more mature critical teaching and learning environment for students.

In the last chapter, an analysis of the relationship between the questionnaire and

semi-structured interview will be discussed. An implication to the implementation of critical thinking skills in Hong Kong primary school music education will be suggested at the end of the study.

Chapter 5

DISCUSSION, IMPLICATION, AND CONCLUSION

This chapter presents a review of the findings of the questionnaire in Phase I and the semi-structured interviews in Phase II and describes the relationship between the two phases, followed by a discussion of the current situation of the implementation of critical thinking skills in Hong Kong primary school music education. Lastly, it will provide implications related to the major issues summarized from the two phases about the context of music in Hong Kong primary school music education.

5.1 Connection between Phase I and Phase II

The two phases of this study are interrelated; their purposes were to investigate the current situation of the cultivation of critical responses in Hong Kong primary school music education and to probe the difficulties and needs for teaching and learning. A questionnaire followed by a series of semi-structured interviews were adopted for the investigation.

In Phase I, a questionnaire survey was adopted for exploring the current situation of cultivating students' critical thinking responses and for investigating the good practices of teaching music in Hong Kong primary schools. From different replies of

215 respondents, an analysis emerged and was categorized into five aspects, namely 1) the use of teaching strategies during lessons; 2) teacher's beliefs about cultivating critical thinking skills; 3) teacher's ability of cultivating critical thinking skills; 4) the teachers' understanding of the critical thinking skills, and 5) the learning attitude and effectiveness of using critical thinking teaching strategies.

Adding to the analysis from the questionnaire result, a more detailed overview of the teachers and students' beliefs about critical thinking skills, a clarification of the contradictory findings of the questionnaire and some prospective ideas on the matter were examined in a semi-structured interview in Phase II.

5.1.1 Results indication from the questionnaire in Phase I

The result of Phase I indicates that most of the primary school heads agree that the implementation of critical thinking skills in schools could nurture students' critical responses. Schools tend to encourage teachers to design appropriate lessons by applying critical thinking skills so as to reinforce students' critical thinking skills based on students' ability and characteristics.

In fact, according to different factors emerging from students, teachers, and school

policies, the effectiveness of the cultivation of critical thinking responses is different in each school; the government policy and support are other external factors that directly affect this effectiveness.

Summarizing the result from Chapter 3, out of the four previously named areas, five major difficulties, which have hindered the effectiveness of implementation in their teaching, are identified by teachers: (1) the limitation of teaching time, (2) the lack of related teaching materials and resources and clear guidelines related to critical thinking skills from schools and the education department of Hong Kong, (3) insufficient teacher training workshops and programs provided by the government or other organisations, (4) the differentiation of students' learning ability, motivation of involvement in class, (5) the teachers' ability and confidence in using critical thinking skills during the class.

As outlined in Chapter 3, the current situation of the implementation of critical thinking reflects the teaching effectiveness explored under different demographic factors related to the teachers (gender, age group, teaching experience and teachers' qualification), with a significant difference between “mature” and “non-mature” teachers emerging.

Firstly, the results from the teachers' gender extend the hypothesis that male teachers address the implementation of critical thinking skills in a more skilful way than female teachers. Confirmed by three age groups' results, teachers under 25 are keen on applying critical thinking skills in their lessons and they tend to believe that they are capable of nurturing students. However, their lowest scores in "learning attitude of critical thinking skills" and "procedure of critical thinking skills" show that there is room for improvement in their teaching. Conversely, regarding "mature teachers" who are 40 years old or over, the results showed that they are more mature in the implementation of critical thinking skills than the other groups.

Consistently, mature teachers with longer years of teaching (more than ten years) have achieved the highest mean score, both in "teaching ability," "learning attitude of critical thinking skills," and "procedure of critical thinking skills," while teachers with less than 3 years of teaching experience have received the lowest mean score. These results reflected the current situation of cultivating critical thinking skills in Hong Kong primary schools from the teachers' perspective.

As far as the teachers' qualification was concerned, it was shown that teachers with a

master's degree in music education are the most confident in nurturing students with critical thinking skills and in assessing students' work. However, the correlation analysis between parameters indicated that only "teaching belief" was correlated to "teaching qualification," which implies that the teachers' qualification is not a major factor affecting the effectiveness of implementation of critical thinking skills. Most of the teachers mentioned that the experience of teaching was a more important factor affecting the effectiveness of implementation.

The statistical analysis of the questionnaire provides a contradictory indication that more than 50% of teachers were able to nominate the correct critical elements, but only 5% of the responding music teachers apply the ideal critical thinking teaching strategies in their teaching and assessments. Contrarily, more than 45% of the respondents apply the non-ideal critical thinking teaching and assessment strategies.

Under this contradictory condition, a related question from the semi-structured interview at Chapter 4 was applied to probe for the real situation from the teachers and the students. Some ideas of good practices and several teaching strategies related to the implementation of critical thinking skills were collected through the two open-ended questions.

In summary, the survey results illustrate the current situation and demonstrate the challenges of the cultivation of critical thinking response in Hong Kong primary school music education. Based on the results, a more detailed and in-depth discussion for improvement of teaching and learning will be presented.

5.1.2 Results indication from the semi-structured interview from Phase II

The results from the interviews with 12 teachers and 164 students followed the questionnaire in Chapter 4 and present the real circumstances of teaching and learning by using critical thinking skill elements in schools. Besides surveying the circumstances of the current situation, another major aim of the interview was seeking the truth regarding the contradictory result from Chapter 3. Indeed, some professional advice and suggestions were acquired from the teachers' interview, and some unexpected ideas from students' interview provided an in-depth understanding of the real needs of teachers and students.

All teacher and student interview data are characterized into different categories for analysis; four different categories are from the teacher interviews: (1) the situation of implementation of critical thinking skills in their schools, (2) the understanding of critical thinking skills from each interviewee, (3) the significance of cultivating

critical thinking skills, and (4) the difficulties in cultivating critical thinking skills.

The results of student interviews are presented under three main categories: (1) description of teaching and learning experiences in the music lessons, (2) personal beliefs in music learning, (3) reflection of the application to daily life and synthesis of the acquired music knowledge.

Some comments from the teacher interviews are as aligned with the findings acquired in the questionnaire survey. All teacher interviewees mentioned that their schools support the implementation of critical thinking skills in the music lessons; improvement of students' learning outcome, learning attitude and motivation in learning are proved both in the questionnaire survey and the semi-structured interviews. The five major difficulties identified by teachers from the open-ended questions in the questionnaire survey are also identified and elaborated in the semi-structured interviews by teacher interviewees.

Regarding the contradictory result of the high percentage of “the understanding of critical thinking skills” among teachers vis-à-vis low percentage of “the application of ideal critical thinking questioning format and teaching strategies” achieved in the questionnaire survey, a specific question was designed in the teacher interview to

acquire more in-depth understanding of the real situation from different teachers and schools.

Summarizing all teacher interviewees' opinion, all teacher interviewees show a high level of belief and understanding of the basic requirements of the critical thinking skills. In the matter of the concept of critical thinking skills, questioning techniques, designing of integrated activities, nurturing student for gathering information and application of gathered information, most of the teacher interviewees show their confidence, but only few teacher interviewees show confidence in the analysis, synthesis, assessment and evaluation of the students' critical thinking responses, which are the essential stages of high-order thinking. Some schools, in particular, insist on using the "traditional" teaching strategies such as questioning and answering individually, following the model answers from teachers' textbook and using of multiple-choice or fill-in the blanks with provided words in assessment. Without a practice of the cultivation of critical thinking response in teaching and learning, teachers from those schools showed a significant difference in their confidence in the implementation compared with others.

The report indicates that all student interviewees present a positive feedback on the

implementation of critical thinking elements in the music lessons. All student interviewees agree that critical thinking learning strategies could provide them opportunities to experience and research from their daily life, motivate them in learning, and provide them opportunities to respond critically. In some interviews with students, more critical responses and creative ideas and more open-minded thinking are presented by the groups attending the schools that put emphasis on the students' cultivation of critical thinking responses.

5.1.3 The relation between two phases

A clear understanding of the real situation regarding the implementation of critical thinking skills in school was acquired through an individual interview with teachers, focus group interviews with students, and class observation. Some of the interview questions were modified based on the results of the questionnaire survey; some specific questions were added to investigate more in-depth information for the uncertain findings. During the class observation, the implementation of critical thinking skills by teachers and the students' response were also probed. The findings in the semi-structured interview and class observation have provided a triangulation of data for the focus group and different parameters. More solid and accurate findings are consolidated after the analysis of the two researching stages and will be discussed in the following section.

5.2 Discussion

A discussion of the research findings summarized from the questionnaire survey, semi-structured interviews and class observation are reported in this section. A distinct finding for each scenario from teachers and students will be also briefly discussed.

5.2.1 Teaching strategies and learning environment applied in music lesson

More than 50% of the respondents replied with a high belief and understanding of critical thinking skills and were willing to implement the critical thinking elements in their music lessons. However, indications from two findings report that only a few teachers can fluently manage all stages of the procedure of critical thinking skills and nurture students to achieve the requirements of the critical thinking learning attitude. In the 21st century, it has been advocated that the learning atmosphere should shift from a teacher-centred mode to student-centred mode (Weimer, 2002; Huba & Freed, 2000). Reflected from the findings, most of the teachers try to create a critical learning environment for their students by using different teaching strategies. These include open-ended questions, group discussion, and group project assignment, encouraging students to present their ideas in various formats, and preparing a comfortable and inviting learning environment for students that constitute a big

change from the previous educational era (Bucholz & Sheffler, 2009). The use of the above teaching and learning strategies becomes a fundamental educational technique to be applied in the classroom in this century; no matter how mature the teachers are, they can manage the critical thinking skills in teaching and learning. In order to achieve an effective critical learning outcome for each lesson, an appropriate allocation of students for group activity must be carefully arranged.

As report from the interviewees, most of them try to create a comfortable learning environment for the students and considerate for students' personalities, strengthens during the grouping. However, the classroom sizes and number of students in a class are some major factors affect the effectiveness of the implementation. As mentioned from the findings, few interviewees feel difficult to re-allocate the students of a big class. Regarding the class size problem, Filder (2001) reported that, reduced class sizes leads to improved students' learning achievement (Jepsen & Rivkin, 2009; Finn & Achilles, 1990; Angrist & Lavy, 1997). The number of students affected how much they learnt directly during class from teacher's allocation of time. (Ehrenberg, Brewer, Gamoran, and Willms, 2001). For some inexperience teacher, a small class can provide them more space and opportunities caring with the students, more concentrate on a small group (Jepsen & Rivkin, 2009), particular for some special

needs students. As a result, a better improvement for the inexperience teacher in the teaching skills and management skills were significantly examined.

By using the teaching and learning strategies mentioned, a simple but effective and significant critical learning environment could be created in schools. Depending on the ability of individual teachers to understand and manage the critical thinking skills, more advanced techniques of time management, assessment strategies, and evaluation of students' learning outcome implemented in the lessons must assist students in becoming more mature critical thinkers.

However, as drawn from the findings, only two teachers show their confidence in the implementation of critical thinking skills. The class size are appropriate and easy to arrange a flexible group activity; the school emphasize the cultivation of critical response and provide teachers with daily practice opportunities for the implementation of critical thinking elements in their teaching,. As a result, those two teachers have earned more experience than others, but, during their interviews, both of them could not illustrate a complete procedure of the critical thinking and critical thinking learning attitude. The findings reflect the necessity of training for current teachers related to the complete concept of critical thinking skills and pedagogical

training for teaching and learning.

5.2.2 The effectiveness of the implementation of critical thinking skills

Based on the evidence from experts and scholars regarding the critical thinking skills, it is beyond doubt that the implementation of critical thinking skills in teaching and learning provides positive effectiveness in students' learning (Abrami, 2008). As reported from the two findings, the results indicate a consistent positive feedback of implementing the critical thinking skills in Hong Kong primary school music education. Although none of the teachers could nurture the students by using a complete critical thinking skills teaching and learning model, according to the report taken from both the questionnaire survey and the interviews, most of the teachers are satisfied with the outcomes of the implemented critical thinking elements in their music lessons.

The learning outcome reflected in the students' performance provides a distinct feedback on the effectiveness of the implementation of critical thinking skills directly.

According to the feedback, students learning from experience and teachers as facilitators have led the students to the right track while students are required to participate in each step from every stage (Jones, 2007). Eventually, students

complete the tasks and learn how to research on their own, investigate and inquire from different media and from their daily life. Students cultivate a learning habit of thinking more critically and are capable of applying and synthesising what they have learnt to their social life. The effectiveness of the implementation of critical thinking skills benefits students' lifelong learning and provides students a positive learning attitude (Glaser, 1941; Scriven & Paul, 1987; Astleitner, 2002; Elder, 2007).

5.2.3 Student reactions

The students' reactions are mainly reported from the interviews with teachers and students; the report reflects the effectiveness of the implementation of critical thinking skills in schools and provides insights for improvement. As shown in the discussion of "the significance of the implementation of critical thinking skills" in Chapter 3, motivation and involvement of students, achievements from student's work, and students' beliefs in learning are three major related factors.

Regardless of location, music subject in schools is considered as a non-major subject and is always disregarded. However, arts education, including music, is significantly examined as an essential subject for students' whole-person development (Curriculum Development Council, 2002, p. 3) and can promote high order thinking

(Paul, 1985). Through different integrated music activities during class, music subject provides a suitable context for developing critical thinking skills (Kokkidou, 2013). According to the same curriculum, through the implementation of critical thinking skills in music learning, students gain a lot of opportunities to experience by themselves through various integrated music activities. As reflected from the students' interview, most of the students enjoy the process of learning through tasks that provide a freer design and decision-making opportunities, where students develop a strong sense of ownership and responsibility towards their duties. However, the relationship between the classmates in the same group is a major factor affecting the learning outcomes.

A difference in the relationship between “closer friendly group” and “non-closer friendly group” indicates that peers' support would strengthen the learning motivation and confidence in their works. Conversely, working in a group with some unreliable friends or strangers will make them feel unstable and anxious (Jones, 2007).

Sufficient instructions and guidelines for students, adequate time for discussion and work, enough teachers' support, and comments on student's work are all mentioned

as factors that directly influence students' achievement of their works. To initiate students' interest in a particular topic, supporting information and references from teachers are very important (Dasaradhi, 2016).

Teachers always act as a reliable model for students (Hammond, 1999; Juergen Siebel, 2015); discussion sessions on requirements, demonstrations by teachers, provision of samples for reference, as well as questions and answers sessions are all teaching strategies that can provide students with enough information to work and learn more comfortably and confidently. As reported from several students' interview groups, they enjoy the demonstrations from their teachers, feel clearer about the requirements and provide them with a clearer direction. Conversely, some groups of students report that their teachers do not allow them to try or touch the instruments; teachers do not demonstrate for them, have not arranged any discussion session during class and provided the project requirements without any previous discussion. During the interviews, students present themselves uninterested and disappointed about their teachers' practices. Eventually, the level of students' achievement is influenced by the teachers' method, which is a significant factor in building students' beliefs in learning clearly probed from the two different approaches to teaching and learning.

Students' achievement and beliefs in learning are influenced by teachers' teaching strategies undertaken in school (Griffin, 2007) and vice versa, while the effectiveness of teachers' strategies are also reflected from students' responses during class. Good communication between teachers and students always acts as one of the best strategies for teaching and learning and does not only benefit the music subject but also all subjects.

5.2.4 The support to the implementation of critical thinking skills

The results taken from the questionnaire survey and interviews show a consistent positive indication regarding the beliefs of the implementation of critical thinking skills from teachers and schools, which provide an encouraging development of the motivation for the cultivation of critical response in Hong Kong music education. However, supporting materials and maturity of the educational system are still considered as some major issues hindering this development. Hence, the effectiveness of the cultivation of critical response in Hong Kong primary school music education still stays the same at a certain level.

The review of the results of the questionnaire survey has named teachers' beliefs,

experience and qualification as major factors related to the effectiveness of the critical thinking skill implementation. Simultaneously, similar factors, namely, content knowledge, teaching experience, teacher behaviour and practices, teacher training and credentials are highlighted as characteristics of effective teachers from different U.S. educational researches regarding the teacher quality and student achievement (Darling-Hammond, 1999; Harris, Douglas & Sass, 2006; Kraft, 2015).

Reported from those U.S. educational researches, teachers' professional knowledge of the content they teach is important in predicting students' performance; experienced teachers on a particular subject produce higher student achievement, while teacher behaviour and practices in class, as well as teachers' training and credentials on particular subjects, may also assist students to perform well. Highly qualified teachers in every classroom are vital in raising student achievement and closing achievement gaps (Darling-Hammond, 1999).

However, according to the literature review reported in Chapter 2 regarding the difficulties of the education issues in England and the U.S., similar difficulties in Hong Kong education are reflected from the questionnaire survey and interviews. As suggested by different scholars in the literature review, the revised school and

government education policy and curriculum that provide more supporting materials for schools and teachers could improve the problem.

In Hong Kong, there are two aspects of the difficulty in the implementation of critical thinking skills in music education: 1) the professional music background of teachers, and 2) the proficiency of teaching strategies for the implementation of critical thinking skills.

As reported from questionnaire and interview with teachers, an imbalance phenomenon regarding the non-music major teachers was assigned to teach few classes in school still a usual practice in Hong Kong primary music education. Without professional music background or musical skills, those kinds of teachers were incapable to teach confidently during classes. Reported from few professional music major teachers from semi-structured interviews, they mentioned that their colleagues who were non-music major in their university study or without professional music training. They always concern about if they could teach the correct general music knowledge for students. The implementation of critical thinking in music lesson regards as a high-ordering thinking training in which

teachers can apply appropriate music elements during class and integrate with critical thinking teaching strategies flexibly. For the non-music major or without professional music training teachers, the implementation of critical thinking becomes another difficulty for them.

Generalist without sufficient musical knowledge were assigned to teach music may provide an extra problem in music education, which may hinder the development of students' learning. However, according to the literature review, this is a common problem occurred in US (Wiggins, 2008; Glesser, 2012).

It is found that Hong Kong teachers' proficiency of teaching strategies for the implementation of critical thinking skills is rather low. Although some teachers can spell out the components of the critical thinking learning model, they may not have a solid idea on how to apply the teaching strategies in their classes. In the 21st century music education, in order to carry out the instruction, scaffolds of the critical thinking is one of the most important objectives for student learning. Indicated from the findings, the effectiveness of nurturing student response is still disappointing; most teachers are lack of proficiency of teaching strategies for the implementation of critical thinking skills.

In order to solve the existing problems of the under-qualified music teachers in Hong Kong primary school music education, in-service training for non-music majors currently teaching music is urgently necessary. Besides, in the current teaching and learning environment, online teaching support such as related professional knowledge websites, sharing platforms and discussion forums are some of the efficient and convenient supporting media.

A lack of systematic teaching and learning strategies for critical thinking skills is a major problem highlighted in the current research findings. Cultivating students to think and respond more critically is an essential generic skill training that applies to both the school learning and to the daily social life. Reported from teachers' interviews, most of the music education seminars organized by the government or publishers mainly emphasize the academic achievement and release of updated teaching materials; some seminars, workshops, and sharing sessions, particularly for the critical thinking skills, are required by teachers as an important topic that should be included in future.

In conclusion, the review of all the different aspects, including teachers, schools, and

Hong Kong government shows the support of the implementation of critical thinking skills in primary school music education. However, a unified supporting set of guidelines related to the critical thinking skills and arrangements of teachers' seminars organized by the government should achieve effectiveness for the development of a new teaching and learning innovation nowadays.

5.3 Implications

The current phenomenon regarding the cultivation of critical thinking response in Hong Kong primary school music education is analysed and discussed in the former chapters from different aspects and summarises the significance and difficulties in the discussion section in this chapter. Some implications drawn from the findings are presented in this section so as to provide recommendations for the problems. Implications are categorised into four areas: 1) school administration, 2) music curriculum design, 3) professional training for teachers, and 4) government support.

5.3.1 School administration

In fact, the teacher acts as the most important person who works at the frontline of the school, nurturing students with different teaching strategies, monitoring students' level of achievement and their development in learning. A suggestion of

improvement for school administration will be discussed in this section.

5.3.1.1 Strategies for cultivating a critical thinking teaching and learning practice

To increase the effectiveness of the implementation of critical thinking skills in music lessons, the prime factor to motivate students to think critically is the unified use of strategies for critical thinking cultivation. Although most of the schools agree with the implementation of critical thinking strategy in school, only a few schools provide a clear school policy of teaching and learning regarding the critical thinking implementation. Currently, teachers can decide on their own teaching strategies and, as a result, various practices of teaching and learning may appear in the same school in different subjects. In fact, a clear school-based teaching and learning policy can provide guidelines for teachers, such as questioning and answering format, design of integrated activities, procedure of learning, and learning attitude of students. This policy applies to all subjects as a compulsory school-based policy so that students can develop a solid learning practice implemented to all subjects that will reduce the adaptation of content in different subjects.

The model of critical thinking procedure and learning attitude illustrates a complete cycle for teaching and learning in school, but it takes a long time to complete the whole cycle. To initially implement critical thinking skills for students who are

taught in a traditional theoretical approach, teachers can investigate few major steps, such as gathering information, analysing, applying and evaluating for a trial (Pogonowski, 1987), and create an appropriate atmosphere and environment for students to think critically. Besides, working with teachers from other subjects and providing opportunities for students to think more critically about every subject are effective for the implementation.

5.3.1.2 Double lesson arrangement

As mentioned by a teacher from the interview, his school arranged a double lesson for music, which provides teachers with a longer time for preparation, explanation, discussion and activities. Teachers could complete several stages of critical thinking procedures in a lesson; therefore, the whole learning process may become more coherent. The double lesson arrangement may provide a more significant and positive outcome than single lessons. Especially for the project learning, having the discussion session and presentation session together in double lessons may ensure effectiveness.

5.3.1.3 Assessment and evaluation

In the 21st-century education environment, the process of learning is more important

than before. Fostering a positive learning motivation in every stage could assist students with a better achievement at the end of the task. Providing formative assessment for students' learning process is one of the essential techniques of the teaching and learning techniques regarding the high-order thinking, including critical thinking skills. During a continued monitoring of the students' process, teachers could provide qualitative feedback, and vice versa; teachers could also evaluate their own teaching design reflected in students' achievements in each stage and modify it accordingly (Marsh, 2006).

Peer-evaluation is one useful strategy for nurturing students' critical thinking skills. The teachers provide clear evaluation criteria and benchmark for every task and the students experience being judges and reviewers for other classmates' works. Students may learn how to judge appropriately by correcting keys. This approach does not only foster students' critical thinking skills, but also nurture students into being open-minded towards accepting classmates' comments, into being fair in every judgement, and into gaining courage in offering comments to peers.

5.3.1.4 The role of music teachers

As a facilitator in the classroom working with students every day, teachers are

responsible for developing students' subject skills and learning attitude, while music teachers may assume some other roles regarding the music aspects, namely, a musician, a music advisor, a good audience and a friend of students.

The music teachers always have a chance to perform and to get applauses from the students (Nancy, 2005); teachers demonstrate during classes, present their professional musicianship for students and students always show their respect and appreciation for teachers' performance. Regarding the teacher as an idol and a model, students may automatically aspire to achieve the same high level as their teacher; as the music teacher provides a good motivation for the students, the reputation of the music teacher is always increasing.

During the integrated music activities, the professional opinions of the teachers can reinforce the students' confidence and the ongoing suggestions and comments from the teachers' evaluation can make students improve. As a music advisor, the music teacher should be knowledgeable in providing constructive comments and in knowing how to facilitate students' thinking and responding critically by using appropriate musical terms.

As reflected in the teacher's interviews, the teacher is a patient audience to the students' comments, performance, and presentation, which are important during class and build up a good relationship with students. As a good audience, teachers may comment after the understanding of the students' ideas. By providing feedback to students' questions, interacting with students and developing a good relationship with each other, teachers can become good friends with students and build up students' trust. Sometimes, teachers should know how to create a harmonious learning atmosphere and to conclude with essential agreements for the lesson, which are effective strategies to establish a good teaching and learning environment. Under a harmonious learning environment, less disciplinary problems will occur and the classes will be easy to manage.

The basic role of a music teacher includes teaching of the music context according to the music curriculum, but also adjusting the music planning regarding the students' ability and needs and deciding on appropriate strategies in the classroom. Other duties of a school music teacher include addressing the school's beliefs in the music lessons and establishing a self-confident school music team that can help the students create a strong sense of ownership.

5.3.2 Music curriculum design

As shown in the questionnaire survey and in the interviews, covering all music contexts in the current music curriculum in an academic year is one of the difficulties faced by teachers given the insufficient teaching time and the differentiation of students. In addition, as teachers mentioned, arts education should help students to “develop creativity and critical thinking skills, nurture aesthetic sensitivity, and construct cultural awareness and effective communication” (Curriculum Development Council, 2002, p. 3). Students are required to develop their generic skills where creativity, critical thinking, and communication skills are initially prioritized (Curriculum Development Council, 2002). The document also recommends that schools should design, restructure, streamline and diversify their own school-based arts curriculum according to schools’ readiness and circumstances. Teachers should aim to develop students’ creativity, critical thinking and communication skills through a balanced arts curriculum (Curriculum Development Council, 2002). Nurturing students by using critical thinking skills is encouraged in daily teaching; however, the findings show that teachers’ ability and maturity for the implementation of critical thinking skills in the music lessons are still kept at a low level since most of the teachers are not competent in integrating the critical thinking

skill strategies with their school-based policy in daily teaching. Since there is a lack of any professional support regarding the critical thinking skills in teaching and learning aspects, school teachers find it a very strenuous task and, as a result, feel stressed and uncomfortable in their teaching.

Some teachers try to adjust the curriculum and integrate critical thinking skills as a dominant teaching and learning approach for the lessons. In this way, teachers could solve the problem of insufficient teaching time, but the other problems may still remain. In order to complete the whole scheme of the curriculum, some teachers give up the implementation of critical thinking skill strategies and apply lots of non-critical thinking skill teaching strategies and materials. The result has created an unbalanced situation between schools and influenced the development of the teaching methodologies.

Summarising all opinions identified by teachers and students in this study, the present study offers some teaching guidelines together with teaching materials designed by using critical thinking skills for each unit suggested in the curriculum; it also provides a clear and systematic teaching procedure of critical thinking skills as these are currently the most imperative needs. Furthermore, as to solve the dilemma

of the difficulties in the implementation of critical thinking skills and, because this is considered to be a right time for another reform of music curriculum, current teachers are invited to provide more fruitful and valuable ideas for consideration.

5.3.3 Professional training for teachers

It is surprising that in Hong Kong teachers' education programmes there is a shortage of pedagogical training regarding the high-order thinking that includes critical thinking skills and reasoning skills. Before the reform of the art education curriculum, the disregard of the importance of the implementation of critical thinking skills in art education did not seem to be an essential problem. However, after the art education reform in 2002, a review of teaching training programmes should have been adapted. Unfortunately, only a few teachers who took the teaching training programmes after the reform mentioned that they attended some related courses, but even those courses could not provide them with comprehensive information on the cultivation of critical thinking skills.

A broader teachers' perspective related to the critical thinking skills or other general skills is addressed in the art curriculum as a major need for the education reform.

Although a related concept was identified in some courses for social science,

regarding the development of particular thinking skills in the art area, a specialist must undertake a particular course in the art education department.

5.3.4 The government's role

Most of the primary schools in Hong Kong adopt the curriculum guide published by the Hong Kong Education Bureau as a framework to help schools in designing their own school-based curriculum. In order to provide the most appropriate education policy for schools, regular evaluation of the policies is compulsory. Besides, providing supplementary supports, seminars, and sharing platforms can also help improve the effectiveness of teaching.

As reflected from the findings, the new curriculum of art and music has been implemented for ten years; the innovation of new concepts and teaching strategies should be evaluated by different researching tools and the Education Bureau acted as a pioneer having this important responsibility. Initiating surveys among teachers and students can achieve some general implications for improvement and focus on the problems; regular refining by micro justification can help the teachers adapt to the changes.

Seeking professional advice from specialist consultants related to the problems might provide some insights for improvement. Therefore, the present study provides some valuable findings for discussion; a further research could be undertaken by the Hong Kong Education Bureau for a more in-depth investigation of the implementation of critical thinking skills in Hong Kong primary school music education. By integrating the existing curricula with different solid useful ideas from various experts and findings from research studies, a reform of the current music curriculum with a view to solving the existing problems and creating a real teaching environment should be discussed.

5.4 Conclusion

At the beginning of this study, the importance of the development of critical thinking skills was clearly stated from the overview of the *Arts Education Curriculum Guide* (Curriculum Development Council, 2002) and the *Music Curriculum Guide* (Curriculum Development Council, 2003). According to these guides, students are required to develop their generic skills where creativity, critical thinking, and communication skills are initially prioritized (Curriculum Development Council, 2002). Considering the meaningful purpose of this study, it provides valuable suggestions for improvement, inspiration, and insights for the development of

cultivation of critical thinking response in primary school music education. The findings were investigated by an application of a comprehensive questionnaire survey from all Hong Kong primary schools and semi-structured interviews with 12 teacher volunteers and their students.

After a thorough review of various literature works regarding the critical thinking skills in different research views including philosophical, psychological, and educational opinions and aspects, a final theoretical framework of critical thinking skills in the educational aspect has been summarized and implemented in the investigation of this study.

The study presents a positive indication of the acceptance of and beliefs in the implementation of critical thinking skills in the music lessons from both teachers and students. All the teachers believe that the significance of nurturing using critical thinking skills for students is a lifelong benefit; students can apply what they have learnt in their daily and social life promoting a whole-person development. Although the study presents a strong belief in the implementation of critical thinking skills from teachers and significant development for students, the findings also provide a discussion of the several difficulties that impeded the effectiveness of the

implementation. These include (1) the limitation of teaching time, (2) the lack of related teaching materials, teaching resources, and clear guidelines from the schools or from the education department of Hong Kong about the application of the critical thinking skills, (3) insufficient teacher training workshops and programs provided by the government or other organisations, (4) the differentiation of students' learning ability and motivation for involvement in the class, (5) the teachers' ability and confidence of using critical thinking skills during the class and their basic knowledge of the music subject.

The difficulties mentioned in the teachers' interviews are interrelated, but the main problem that has to be solved is the insufficient support from the schools and the government. As reflected in the results of the study, many teachers do not feel confident or capable of implementing the critical thinking skills during the music lessons. Most of the teachers implement the critical thinking skills by themselves, by using their own understanding, while there is no way of checking if they are using appropriate strategies. The lack of any solid teaching plan or model makes them feel insecure and hesitant. In this case, some problems occur during the teaching process and, without any support and assistance from their colleagues or supporting guidance from the school or the government, teachers may feel helpless.

The insufficient pedagogical teacher training support related to the critical thinking skills has produced an insecure feeling for the teacher during lessons. As reported from the findings, most of the teacher training programmes focus on a teacher-directed approach emphasising the achievement of students in their academic results rather than their thinking skills.

Consequently, “the teacher-directed” approach has become a major approach that most music teachers apply in music lessons in Hong Kong primary schools. Under the implementation of “teacher-directed” approach, teachers can manage the music lessons and cover the whole music context requirements in the music curriculum. Most of the music textbooks published by various Hong Kong music publications provide a complete set of teaching and learning materials, including teachers’ handbook, question sampler for summative assessment, integrated activities guidelines and materials, and other supplementary materials. Teachers can follow the attached teaching guidelines and plan for implementation; the compulsory core music context can be covered within the academic year, but as reported from the findings of the teachers’ interviews, most of the materials mentioned are designed in a non-critical thinking format, which reduces the opportunities for fostering a

student-centred learning in the classroom. Nevertheless, this teacher-directed approach provides teachers with a direct and easy way to plan and to keep an average standard for students' achievement. However, the findings of students' interviews show that the students have a strong uninterested feeling for the lessons dominated by the teachers; sometimes teachers do not provide opportunities for students to ask and experience things during the class. As indicated in the study, students enjoy the process of investigation; every stage that includes critical thinking learning cycle provides students with opportunities to experience communication. In a 21st-century learning environment, information can be investigated from different media that provide students opportunities for investigation and experience and also from the school that should provide opportunities for expression, reporting, and presentation in a student-centred approach. The implementation of critical thinking skills in teaching and learning does not only provide students with an opportunity for thinking but also with an environment to cultivate their sense of ownership in their schools.

In the current situation, teachers are facing a dilemma as to whether or not to implement the critical thinking skills. The analysis of the teachers' demographic factors (the experience in music teaching, qualification in music knowledge and education, and the age of teachers) show a difference in the effectiveness of teaching.

The findings also indicate that some of the teachers' difficulties in music teaching are caused by their basic music knowledge background rather than the implementation of critical thinking skills. Non-music major teachers assigned by the school heads to teach music follow the music textbook's guidelines and exercises in a less reliable way in music teaching.

Critical thinking skills in music teaching may not follow a solid teaching plan and supporting documents, but they mostly require teachers' own interpretation during lessons and their decisions on the teaching strategies according to their students' ability and other factors. In order to have a well-planned music lesson that can reach the target by using critical thinking skills, teachers should be mature in all aspects, capable of managing the use of strategies in different units and flexible to changes and adaptations.

Although the art curriculum was reformed ten years ago, the modification was based on an unprecedented worldwide change in the early 21st-century education teaching and learning practice. Lots of new and innovative education ideas are introduced to schools through the formal official curriculum guide by the Education Department.

At that time, schools were encouraged to introduce and implement the new

curriculum paradigm in different subjects. However, based on the teacher-centered and teacher-directed practice, the teaching of the music context was established long before the art curriculum reform and its execution proved and still proves to be more difficult, even when compared with subjects like dance and drama.

The findings from this study reflect the current situation of music teaching and the effectiveness of the cultivation of critical thinking response in Hong Kong primary school music education. As shown in the Discussion session, there are some factors affecting the effectiveness of the implementation, according to the difficulties of the implementation of critical thinking skills and the proficiency of teachers' music background in the U.S. and England drawn from the literature review; the same problems also occur in Hong Kong. Cultivating students' critical response is one of the worldwide dominant learning strategies in the 21st-century education environment. Summarized from the situation investigated from three different districts over the world, some of the difficulties regarding the implementation of critical thinking in music lesson are globalized. In order to improve the effectiveness of the implementation, schools should employ an expert particular to this area and provide professional advice for curriculum design and allocation of materials, provide teacher training and help to evaluate the effectiveness of the implementation.

After a decade of changes, the findings of this study provide a distinct result regarding the cultivating of critical thinking response in Hong Kong primary school music education. There are still many factors that impede the effectiveness of the implementation, namely, teachers' professional commitments to nurturing students by using critical thinking skills, teachers' understanding of and abilities for the implementation, students' involvement and differentiation, the schools' and government's support, related resources and school administration policies. As a result, based on the above difficulties, the improvement of this reform is significantly slower than the expectations; there is still room for big improvement in cooperation with different parties for the implementation of critical thinking skills. In conclusion, although this study's findings significantly demonstrate a change in students' achievement in learning and a positive trend in teachers' belief in the implementation in their teaching, due to the immaturity in the adoption of different teaching and learning strategies, a mature reform in Hong Kong primary school music education may take at least another few years or a decade. A continuous evaluation of all the aspects discussed in this study for the cultivation of students' critical thinking response is indispensable; an improvement to this reform will provide life-long benefits to students as well as have a revolutionary positive influence on Hong Kong

primary school music education.

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Appendix A: Questionnaire in Chinese

香港基礎音樂教育的批判性思考發展及培養

問卷調查

請選出合適的答案並加上✓號

I. 個人資料

1. 性別： ☐ 男 ☐ 女
2. 年齡組別
☐ 25 以下 ☐ 25-29 ☐ 30-39 ☐ 40 或以上
3. 音樂相關學歷
☐ 教師證書
☐ 音樂教育學士 / 音樂學士學位
☐ 音樂教育碩士學位
☐ 其他 (請註明): _____
4. 音樂教學年資(包括今年):
☐ 0 - 3 年 ☐ 4- 10 年 ☐ 10 年以上

II. 音樂知識教與學的主要策略

5. 請按經常性，以數字排列以下的教學策略(1 代表最常用)：
 - ☐ 教師講授內容為主導
 - ☐ 教師提問學生
 - ☐ 教師鼓勵學生於學習時多發問
 - ☐ 讓學生於課堂前作資料搜集並於課堂時分享匯報

6. 請為下列音樂工作紙答題模式填上次序 (1 代表最常用)
請以數字排列以下音樂工作紙／測驗中常用的答題模式(1 代表最常用)
- ☐ 多項選擇題
☐ 填充 (提供生字)
☐ 填充 (不提供生字)
☐ 開放式問題

III. 批判性思考元素

7. 請在以下項目中選出你認為是批判性思考的元素 (請在☐加上✓號)
(請選不多於七個元素)

- | | |
|------------------------------------|-------------------------------------|
| <input type="checkbox"/> 技能性為主的學習 | <input type="checkbox"/> 概念為主的學習 |
| <input type="checkbox"/> 知識直接傳授學習 | <input type="checkbox"/> 互動及討論形式學習 |
| <input type="checkbox"/> 重複性技巧學習 | <input type="checkbox"/> 注重理解問題 |
| <input type="checkbox"/> 懂得把知識運用 | <input type="checkbox"/> 測驗及考試作評估工具 |
| <input type="checkbox"/> 過程中不斷作出評估 | <input type="checkbox"/> 選擇題及指定答案 |
| <input type="checkbox"/> 開放式答案 | <input type="checkbox"/> 分析為主學習 |

IV. 請選出合適的答案並加上✓號 1 (極不贊同) – 5 (極贊同)

8. 我會鼓勵學生評論音樂表演的創意

極不贊同

極贊同

1	2	3	4	5

9. 我的學生懂得多留意身邊的事物，觀察不同的東西，並運用到學習上
- 極不贊同 極贊同

1	2	3	4	5

10. 我的學生在學習過程中，經常需要別人提醒進度及完成日期

極不贊同

極贊同

1	2	3	4	5

11. 我的學生在課堂上會主動發問問題

極不贊同

極贊同

1	2	3	4	5

12. 我的學生對同一條問題會有不同的意見及答案

極不贊同

極贊同

1	2	3	4	5

13. 我鼓勵同學於討論時加入個人生活經驗

極不贊同

極贊同

1	2	3	4	5

14.

我不鼓勵學生對其將會表演之作品的背景作資料搜集

極不贊同

極贊同

1	2	3	4	5

15. 我的學生能根據探究的知識內容作概念及理論分析

極不贊同

極贊同

1	2	3	4	5

16. 我的學生懂得有組織地去安排工作

極不贊同

極贊同

1	2	3	4	5

17. 我的學生會以小組形式作出分析及討論

極不贊同

極贊同

1	2	3	4	5

18. 我的學生懂得在分析過程後把結果作應用

極不贊同

極贊同

1	2	3	4	5

19. 我的學生懂得綜合運用批判思考過程中各部份的結果並作最後的評估

極不贊同

極贊同

1	2	3	4	5

20. 我的學生能經常對自己作品 / 作業作出評估

極不贊同

極贊同

1	2	3	4	5

21. 我的學生懂得把搜集資料整理以作備用

極不贊同

極贊同

1	2	3	4	5

22. 我的學生在學習時不懂得如何掌握概念

極不贊同

極贊同

1	2	3	4	5

23. 我的學生在課業/資料整理能力上較弱

極不贊同

極贊同

1	2	3	4	5

24. 我的學生懂得如何進行分析

極不贊同

極贊同

1	2	3	4	5

25. 我的學生懂得如何把個人意見運用於課業中

極不贊同

極贊同

1	2	3	4	5

26. 我的學生不懂得如何去綜合運用搜集及分析後的知識

極不贊同

極贊同

1	2	3	4	5

27. 我不鼓勵學生對同學的作品作出評論

極不贊同

極贊同

1	2	3	4	5

28. 我的學生經常透過日常經驗學習

極不贊同

極贊同

1	2	3	4	5

29. 我的學生會考慮及接受新的觀點及概念/意見

極不贊同

極贊同

1	2	3	4	5

30. 我的學生經常從觀察中學習

極不贊同

極贊同

1	2	3	4	5

31. 我的學生在學習過程中懂得自我管理（時間管理、過程安排等）

極不贊同

極贊同

1	2	3	4	5

32. 我的學生在學習過程中顯得被動

極不贊同

極贊同

1	2	3	4	5

33. 我的學生經常作出反思及自我判斷

極不贊同

極贊同

1	2	3	4	5

V. 請回應以下有關於音樂課堂上加入批判性思考技巧的陳述。

34. 我認為在教與學的過程中加入批判性思考策略能鼓勵學生產生及發展其深入性思考

極不贊同

極贊同

1	2	3	4	5

35. 我有能力在音樂課堂上加入批判性思考策略並且會有顯著的成績

極不贊同

極贊同

1	2	3	4	5

36. 我喜歡在音樂課堂上加入批判性思考的技巧

極不贊同

極贊同

1	2	3	4	5

37. 我未有足夠教學經驗把批判性思考的技巧運用於音樂課堂上

極不贊同

極贊同

1	2	3	4	5

38. 我懂得如何評估學生的批判性思考技巧

極不贊同

極贊同

1	2	3	4	5

39. 我覺得不需要把批判性思考的技巧運用於教學上

極不贊同

極贊同

1	2	3	4	5

40. 我的音樂課未有足夠時間給予我把批判性思考技巧運用出來

極不贊同

極贊同

1	2	3	4	5

41. 音樂課程指引提供足夠有關批判性思考的資料、教學材料及指引

極不贊同

極贊同

1	2	3	4	5

42. 我任教學校支持在音樂課堂上加入批判性思考技巧

極不贊同

極贊同

1	2	3	4	5

43. 在音樂教學上，你曾經運用了哪些批判性思考策略呢？運用於哪些活動呢？

(表演/創作/聆聽)，請詳述。

44. 在音樂教學上運用了批判性思考的技巧，會有甚麼顯著的成效？請詳述。

45. 在音樂教學上，運用批判性思考的技巧會有甚麼困難？請詳述。

《完 》感謝閣下完成問卷！

Appendix B: Questionnaire in English

Cultivating critical thinking in primary music education in Hong Kong

Questionnaire:

Please put a ✓ for the appropriate answer.

I. Personal information:

1. Gender: ☐ Male ☐ Female
2. Age group:
 - ☐ Under 25 ☐ 25-29 ☐ 30-39 ☐ 40 or above
3. Highest qualification in music education
 - ☐ Teacher Certificate
 - ☐ Bachelor degree (major in music / music education)
 - ☐ Master degree (major in music education)
 - ☐ Others (please specify): _____
4. Total years of music teaching experience (include this year):
 - ☐ 0 - 3 years ☐ 4- 10 years ☐ More than 10 years

II. Major approach in music knowledge teaching and learning

5. Please rank the following teaching strategies according to the frequency used in your classroom
(1 represents the most frequently used). :
 - ☐ Verbal information delivered from teachers directly
 - ☐ Questioning from teachers
 - ☐ Teachers encourage students to ask when learning
 - ☐ Information search by students before lesson and sharing during lesson
6. Please rank the following answering formats used in music worksheets/tests (1 represents the mostly used):
 - ☐ Multiple choice questions
 - ☐ Fill in the blanks with provided words
 - ☐ Fill in the blanks without provided words
 - ☐ Open ended questions

III. The elements of critical thinking based on your understanding

7. Please identify the elements of critical thinking based on your understanding.
(Please ✓ not more than SEVEN [7] elements)
 - ☐ Skill-based learning ☐ Concept-based learning
 - ☐ Directive information delivery ☐ Interactive and negotiation learning
 - ☐ Repetition based learning ☐ Comprehension

- ☐ Application
 ☐ Test and exam
☐ Assessment on process
 ☐ Multiple choice or fixed answer
☐ Open-ended answer
 ☐ Analysis dominate

IV. Please put a ✓ in the appropriate box. 1 (strongly disagree) to 5 (strongly agree)

8. I encourage students to criticize the creativity of an existing performance.

Strongly disagree

Strongly agree

1	2	3	4	5

9. My students always observe from their daily life and apply this knowledge to their learning.

Strongly disagree

Strongly agree

1	2	3	4	5

10. My students are always reminded of their progression and completion date.

Strongly disagree

Strongly agree

1	2	3	4	5

11. My students always ask questions actively during the lesson .

Strongly disagree

Strongly agree

1	2	3	4	5

12. My students sometimes generate different answers for the same questions.

Strongly disagree

Strongly agree

1	2	3	4	5

13. I encourage students to apply their daily life experiences in their discussion.

Strongly disagree

Strongly agree

1	2	3	4	5

14. I do not encourage students to study about the background of the pieces that they are going to perform.

Strongly disagree

Strongly agree

1	2	3	4	5

15. My students are able to conceptualize according to the inquiry-based learning

Strongly disagree

Strongly agree

1	2	3	4	5

16. My students know how to organize their works.

Strongly disagree

Strongly agree

1	2	3	4	5

17. My students work in a group for analyzing and discussion.

Strongly disagree

Strongly agree

1	2	3	4	5

18. My students know how to apply the learnt theory into their life.

Strongly disagree

Strongly agree

1	2	3	4	5

19. My students do not know how to synthesize knowledge from gathering and analyzing.

Strongly disagree

Strongly agree

1	2	3	4	5

20. My students can always evaluate their works.

Strongly disagree

Strongly agree

1	2	3	4	5

21. My students are able to gather information for further processing.

Strongly disagree

Strongly agree

1	2	3	4	5

22. My students do not know how to conceptualize during their learning.

Strongly disagree

Strongly agree

1	2	3	4	5

23. My students are weak in organizing their works/information.

Strongly disagree

Strongly agree

1	2	3	4	5

24. My students know how to analyze.

Strongly disagree

Strongly agree

1	2	3	4	5

25. My students know how to apply the ideas in their works.

Strongly disagree

Strongly agree

1	2	3	4	5

26. My students do not know how to synthesize knowledge from gathering and analyzing.

Strongly disagree

Strongly agree

1	2	3	4	5

27. I do not encourage students to comment on their peers' compositions.

Strongly disagree

Strongly agree

1	2	3	4	5

28. My students always learn through experiences.

Strongly disagree

Strongly agree

1	2	3	4	5

29. My students consider and accept new notions and concept/ideas.

Strongly disagree

Strongly agree

1	2	3	4	5

30. My students always learn by observation.

Strongly disagree

Strongly agree

1	2	3	4	5

31. My students are self-disciplined during learning (time management, procedure, etc.).

Strongly disagree

Strongly agree

1	2	3	4	5

32. My students behave passively during learning process.

Strongly disagree

Strongly agree

1	2	3	4	5

33. My students always reflect and judge.

Strongly disagree

Strongly agree

1	2	3	4	5

V. Please respond to the following statements which focus on the personal belief of applying critical thinking skills in music lessons

34. I think applying critical thinking strategies in teaching and learning can encourage students to create and develop an in-depth reflection.

Strongly disagree

Strongly agree

1	2	3	4	5

35. I am capable to apply critical thinking teaching strategies for my music lessons with effective result.

Strongly agree

Strongly disagree

1	2	3	4	5

36. I like to apply critical thinking skills for my music teaching.

Strongly disagree

Strongly agree

1	2	3	4	5

37. I don't have adequate teaching experience to apply critical thinking skills in my music lessons.

Strongly disagree

Strongly agree

1	2	3	4	5

38. I know how to assess my students' critical thinking skills.

Strongly disagree

Strongly agree

1	2	3	4	5

39. I think it is not necessary to apply critical thinking skills in teaching and learning.

Strongly disagree

Strongly agree

1	2	3	4	5

40. My music lessons are too short for me to be able to apply critical thinking skills.

Strongly disagree

Strongly agree

1	2	3	4	5

41. The music curriculum guide provides sufficient information, teaching materials and guidelines about critical thinking teaching.

Strongly disagree

Strongly agree

1	2	3	4	5

42. My school supports applying critical thinking skills in music teaching.

Strongly disagree

Strongly agree

1	2	3	4	5

43. What kind of critical thinking strategies have you applied in music teaching and in what kinds of activities (performing/creating/listening)? Please explain.

44. What is the significance of using critical thinking skills during the music lessons? Please explain.

45. What are the difficulties in using critical thinking skills during the music lessons?

Please explain.

The End

Thank you for completing the questionnaire!



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Appendix C: PDF Version of the Questionnaire

香港基礎音樂教育的批判性思考發展及培養

問卷調查 請選出合適的答案並加上✓號

I. 個人資料

1. 性別： ☐ 男 ☐ 女
2. 年齡組別
☐ 25 以下 ☐ 25-29 ☐ 30-39 ☐ 40 或以上
3. 音樂相關學歷
☐ 教師證書 ☐ 音樂教育學士 / 音樂學士學位 ☐ 音樂教育碩士學位
☐ 其他 (請註明): _____
4. 音樂教學年資(包括今年): ☐ 0 - 3 年 ☐ 4- 10 年 ☐ 10 年以上

II. 音樂知識教與學的主要策略

5. 請按經常性，以數字排列以下的教學策略(1 代表最常用)：

<input type="checkbox"/> 教師講授內容為主導	<input type="checkbox"/> 教師提問學生
<input type="checkbox"/> 教師鼓勵學生於學習時多發問	<input type="checkbox"/> 讓學生於課堂前作資料搜集並於課堂時分享匯報
6. 請為下列音樂工作紙答題模式填上次序 (1 代表最常用)
 請以數字排列以下音樂工作紙／測驗中常用的答題模式(1 代表最常用)

<input type="checkbox"/> 多項選擇題	<input type="checkbox"/> 填充 (提供生字)
<input type="checkbox"/> 填充 (不提供生字)	<input type="checkbox"/> 開放式問題

III. 批判性思考元素

7. 請在以下項目中選出你認為是批判性思考的元素 (請在☐加上✓號)
 (請選不多於七個元素)

<input type="checkbox"/> 技能性為主的學習	<input type="checkbox"/> 概念為主的學習
<input type="checkbox"/> 知識直接傳授學習	<input type="checkbox"/> 互動及討論形式學習
<input type="checkbox"/> 重複性技巧學習	<input type="checkbox"/> 注重理解問題
<input type="checkbox"/> 懂得把知識運用	<input type="checkbox"/> 測驗及考試作評估工具
<input type="checkbox"/> 過程中不斷作出評估	<input type="checkbox"/> 選擇題及指定答案
<input type="checkbox"/> 開放式答案	<input type="checkbox"/> 分析為主學習

IV. 請選出合適的答案，然後在右方方格上加上✓號		1(極不贊同) - 5(極贊同)				
8	我會鼓勵學生評論音樂表演的創意	1	2	3	4	5
9	我的學生懂得多留意身邊的事物，觀察不同的東西，並運用到學習上					
10	我的學生在學習過程中，經常需要別人提醒進度及完成日期					
11	我的學生在課堂上會主動發問問題					
12	我的學生對同一條問題會有不同的意見及答案					
13	我鼓勵同學於討論時加入個人生活經驗					
14	我不鼓勵學生對其將會表演之作品的背景作資料搜集					
15	我的學生能根據探究的知識內容作概念及理論分析					
16	我的學生懂得有組織地去安排工作					
17	我的學生會以小組形式作出分析及討論					
18	我的學生懂得在分析過程後把結果作應用					
19	我的學生懂得綜合運用批判思考過程中各部份的結果並作最後的評估					
20	我的學生能經常對自己作品 / 作業作出評估					
21	我的學生懂得把搜集資料整理以作備用					
22	我的學生在學習時不懂得如何掌握概念					
23	我的學生在課業/資料整理能力上較弱					
24	我的學生懂得如何進行分析					
25	我的學生懂得如何把個人意見運用於課業中					
26	我的學生不懂得如何去綜合運用搜集及分析後的知識					

27	我不鼓勵學生對同學的作品作出評論					
28	我的學生經常透過日常經驗學習					
29	我的學生會考慮及接受新的觀點及概念/意見					
30	我的學生經常從觀察中學習					
31	我的學生在學習過程中懂得自我管理（時間管理、過程安排等）					
32	我的學生在學習過程中顯得被動					
33	我的學生經常作出反思及自我判斷					

V. 請回應以下有關於音樂課堂上加入批判性思考技巧的陳述。

34	我認為在教與學的過程中加入批判性思考策略能鼓勵學生產生及發展其深入性思考					
35	我有能力在音樂課堂上加入批判性思考策略並且會有顯著的成績					
36	我喜歡在音樂課堂上加入批判性思考的技巧					
37	我未有足夠教學經驗把批判性思考的技巧運用於音樂課堂上					
38	我懂得如何評估學生的批判性思考技巧					
39	我覺得不需要把批判性思考的技巧運用於教學上					
40	我的音樂課未有足夠時間給予我把批判性思考技巧運用出來					
41	音樂課程指引提供足夠有關批判性思考的資料、教學材料及指引					
42	我任教學校支持在音樂課堂上加入批判性思考技巧					

43. 在音樂教學上，你曾經運用了哪些批判性思考策略呢？運用於哪些活動呢？

(表演/創作/聆聽)，請詳述。

44. 在音樂教學上運用了批判性思考的技巧，會有甚麼顯著的成效？請詳述。

45. 在音樂教學上，運用批判性思考的技巧會有甚麼困難？請詳述。

《完 》感謝閣下完成問卷！

Appendix D: Invitation letter for school

敬校長及老師

你好！我是香港教育學院教育博士候選人**李羽翹**。現在進行一個關於**批判性思考在香港音樂教育的發展及培養**的教育研究，研究香港小學音樂老師在音樂課堂中採用的**批判性思考教育策略**及學生的學習情況。

本研究報告將會總結**批判性思考在香港小學音樂教育**課堂運用的情況及施行結果，並會提出一些有關的建議，希望能提供老師們在一些有效的**批判性思考教育策略**。

研究第一部份將進行一問卷調查，問卷將以不記名形式進行，主要是希望彙集老師的意見及了解現時**批判性思考教育策略**在施行上的情況及資料。第二部分將誠邀部份老師協助進行一簡短的會面訪問及開放課堂作研究用，此部份將會同時邀請同學接受訪問，亦會正式發信予有關校長及家長，以之知悉及望其批准。

在此，希望校長及各位音樂老師可協助支持。問卷調查將會於以網上問卷形式發出。

老師只需根據指示

1) 輸入並提交個人電郵地址，系統會自動把【問卷連結】寄出 / 點擊附上的【問卷連結】

<http://www.dosurvey.com.tw/SurveyGet.aspx?id=CE3D5C727ED3232C>

2) 然後填寫問卷（問題大約花 10 分鐘左右完成），最後根據指示提交便可！

在此，本人充心感謝老師的支持及為香港音樂教育政策提出寶貴意見。

如有查詢，歡迎聯絡本人。聯絡電話：66983196

電郵地址：leehousemusic@yahoo.com.hk

李羽翹

香港教育學院教育博士(文化與創意藝術學系)候選人

Appendix E Preliminary Questionnaire

Cultivating critical thinking in primary music education in Hong Kong

香港基礎音樂教育的批判性思考發展及培養

Questionnaire:

問卷調查

Please put a ✓ for the appropriate answer.

請選出合適的答案並加上✓號

Personal information:

個人資料

1. Gender: ☐ Male ☐ Female

性別：☐ 男 ☐ 女

2. Age group:

☐ Under 25 ☐ 25-29 ☐ 30-39 ☐ 40 or above

年齡組別

☐ 25 以下 ☐ 25-29 ☐ 30-39 ☐ 40 或以上

3. Highest qualification in music education

☐ Teacher Certificate

☐ Bachelor degree (major in music / music education)

☐ Master degree (major in music education)

☐ Others (please specify): _____

音樂相關學歷

☐ 教師證書

☐ 音樂教育學士 / 音樂學士學位

☐ 音樂教育碩士學位

☐ 其他 (請註明): _____

4. Total years of music teaching experience (include this year):

☐ 0 - 3 years ☐ 4 - 10 years ☐ More than 10 years

音樂教學年資(包括今年):

☐ 0 - 3 年 ☐ 4 - 10 年 ☐ 10 年以上

Major approach in music knowledge teaching and learning

音樂知識教與學的主要策略

5. Please rank the following teaching strategies according to the frequency

(1 represents the most frequently used). :

☐ Verbal information delivered from teachers directly

☐ Questioning from teachers

- ☐ Teachers encourage students to ask when learning
- ☐ Information search by students before lesson and sharing during lesson

請按經常性，以數字排列以下的教學策略(1 代表最常用)：

- ☐ 教師講授內容為主導
- ☐ 教師提問學生
- ☐ 教師鼓勵學生於學習時多發問
- ☐ 讓學生於課堂前作資料搜集並於課堂時分享匯報

6. Please rank the following answering formats used in music worksheets/tests (1 represents the mostly used):

- ☐ Multiple choice questions
- ☐ Fill in the blanks with provided words
- ☐ Fill in the blanks without provided words
- ☐ Open ended questions

請為下列音樂工作紙答題模式填上次序 (1 代表最常用)

請以數字排列以下音樂工作紙／測驗中常用的答題模式(1 代表最常用)

- ☐ 多項選擇題
- ☐ 填充 (提供生字)
- ☐ 填充 (不提供生字)
- ☐ 開放式問題

Reflection on your music teaching

你的音樂教學反思

Please put a ✓ in the appropriate box. 1 (strongly disagree) to 5 (strongly agree)

請選出合適的答案並加上✓號 1 (極不贊同) – 5 (極贊同)

7. I encourage students to criticize the creativity of an existing performance.

我會鼓勵學生評論音樂表演的創意

極不贊同

極贊同

1	2	3	4	5

8. I encourage students to comment on the conductors/performers' performance in an orchestral piece.

我會鼓勵學生對指揮/表演者的表現作出評論

極不贊同

極贊同

1	2	3	4	5

9. I do not encourage students to comment on their peers' compositions.

我不鼓勵學生對同學的作品作出評論

極不贊同

極贊同

1	2	3	4	5

- 10.

I encourage students to ask for friends' comments on their compositions.

我會鼓勵學生邀請朋友對其作品作出評論

極不贊同

極贊同

1	2	3	4	5

11. I encourage students to criticize their own performances/ compositions

我會鼓勵學生對自己的表演／作品作出評論

極不贊同

極贊同

1	2	3	4	5

12. I encourage students to comment other students' performances.

我會鼓勵學生對其他同學的表演作出評論

極不贊同

極贊同

1	2	3	4	5

13. I do not encourage students to study about the background of the pieces that they are going to perform.

我不鼓勵學生對其將會表演之作品的背景作資料搜集

極不贊同

極贊同

1	2	3	4	5

14. I welcome students asking questions.

我歡迎學生發問

極不贊同

極贊同

1	2	3	4	5

15. I encourage students to work in a group for discussion.

我鼓勵學生以小組形式作出討論

極不贊同

極贊同

1	2	3	4	5

16. I encourage students to generate different answers for the same questions.

我鼓勵學生對同一條問題作出不同的意見及答案

極不贊同

極贊同

1	2	3	4	5

17. I encourage students to apply their daily life experience in their discussion.

我鼓勵同學於討論時加入個人生活經驗

極不贊同

極贊同

1	2	3	4	5

The following questions focus on the personal belief of understanding and nurturing critical thinking skills in music lessons

以下問題集中於個人於音樂課堂上施行批判性思考教學的了解及技巧

18. Please identify the elements of critical thinking based on your understanding.

(Please ✓ not more than SEVEN [7] elements)

- | | |
|---|---|
| <input type="checkbox"/> Skill-based learning | <input type="checkbox"/> Concept-based learning |
| <input type="checkbox"/> Directive information delivery | <input type="checkbox"/> Interactive and negotiation learning |
| <input type="checkbox"/> Repetition based learning | <input type="checkbox"/> Comprehension |
| <input type="checkbox"/> Application | <input type="checkbox"/> Test and exam |
| <input type="checkbox"/> Assessment on process | <input type="checkbox"/> Multiple choice or fixed answer |
| <input type="checkbox"/> Open-ended answer | <input type="checkbox"/> Analysis dominate |

請在以下項目中選出你認為是批判性思考的元素
(請選不多於七個元素)

- ☐ 技能性為主的學習 ☐ 概念為主的學習
- ☐ 知識直接傳授學習 ☐ 互動及討論形式學習
- ☐ 重複性技巧學習 ☐ 理解
- ☐ 知識運用 ☐ 測驗及考試
- ☐ 過程中不斷作出評估 ☐ 選擇題及指定答案
- ☐ 開放式答案 ☐ 分析為主學習

19. My students can gather information for further process.

我的學生能夠把資料整理以作備用

極不贊同

極贊同

1	2	3	4	5

20. My students do not know how to conceptualize during their learning.

我的學生在學習時不懂得如何掌握概念

極不贊同

極贊同

1	2	3	4	5

21. My students can always evaluate their works.

我的學生能經常對自己作品 / 作業作出評估

極不贊同

極贊同

1	2	3	4	5

22. My students are weak in organizing their works/information.

我的學生在課業/資料整理能力上較弱

極不贊同

極贊同

1	2	3	4	5

23. My students know how to analyses.

我的學生懂得如何進行分析

極不贊同

極贊同

1	2	3	4	5

24. My students know how to apply the ideas in their works.

我的學生懂得如何把個人意見運用於課業中

極不贊同

極贊同

1	2	3	4	5

25. My students do not know how to synthesize.

我的學生不懂得如何去去綜合運用知識

極不贊同

極贊同

1	2	3	4	5

Which of the following statements can describe your students' learning attitude?

下列哪些語句可描述你學生的學習態度？

26. My students always learn through experiences.

我的學生經常透過日常經驗學習

極不贊同

極贊同

1	2	3	4	5

27. My students consider and accept new notions and concept/ideas.

我的學生會考慮及接受新的觀點及概念/意見

極不贊同

極贊同

1	2	3	4	5

28. My students always learn by observation.

我的學生經常從觀察中學習

極不贊同

極贊同

1	2	3	4	5

29. My students are self-disciplined during learning.

我的學生在學習過程中會自律

極不贊同

極贊同

1	2	3	4	5

30. My students behave passively during learning process.

我的學生在學習過程中顯得被動

極不贊同

極贊同

1	2	3	4	5

31. My students always reflect and judge.

我的學生經常作出反思及自我判斷

極不贊同

極贊同

1	2	3	4	5

Please respond to the following statements which focus on the personal belief of applying critical thinking skills in music lessons

請回應以下有關於音樂課堂上加入批判性思考技巧的陳述。

32. I think applying critical thinking strategies in teaching and learning can encourage students to create and develop an in-depth reflection.

我認為在教與學的過程中加入批判性思考策略能鼓勵學生產生及發展其深入性思考。

極不贊同

極贊同

1	2	3	4	5

33. I am capable to apply critical thinking teaching strategies for my music lessons with effective result.

我有能力在音樂課堂上加入批判性思考策略並且會有顯著的成績

極不贊同

極贊同

1	2	3	4	5

34. I like to apply critical thinking skills for my music teaching.

我喜歡在音樂課堂上加入批判性思考的技巧

極不贊同

極贊同

1	2	3	4	5

35. I don't have adequate teaching experience to apply critical thinking skills for my music lesson.

我未有足夠教學經驗把批判性思考的技巧運用於音樂課堂上

極不贊同

極贊同

1	2	3	4	5

36. I know how to assess my students' critical thinking skills.

我懂得如何評估學生的批判性思考技巧

極不贊同

極贊同

1	2	3	4	5

37. I think it is not necessary to apply critical thinking skills in teaching and learning.

我覺得不需要把批判性思考的技巧運用於教學上

極不贊同

極贊同

1	2	3	4	5

38. My music lessons do not have enough time for me to apply critical thinking skills.

我的音樂課未有足夠時間給予我把批判性思考技巧運用出來

極不贊同

極贊同

1	2	3	4	5

39. The music curriculum guide provides sufficient information, teaching materials and guidelines about critical thinking teaching.

音樂課程指引提供足夠有關批判性思考的資料、教學材料及指引

極不贊同

極贊同

1	2	3	4	5

40. My school supports applying critical thinking skills in music teaching.

我任教學校支持在音樂課堂上加入批判性思考技巧

極不贊同

極贊同

1	2	3	4	5

41. What kind of critical thinking strategies have you applied in music teaching? In what kinds of activities (performing/creating/listening)? Please explain.

在音樂教學上，你曾經運用了哪些批判性思考策略呢？運用於哪些活動呢？

(表演/創作/聆聽)，請詳述。

42. What is the significance by using critical thinking skills during music lessons? Please explain.

在音樂教學上運用了批判性思考的技巧，會有甚麼顯著的成效？請詳述。

43. What are the difficulties in using critical thinking skills during music lessons? Please explain.

在音樂教學上，運用批判性思考的技巧會有甚麼困難？請詳述。

The End

Thank you for completing the questionnaire!

完

感謝閣下完成問卷！

Appendix F: Semi-Structured interview (Teachers' question)

Semi-Structured interview (Teachers' question)

English Version

Cultivating critical thinking in primary music education in Hong Kong

Please put a ✓ for the appropriate answer.

Personal information:

2. Gender: ☐ Male ☐ Female

2. Age group:

☐ Under 25 ☐ 25-29 ☐ 30-39 ☐ 40 or above

3. Highest qualification in music education

☐ Teacher Certificate

☐ Bachelor degree (major in music / music education)

☐ Master degree (major in music education)

☐ Others (please specify): _____

4. Total years of music teaching experience (include this year):

☐ 0 - 3 years ☐ 4- 10 years ☐ More than 10 years

《Questions》

1. Does your school implement the use of Critical Thinking Skills in school policy?
2. Please describe the understanding of Critical Thinking Skills
3. Did you apply Critical Thinking teaching strategy? In which activities (performance / creativity / listening)
4. Any significant of the implementation of the use of Critical Thinking Skills in music lesson?
5. Any difficulties about the implementation of the use of Critical Thinking Skills in music lesson?
6. How students' performance about the questioning and activities contains Critical Thinking Skills elements?
7. Compared to the implementation of Non-Critical Thinking Skills during class. Any difference?
8. Are you capable for the requirement and implementation of Critical Thinking Skills?
9. During your music related teaching strategies learning, did you learn to how to do implementation as a teaching strategy?
10. Any suggestions for the implementation of Critical Thinking Skills in Hong Kong primary education?
11. Your schools organization, types of school (Government/subsidy/DSS/private school), according to the school mission and school curriculum, any impacts for your implementation of Critical Thinking Skills
12. Other comments

Chinese Version

香港基礎音樂教育的批判性思考發展及培養 - 訪問《教師》

性別： ☐ 男 ☐ 女年齡組別：☐ 25 以下 ☐ 25-29 ☐ 30-39 ☐ 40 或以上

音樂相關學歷

☐ 教師證書 ☐ 音樂教育學士 / 音樂學士學位☐ 音樂教育碩士學位 ☐ 其他 (請註明): _____

音樂教學年資(包括今年):

☐ 0 - 3 年 ☐ 4- 10 年 ☐ 10 年以上

《問題》

1. 貴校在音樂教學策略上，會運用『批判性思考技巧』嗎？
2. 你對『批判性思考教學技巧』認識有多少呢？
3. 在音樂教學上，你曾經運用了哪些『批判性思考』策略呢？運用於哪些活動呢？
甲、 (表演/創作/聆聽)？
4. 在音樂教學上運用了『批判性思考』的技巧，會有甚麼顯著的成效？
5. 在音樂教學上，運用『批判性思考』的技巧會有甚麼困難？
6. 學生對於『批評性思考』形式的問題、活動的表現如何呢？
7. 整體而言，較利用非『批評性思考』形式的問題、活動，有何差別呢？
8. 對於『批判性思考技巧』的要求及施行，你能掌握嗎？
9. 在修讀音樂相關的教學策略時，有沒有學習如何利用『批判性思考技巧』作為教學策略嗎？
10. 你認為香港音樂教育上，對於『批判性思考技巧』的施行，需如何配合呢？
11. 貴校所屬之辦學機構，學校所屬類別(政府、資助、直資、私校) 在理念上、課程安排上會對你施行『批判性思考技巧』教學有影響嗎？
12. 其他補充

Appendix G: Semi-Structured interview (Students' question)

Semi-Structured interview (Students' question)

English Version

Cultivating critical thinking in primary music education in Hong Kong

Gender : ☐ Male ☐ Female

Grade : ☐ P.3 - 4 ☐ P.5-6

1. Can you describe your music lesson?
 - Teachers' teaching process and method
 - Teachers' questioning method (multiple choice / open-ended question, etc.)
 - Arrangement for the Performance, Creativity, Listening activities (questioning method and assessment method)
2. Did you experience group discussion and presentation during the music lesson?
3. You prefer self-research and presentation learning strategy or a direct learning from teaches? Please describe!
4. Can you describe your project learning process?
5. Did you try to apply your learnt knowledge to your daily life? And any related concept and knowledge from music to your life?

Chinese version

香港基礎音樂教育的批判性思考發展及培養 - 訪問《學生》

性別： ☐ 男 ☐ 女
 就讀年級： ☐ 小三至四 ☐ 小五至六

《問題》

6. 可講述一下老師上課時的安排嗎？
 - 教授知識的情況和方法
 - 老師提問時的方法
 - 在演奏、創作、聆聽活動時的安排（包括同學回答問題情況、同學互評）
7. 請問上音樂課時，你們有沒有嘗試作分組討論及匯報？
8. 同學，在學習時，你們較喜歡自己作資料搜集及匯報，還是老師作主導教授知識，或描述一下原因？
9. 當你們做專題習作時(Project)，你們會的過程(由開始到完成)會是怎樣的呢？試描述。
10. 請問你們在學習時，有沒有一些知識是與平時生活上有關的呢？或者在生活上會應用到的呢？