

Using 5 Music Instructional Methods to Illustrate the Social Constructive Music Teaching Framework in Hong Kong Primary Level Music Education: A Comparison Study Between Private International and Public Schools

Lam Wing Yin, The University of Hong Kong, Hong Kong SAR

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Abstract

Music education under the frame name of arts education has been integrated into the primary and secondary education curriculums in Hong Kong for more than 20 years, starting from 2001, the year of launching the *Learning to Learn* curriculum for the reconstruction of the education system for the younger generation. Music education, embedded into the arts education, was therefore regarded as one of the key subjects to cultivate and uplift student holistic development, focusing on aesthetic skill training and moral growth development. This research was an exploration study of music teaching practices from two private international and two general public school music teachers at the primary school level. The value of this study rested on borrowing the idea of Shulman's pedagogical content knowledge (PCK) principle to create a social constructive music teaching framework from five commonly-used instructional methods, namely Orff, Kodaly, Dalcrozes, Suzuki, and Gordon's approaches. Based on the evaluations of these four case studies, hypotheses on the differences in the PCK were tested with the types of schools and found to be no difference. The preliminary results suggested that music teachers in private international schools had similar pedagogical approaches to music instruction to teachers in aided-public schools. Additionally, the modeling, guiding, and training approach was identified as a grounded teaching method for music education at the primary school level regardless of different types of schools. Other implications like the further development of the framework were discussed.

Keywords: Pedagogy, Social Constructivism, Music Education, Primary School, Hong Kong

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Introduction

Music Education in Hong Kong

In Hong Kong, music education plays a predominant role in value education, which is to foster the holistic development of students and cultivate their positive values and attitudes for life-long learning. The curriculum reform in 2001, *Learning to Learn – The Way Forward in Curriculum Development* classified music and visual art subjects into arts education, as one of the eight Key Learning Areas (KLAs), comprising Chinese language education, English language education, mathematics education, science education, technology education, personal, social, and humanities education, arts education, and physical education (Education Bureau, 2021, 2023). According to the Curriculum Development Council (2017), the KLAs were positioned to help students develop aesthetic skills, meaning creativity, critical thinking, sensitivity, cultural awareness, effective communication skills, art knowledge, positive attitudes, and values. Under the frame name of arts education, music education had four pre-set learning targets including 1) developing creativity and imagination, 2) developing skills and processes, 3) cultivating critical responses, and 4) understanding arts in context. All these learning targets were clearly outlined in the primary and secondary curriculum reform. Also, there was no standardization of time, criteria, syllabus, and assessment for teaching music, but around the year 2003, a structural curriculum was published, informing every school should allocate at least 10% to 15% of the total lesson time to achieve better the long-term educational goal of all-rounded development of the students.

Qualifications of Music Teachers in Schools

Traditionally, to be qualified school music teachers in Hong Kong, they have to hold a government-funded postgraduate diploma in education and attain a bachelor's in music. Institutes in Hong Kong, like The University of Hong Kong, The Chinese University of Hong Kong, Hong Kong Baptist University, and The Education University of Hong Kong or abroad education can provide education and music training (Education Bureau, 2008). The qualification of registered music teachers is rigid and standard. Teachers generally need to meet the criteria of playing at least one instrument at grade 8 or above level from recognized music conservatories or universities. The known accreditations of instrumental examinations are issued by The Association of Board of the Royal Schools of Music, The Trinity College London, and The Hong Kong Trinity College Centre. Due to the fluctuation in the demand and supply of qualified music teachers, some teachers who are under education diploma training with supervision offered by their schools or holding a bachelor's degree in education with strong instrumental training are also eligible to teach, and the school principals have the final decisions to employ them during the teacher apprenticeship at managing schools.

Literature Review

The Nature of Private and Public Schools

Hong Kong was a colonized city under British rule before the handover in 1997. Thus, the education system followed the well-established United Kingdom's. According to the Census and Statistics, 593 primary schools were government fully funded or subsidized, and 39 international primary schools in Hong Kong (Education Bureau, 2023). The differences between these types of schools were the operation modals and the school fee payers and its supporters, reflecting the choices of curriculum and assessment design in education. Private

international schools are targeted to provide education specifically for immigrant children with the possibility of mixing cultures in Hong Kong. The program mainly follows the International Baccalaureate (IB), and it is an inquiry-based, transdisciplinary curriculum, with a student-centered approach to education for children as early as 3 years old until 12 years old (International Baccalaureate Organization, 2023). This curriculum is supported by social-constructive learning theories, stressing the collaboration and integration of different knowledge into one single learning element. Different from private international primary schools, public or subsidized primary schools follow the Education Bureau's Primary Education Curriculum Guide which is developed based on authentic and practical experiences of schools, local research, policy contexts of Hong Kong, and different perspectives of international development. This curriculum is also student-centered and framed for children aged 6 years old to 12 years old, while the best description of its design purpose is to cater to diversified learning and teaching through different assessments and strategies.

Music Instructional Methods

School music teachers not only need to learn to play an instrument skillfully but are equipped with thorough music knowledge for teaching. Their approaches to teaching can be varied while the music training owned are universal, meaning that they share the common ground of music instructional methods, developed by five profound music school educators, namely Carl Orff, Zoltan Kodaly, Emile-Jacques Dalcroze, Shinichi Suzuki, and Edwin Gordon.

Carl Orff

The Orff approach, which was also called Orff-Schulwerk (schoolwork), was child-centered with a philosophy that "children have not liked to study since the beginning of time" (Hughes, 1993). He strongly believed that children preferred to play, and a teacher should work on how to have their interests at heart to let them learn while they play. His approach was not systematic but sequential in training advanced learning skills from Bloom's Taxonomy perspective, from remember, understand, apply to analyze, evaluate, and create. As Orff's musical training was heavily involved with musical instruments, his approach was experimenting and improvising, it helped children to build their musical skills through four stages, including imitation, exploration, improvisation, and composition (Shamrock, 1997). Children simply learned music language, sounds, timbres, rhythms, melodies, and tonal material around them to create sounds. Orff's approach also stressed utilizing instruments, singing, movement, and speech to cultivate children's innate musical ability.

Zoltan Kodaly

Kodaly's method was another well-known approach to music education and child-centered. The music training of this method was singing, and he believed that singing provided a solid foundation for all beginners and children should learn to read music before having instruments to play along with (Kodály, 1974, p. 201, 204). His approach was highly sequential, and he taught children how to read scores, clap the rhythms, and sing the pitches, and each time added one new note or rhythm syllable. Compared with other educators, Kodaly preferred to tailor-make his teaching materials to suit his preference for quality teaching. Although he was notorious for his hand signs method which allowed children to visualize the spatial relationship between notes, he was not the inventor, but Sarah Glover's

Norwich and Curwen for their solfège system. Also, Kodaly was renowned for using body movement including clapping, walking, and running to enhance rhythm learning.

Emile-Jacques Dalcroze

Dalcroze's approach was called eurhythmics, meaning to incorporate rhythms, structure, movement, and music expression when playing music. He emphasized the synchrony of mind and soul. To develop musicianship, he/she should work on their sensitivity and expression which was the best way to awaken the physical, aural, and visual images of music in the mind through practising solfège, sight singing, ear training, improvising, phrasing the music, etc. (Anderson, 2012). The music learning was sequential. For instance, the demonstration of the teachers played an important role, students were encouraged to imitate and use body movement to learn, like walking, running, swinging, jumping, etc. Then, when the music changed in speed, the students needed to respond to this with verbal signals. The key was a quick-act reaction. After this learning, students could imitate and advance by echoing, which was called the interrupted canon. Students needed to clap a phrase, and their partners followed the same and clapped a phrase. A canon was to echo it back the pattern. This reflected and formulated group or peer learning.

Shinichi Suzuki

Shinichi Suzuki adopted a mother-tongue approach to learning music, which was an approach similar to language acquisition. For example, children started with reading and comprehension. After this sense of learning had been established, children were ready for any music learning or instrument learning. He preferred that children developed music in a loving and caring environment, with less competition. One important element of his approach was to encourage parent involvement and the training could be as early as three to four years old. The major essence of Suzuki's approach was focused on ear training, playing the repertoire, and group learning (Suzuki, 1993; Suzuki & Nagata, 1999).

Edwin Gordon

Edwin Gordon's method was called Music Learning Theory. He borrowed the idea of language development during infancy and proposed a new concept called 'audiation'. Audiation was a sequential learning process and was divided into 8 types, like listening, reading, writing, performing from recalling, creating and improvising (Gordon, 2007). According to Gordon (2007), children audiated music to develop music vocabularies through music thinking. Vocalization and recognition of the sound were started by repeated hearing of the rhythm chants, songs, rhythm patterns and tonal patterns. The expansion of the music vocabularies allowed them to imitate, improvise and communicate in music. In the classroom, school-aged children experienced music holistically, explored the tonal and rhythm patterns, as well as adding meaning to the music when they composed. Teachers gave guidance and intervened in their learning to fasten and consolidate the audiation process of the students.

Teaching Beliefs and Practices in Social Constructivism

In teaching, teacher knowledge and beliefs were intertwined to constitute teacher competency and professionalism, which could lead to different teaching outcomes and pupil performances (Bromme, 2005; Konig, 2012). The conduct of teachers was not only affected by the knowledge but also relied on the teachers' beliefs according to Konig (2012), Blomeke

(2002), and Ertmer (2005). For example, teachers tended to adopt a constructivist approach rather than a transmission view when they held a dynamic belief like the subjects instead of a static belief. The constructivist approach was derived from Vygotsky's social learning theory which proposed that children could develop their cognitive abilities and understanding from social environment, culture, and modeling. Social interaction was regarded as a process for learning and cooperative or collaborative dialogues were the facilitation of the cognitive development supported by adequate language ability to learn (Vygotsky, 1986). Some findings reflected that when the teachers held a belief in the good use of technology for student learning, it had a causal relationship with the impact on success (Basturkmen, 2012; Schoenfeld, 1998). Thus, scaffolding, allowing repeatedly brainstorming and poring over the questions, helps in shrinking the gap between the actual and potential learning, called the Zone of Proximal Development (ZPD). More dynamics and deep learning occurred when teachers believed in the advantages of social constructivism and applied technology tools in teaching. In the meanwhile, collaborative and group learning were facilitated among teacher-to-student and student-to-student discussions in class.

Shulman's Pedagogical Content Knowledge

Lee. S. Shulman (1985, 1987), as an education emeritus, evocated teaching professionalism. Teacher knowledge sufficiency was always put on the table to be discussed. The categories of this knowledge base had an array of requirements, including content knowledge, general pedagogical knowledge, referencing to the broad principles and strategies of classroom management and organization, curriculum knowledge, with a particular sense of program structuring, pedagogical content knowledge, referring to the special amalgam of content and pedagogy of the province of teachers, knowledge of students and their characteristics, knowledge of educational contexts, such as working groups, classroom, school finances, religions and cultures, and knowledge of educational ends, purposes, philosophy and historical grounds. Among the above knowledge base categories, the pedagogical content knowledge (PCK) was the interest in knowing the teaching practices, varying from different subjects since it represented the blending of content and pedagogy into an understanding of how particular topics, problems, issues, organized and adapted to the interest and ability of the learners, and presented for instruction. Blomeke (2002) suggested that content knowledge and pedagogical content knowledge could be viewed as epistemological beliefs, in which teachers could see the dynamic nature of the knowledge when they reached the mastery level, implying that teachers who saw those dynamics usually adopted the constructivist approach rather than didactic teaching style because of sufficient knowledge base and the deep understanding of their students.

Recent Music Education Research in Hong Kong Context

The idea of PCK was crucial since this was used to create a music education teaching framework under the social constructivism approach. Before that, recent studies were reviewed to understand different aspects or domains of music education in Hong Kong. For example, Ho (2007; 2013) conducted music education research with a focus on cultural value development. Leung (2021) showed that there was a trend of interest among Guangdong and Hong Kong music teachers to impart Cantonese operas at schools for both primary and secondary schools. Wong and her colleagues (2014; 2019) investigated the assessment practice and teachers' efficacy of 97 secondary school music teachers and 309 primary school music teachers. Cheng and Lam (2021) also put efforts into measuring the online teaching effectiveness in music education during the COVID-19 situation. The years of gap of

investigation and small group researchers reflected that the research development in music education was underdeveloped in Hong Kong.

Present Study

As mentioned, the concept of Shulman's PCK was the key in this study. It was a guideline to differentiate good teachings and bad teachings. The five music instructional methods that were the essence of social constructivist music teaching and the Bibles of the good teachings. It was also common knowledge among music teachers who should have shared music knowledge. This research author had identified the notions of different music teaching elements, and these were coded as nodes. For example, Orff's approach suggested learning from playing and Kodaly's was learning from singing. Then, there were two nodes. Some instructional methods shared the same way of teaching, like using movement among the founders of the music instructors. In this case, it was counted as one node. A social constructivist music teaching framework therefore was analysed and coded based on the literature review of the music teaching methodologies and nineteen nodes in total were identified with the understanding of the PCK (Appendix I). This study firstly could locate and explore the differences between private international and public-aided schools. Secondly, it tried to examine the possibility and effectiveness of the framework for showcasing music teaching in Hong Kong. The following were the hypotheses drawn:

H1: The higher the coverage number of music pedagogical content knowledge nodes the teachers have, the higher the chances the teachers adopt a social constructivist approach to teaching.

H2: There is a difference between private international schools and public schools in terms of the coverage number of music pedagogical content knowledge nodes.

H3: Teachers at private international schools tend to adopt the social constructive approach to teaching than teachers at public schools.

Methodology

Research design. The axis of this research was in-depth case studies of understanding the primary school music teachers' real teaching practices through the denoted pedagogical content knowledge nodes. It was a small-scale research, adopting the mixed methodology design including survey and interview (Denscombe, 2017). Teachers' backgrounds such as teachers' qualifications, years of experience, the preferences of pedagogies, and the uses of assessments were asked in the survey and further sought clarifications and elaborations during the interviews. Therefore, the teachers were required to complete the 20-minute long survey before half an hour of the interview, which was a one-on-one approach.

Participants. Four music teachers were recruited based on the criteria sets, in which the first criterion was to recruit current full-time music teachers who were working at primary schools in Hong Kong. The second rule was to have music teachers from public/ private/ international schools that have diversity in curriculums, syllabus, schools' mottos, values and resources, and development trends to address the find out the differences among different types of schools. In the end, two music teachers were working at international schools and the other two were teaching at aided public schools which matched the criteria set through convenient sampling.

Survey. The purpose of the survey was to collect the background information of the music teachers. It was a short-item survey, designed to be completed in 15 to 20 minutes. This provided a sense of what was going to be asked in the interviews and the survey was related to the personal and school background information, pedagogies, assessment design, generic skills, school resource allocation, and operation in musical activities. No personnel-identified data was collected. For example, the teachers did not need to disclose their names and which schools they were teaching at. Overall, the average completion time used was more than expected, which was 25 minutes on average.

Interview. A semi-structured interview was used and based on the pre-designed protocol (Appendix II) (Cohen, Manion, & Morrison, 2018). The researcher conducted the interviews on a one-to-one basis and in a sequential manner. Follow-up questions were allowed for the sake of getting more detailed explanations from the participants. The major reason for adopting a one-on-one approach was to collect a personal view on music teaching with fewer comparisons because of the prerequisite criteria sets, i.e. different school types. The total time needed for the interviews was from 30 to 45 minutes each.

Data collection. An interview protocol was tailor-made for this study. The data collection period was held between June and July 2022. There was around a month for distributing the survey and conducting the online interviews with the teachers. Once the consent form was signed, the interview session was arranged based on the teachers' suggested time slots. The whole interview processes were recorded and transcribed by the researcher. Each participant's recording was saved and renamed the teachers' files named 'MT', an abbreviation derived from the term 'Music Teacher'. Four cases were collected for analysis.

Data analysis. Descriptive statistics on teachers' and schools' backgrounds were tabled (Appendix III). The researcher worked on the transcription after all the interviews were done and coded it based on the social constructive music education framework. By counting how many different variations of music pedagogical content nodes each teacher had, the variations in teaching methods could be uncovered. A Wilcoxon signed-rank test was adopted to test out the significance between private international and aided-public schools. Content analysis was put forward to analyze the pedagogies and activities the students had. Since the study was conducted during pandemic times, some of the technological challenges and innovative solutions were identified and reported.

Results

Cases' Teaching Backgrounds

Music Teacher A was an international school male teacher with more than 10 years of teaching experience. He held a master's degree in music education and a certificate of teaching diploma. He attained the US Music Certified Music Exam level 10 piano and level 5 violin. The major pedagogies he used were experiential, inquiry, and cooperative learning. For the assessments, it had numerous types but mainly listening tests, peer assessments, and classroom performance. During the interview, he said that he was the solo music instructor at his school, managing all forms of the music curriculum, even extending to the kindergarten.

Music Teacher B was an international school female teacher with 4 to 6 years of teaching experience. She graduated with a master's degree of music education, as well as a teaching certificate. She got an Associate Level of Trinity College London in piano and Grade 8 in

theory. The major pedagogies used were inquiry, cooperative, and experiential learning. The assessment of the class included classroom performance, worksheets, and practical and listening tests. According to her interview, she claimed that the school decentralized the ways of teaching music since it was not the core subject, and the curriculum and format were solely designed and managed by her with one teaching assistant to support. She had more than 500 students and the schedule was always tight. Yet, she expressed that she was delighted to have a high degree of controllability in teaching and delivering her concept of music education.

Music Teacher C was a male teacher with more than 7 years of teaching experience. Different from the other teachers, he was also a mathematics teacher and worked at the aided public school. He held a bachelor of education, majoring in mathematics and minoring in music subjects. He had Grade 8 in piano and Grade 8 in theory. The major pedagogies he adopted were experiential learning, assessment & evaluation of student learning, and differentiated instruction. Worksheets and practical and listening tests were the typical strategies to impart music training to students. In the interview, he said that the school principal encouraged students to learn an instrument and he was part of the team to manage an orchestra with the students. This school had 5 music teachers responsible for different classes and he almost took charge of all forms of students in music, but it was expected the burden was less.

Music Teacher D was a male teacher with the least teaching experience, which had less than 3 years. He was currently studying for a master's degree of music education and a teaching diploma. He held a Grade 8 trumpet and worked at an aided public school. The major pedagogies used were assessment & evaluation of student learning, open-ended instruction, and integrated learning. Same as another public school music teacher, he graded students with worksheets and practical and listening tests. During his interview, he stressed that the school was result-oriented, thus he had to deliver student academic results to the principal. The test-based system was a plausible and effective way to show, and he reflected that he used many worksheets to explicitly reveal the grades. His school had 7 music teachers and he said that the workload was not high and was teaching primary 1, 2, 3, and 6 students.

Pedagogical Content Knowledge

Nineteen nodes were identified as the keys to the ways of teaching music at primary schools (Appendix I). It was hypothesized that there was a significant difference between private international and aided-public schools in the use of pedagogies. The Wilcoxon signed-rank test was applied due to the non-parametric distribution and the small sample size. With a 95% confidence level, there was no difference in the coverage number of pedagogical content knowledge nodes between the private international and aided-public schools, $V = 57$, $p = 0.40$, thus it was hard to conclude that the music teachers at the private international schools held a more dynamic teaching style than those at the aided-public schools.

Modeling, Guiding, and Training: Singing, Clapping, Movement

The similarities of the music teaching approach were using modeling, guiding, and training. All schools' teachers showed their music knowledge and pedagogies when sharing their experiences of teaching. Teachers as the sole educators in the classrooms need to pay attention to the body, control, and movement of the children's learning. They started by singing, added a little bit of body movement to express rhythms, and further learned to use

fine motor skills through instrumental learning in music education. Cognitively, the teachers raised the requirements when students turned to the higher grades.

“You have rhythm, melody, timber, harmony, dynamics, forms, and expressive elements. That is the basic of teaching music from the youngest one to the older ones...You cannot teach hemiolas to the younger ones because they won't understand that. You cannot teach syncopation to the younger ones because they won't be able to understand that as well... If you're going to teach regular beats or the basic unit of beats in grade five or grade six, they will get bored, so it should be taught according to the structures or concepts of beats, and the properties of beats.”

“One strand of the curriculum on PYP is instrumental playing. In the third year, we play the recorder. In the fourth year, it is angklung. In the fifth year, ukulele and angklung. In sixth year, ukulele.”

“Because I teach primary school students, I would like to use Kodaly as pedagogy. I would use the movement to clap or just feel the music movement. Also, I will make hand side Do Re Mi Fa and try to help them develop oral skills for singing.”

“For example, when they learn to play an instrument, they learn to appreciate music and think from different perspectives while composing.”

Generic Skills: Collaboration and Cooperation

As part of the generic skills development, collaboration and cooperation were emphasized and deserved the attention for training and development. To foster these skill sets, students should have adequate exposure to organization and group training. In primary schools, extracurricular activities or small projects were the strategies or preferable platforms to empower students to work together to develop creativity through music performance or music appreciation, especially for senior primary school students. For the junior forms, they were engaged in music-related activities to learn socialization and develop stronger interpersonal and intrapersonal relationships with their classmates. The finding reflected that at the teacher level, all teachers had a mindset to push students to play or gamify music together, but at the school level, not all the schools were promoting it due to limited human capital and the hindrances of the pandemic.

“We have a choir, an orchestra, and a rock band. The choir is very popular, but the school only allows me to have 30 students.”

“Cooperative learning, because we always do a lot of activities that they need to be together. They need to be together, dance, or play games. I think that they need to be cooperative because if they don't cooperate, they will never learn and be in our lessons.”

“Playing in the orchestra is not just about playing instruments itself, they have to communicate and collaborate with the other students in the orchestra. I cannot tell and do an analysis that you have 10% better, but I can tell those students in the orchestra have better collaborative skills.”

“There are choirs in our school, but it is not very formal. It is not compulsory, meaning that if you want to join, you can join. There is a percussion class for them to learn percussion like marimba, and xylophone but thanks to COVID-19, there is no practice and contest this year.”

Generic Skills: Technology-Supported Learning

The advancement of technology shed light on having more good practice of technology-supported learning during the pandemic situation. Facing the challenges of the change in the teaching environment, teachers could no longer educate vis-à-vis at schools but adapt to online teaching or online education. The attention spans of young children were around 12 minutes at the age of 6 years old and 30 minutes at the age of 12 years old (Brain Balance Achievement Centers, 2023). It was hardly asked primary school students to sit in front of digital monitors to learn music theory. The use of apps named Garage Band on iPads could allow students to improvise songs and enable a higher level of creativity in music creation and claimed to be effective.

“I think we were lucky because of the fifth wave in the second term. I have already taught them how to read the music, so they got the training in listening. Singing is really difficult in class because their singing is never synced together in the online teaching environment, thus I have to ask them to do that one by one.”

“It [Covid-19] affects a lot. Our school orchestra has reduced the size and only the string session and percussion are left. We cannot practise in school. For those woodwind and brass sessions, we have to change it in Zoom. For regular school activities, like music lessons, let’s say recorder teaching, we teach fingering inside the school and ask students to go back home to record the videos.”

“For integrated learning, I always use an iPad with them. The project that I am doing with P4 students is that I get a video from cartoons like Disney. Then I mute the sound and they have to use the garage band app which is on the iPad. They have to compose the background music for that video.”

“It is about how to use GarageBand on an iPad, like what elements in that software can be used.”

Justification of the Framework: Common Training of Teachers

The social constructive music instructional framework had not yet been testified by the nature characteristics of the private international and aided public schools, but it was very generic instead of specific. Reflected by the interviews, these music teachers had gone through some but not the same Western music training. For instance, the common music educators they usually adopted were Kodaly, who was notable for singing and the solfege system, as well as Orff’s approach and John Cage’s. Others like Dalcrozes, Suzuki, and Gordon had not yet been mentioned.

“I’m using Kodaly because Kodaly is abstract before concrete. I would give the experiences first. By giving them all the experiences which let them feel everything before they go to conceptual learning, and then structural learning. If you are

following the Kodaly method to teach, you would follow the ta-ti-ti-ta. I will introduce how we are going to read the rhythm and listen. We then move on to reading, writing, and creating [music].”

“Because I teach primary school students, I would like to use Kodaly as pedagogy. I would use the movement to clap or just feel the music movement. Also, I will make hand side Do Re Mi Fa and try to help them develop oral skills for singing.”

“Did you hear about Orff? It is a pedagogy that was invented by Orff.”

“In composition, [let say] John Cage. He uses a lot of different sounds, but not precisely musical instruments. You can make a sound and he combined everything to make a piece of composition or piece of music.”

Conclusion

This study not only aimed to reveal the teaching practices of music education in Hong Kong at the primary school level but also showed the characteristics of music teaching between private international and aided public schools. It was summed up in three dimensions: 1) Teaching foundation, 2) generic skills, and 3) common training of teachers. The teaching foundation was the same regardless of the different types of schools and all teachers took the initiative to be role models and gave intensive guidance to their students to learn how to sing, clap, and move, then catch the rhythms, tones, and beats, followed by the instrumental playing and song writing. The generic skills were cooperation and collaboration. Placing students in extra-curricular activities could leverage these skills in advance in which teachers reflected their performance in class. Lastly, technology-supported learning in music education was discussed, while the social constructive music framework did not include the technology element. Since it was coded based on traditional Western classical music instructional methods, this was considered a limitation of this framework in terms of comprehensiveness. In the 21st century, in no doubt that the existence of technology in learning needs to be addressed. The pedagogical content knowledge can be re-interpreted as technological pedagogical content knowledge (TPCK)(Angeli & Valanides, 2005; Koehler & Mishra, 2006), embedding the technology into music learning, such as the apps for music or song creation. It was of importance to investigate the technology development in music education to finetune the framework accordingly for future study purposes.

Appendix I

5 Music Instructional Methods & 19 Pedagogical Content Knowledge Nodes

Approach	Pedagogies	Activities	Procedures
Carl Orff	<ul style="list-style-type: none"> Learn from playing Learn with tools Learn from singing Learn gradually according to the developmental approach (E.g. Internalise the rhythm by learning the concept of rhythm first, then adding the body percussion) 	<ul style="list-style-type: none"> Imitate to build repertoire of pitches, rhythms, meter, tempo and dynamics Hear movement of pitches, the content of rhythms, moment of meter and explore timbre of whatever instrument or voice Develop musical framework Analyze the musical material Add music into drama/stories/tales 	<ul style="list-style-type: none"> Imitation Exploration Improvisation Composition
Zoltan Kodaly	<ul style="list-style-type: none"> Learn from singing Learn gradually, and progress by adding one new note or rhythmic value at a time, from simple to complex Learn from movement Music should belong to everyone 	<ul style="list-style-type: none"> Start with sight-reading and basic rhythms and pitches Use self-developed teaching materials like folk music or songs to teach Use solfege to teach sequence and incorporate rhythmic syllables 	<ul style="list-style-type: none"> Master sight singing Sing along with the solfege system Infuse walking, running and clapping while singing
Emile-Jacques Dalcroze	<ul style="list-style-type: none"> Learn from rhythm, structure, musical expression and movement Learn to be sensitive and expressive Learn with purposeful movement, sound, thought, feeling and creativity Learn in sequence Combine movement 	<ul style="list-style-type: none"> Begin with ear training or solfege Start with meter, dynamics, rhythms, tempo, duration, melody, form, phrase and pitch Combine movement to learn solfege Use improvisation to sharpen spontaneous reactions and physical responses to music 	<ul style="list-style-type: none"> Follow Quick reaction Interrupted Canon Canon

Shinichi Suzuki	<ul style="list-style-type: none"> • Learn from sensitivity, discipline and endurance • Learn from training • Learn with encouragement • Learn in group • Learn as early as possible • Learn equally 	<ul style="list-style-type: none"> • Start the ear development by repetition, followed by memorization for improving sensitivity of music and security in playing publicly • Play a repertoire in group 	<ul style="list-style-type: none"> • Instrumental play • Deliberate practice
Edwin Gordon	<ul style="list-style-type: none"> • Naturally born with different music aptitude • Learn from interaction • Learn by guidance • Learn from sequence 	<ul style="list-style-type: none"> • Experience music • Examine the tonal and rhythm patterns • Comprehend and understand music • Use solfege to assist students to recognize and audiate the characteristics patterns of each 	<ul style="list-style-type: none"> • Acculturation (Aurally collect the sound, mimic, move and babble in response and attempt to relate with the environment) • Imitation (Recognise the movement and babbling, and imitate the tonal and rhythm patterns and other sounds) • Assimilation (Recognise the discrepancy and expected outcomes, and modify for better outcomes)

Highlights of Pedagogical Content Knowledge

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|------------------------------------------------------------|---------------------------------------------------|
| 1. Learn from playing | 11. Learn as early as possible |
| 2. Learn with tools/instruments | 12. Learn for morality/ discipline |
| 3. Learn from singing | 13. Learn from structure |
| 4. Learn music gradually and in sequence | 14. Learn from rhythm |
| 5. Learn with body movement | 15. Learn in group |
| 6. Learn by modelling/guidance/training | 16. Learn with purpose |
| 7. Learn from interaction | 17. Music is for all |
| 8. Learn in supportive environment/with parent involvement | 18. Music is emotion expression |
| 9. Learn from repertoire | 19. Naturally born with different music aptitudes |
| 10. Learn with solfege/ hand gestures | |
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Appendix II

Interview Protocol

Personal Background

1. What is your educational background?
2. What is your degree major and minor?
3. Are you a holder of any teaching diploma? What is it?
4. Any other music-related certificates you are holding? (i.e. grade 8 piano, violin, vocal singing)
5. How long have you been teaching music curriculum?
6. What kinds of pedagogies you are using while teaching? Could you give some examples?
7. To what extent do you and other music teacher(s) follow the standard-driven approach, i.e., the music education curriculum suggested by the Curriculum Development Council (2003)?
8. What kinds of formative and summative assessments do you give to the students to develop the generic skills?
9. What is the type of your school? Government public school, aided public school, caput school, private school, private international school, and English schools' foundation?
10. Does your school adopt a small-class teaching approach? How many students are in one class?
11. How many music teacher(s) in your school?
12. How do you share the workloads with the music teacher(s)? Do you have any teaching assistants to support you?
13. Which primary levels you are responsible for?
14. How many music lessons per week in your school? How long is the music lesson?
15. In your school, what are the popular music activities? Is it outsourcing or led by you and the other music teacher(s)?
16. Does your school arrange concert visits or school performances each year? How many concert visits and performances happened inside/outside the school?
17. What kinds of rooms/venues you can use for musical activities, including teaching, and internal and external musical performances?
18. Do you think the facilities in your school are enough for training students to have instrumental/singing/brand/orchestra/other performances? If yes, may you give some examples? If not, kindly suggest what things can be improved.
19. What kinds of grants/ funding your school applied/received?
20. What are the major financial sources to support the musical activities in your school?
21. Are there any donations from parents, alumni, and other teachers?
22. What kinds of music-related activities you have to arrange for your school?
23. How often do you need to help and be involved in non-music-related activities? What kinds of duties do you usually need to perform?
24. Have you encountered any difficulties when teaching music during the pandemic situation? How do you tackle it and how the school support you? Interview
25. What kinds of technology and collaborative tools you have adopted for online music classes with students? What is the student's engagement level?
26. Are there any changes in assessments? What are they? Interview
27. Do you feel very stressed in the teaching arrangement when the pandemic alters the teaching practice? What kinds of activities have been disallowed and had a great influence on you and the students?

Appendix III

Table of Interviewed Music Teachers' Portfolios

Music Teacher A (MT01)	Music Teacher B (MT02)	Music Teacher C (MT03)	Music Teacher D (MT04)
Male	Female	Male	Male
Master of Music Education; USMCE Level 10 Piano; USMCE Level 5 Violin	Master of Music Education; ATCL Piano; Grade 8 Music Theory	Bachelor of Mathematics (minor in music); Grade 8 Piano; Grade 8 Music Theory	Master of Music Education Grade 8 Trumpet
>10 Years of Teaching	4-6 Years of Teaching	7-10 Years of Teaching	0-3 Years of Teaching
Private International School Experiential Learning; Inquiry Learning; Cooperative Learning	Private International School Inquiry Learning; Cooperative Learning; Experiential Learning	Aided Public School Experiential Learning; Assessment & Evaluation of Student Learning; Differentiated Instruction	Aided Public School Assessment & Evaluation of Student Learning; Open-ended Instructional; Integrated Learning
27 students per class; 40 mins; 2 lessons per week	25-27 students per class; 45 mins; 1 lesson per week	30 students per class; 30 mins; 2 lessons per week	30 students per class; 35 mins; 2 lessons per week
1 Full-time music teacher	1 Full-time (>20 classes); 1 part-time (8 classes)	5 Full-time music teachers	7 Full-time music teachers
P1;P2;P3;P4;P5;P6	P1; P2; P3;P4;P5;P6	P2;P3;P4;P5;P6	P1;P2;P3;P6
Have donations from parents, alumni and other teachers	Not much donations from parents, alumni and other teachers	Have donations from parents, alumni and other teachers	Have donations from parents, alumni and other teachers
Apply music resource in public/private sector	Apply music resource in public/private sector	Apply music resource in public/private sector	Not yet apply music resource in public/private sector

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