



Fostering musical creativity of students with intellectual disabilities: Strategies, gamification and re-framing creativity

Marina Wai-yee Wong

To cite this article: Marina Wai-yee Wong (2021) Fostering musical creativity of students with intellectual disabilities: Strategies, gamification and re-framing creativity, Music Education Research, 23:1, 1-13, DOI: [10.1080/14613808.2020.1862777](https://doi.org/10.1080/14613808.2020.1862777)

To link to this article: <https://doi.org/10.1080/14613808.2020.1862777>



Published online: 21 Dec 2020.



Submit your article to this journal [↗](#)



Article views: 1594



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 10 View citing articles [↗](#)



Fostering musical creativity of students with intellectual disabilities: Strategies, gamification and re-framing creativity

Marina Wai-yee Wong 

Department of Education Studies, Hong Kong Baptist University, Hong Kong SAR, People's Republic of China

ABSTRACT

In Hong Kong, the principle of 'one curriculum framework for all' applies to all students, including students with special educational needs (SEN) (EDB 2020. "Special Education Needs." <https://www.edb.gov.hk/en/curriculum-development/major-level-of-edu/special-educational-needs/index.html>). Students with intellectual disabilities (ID) are expected to achieve the same learning targets as their counterparts in mainstream schools. Within this common curriculum framework, students (age 6–14) study Music with one of its overall aims 'to develop creativity' (CDC 2003. *Music Curriculum Guide (Primary 1 – Secondary 3)*. Hong Kong: CDC, 11). This qualitative multiple case study reports a sample of nine music teachers fostering the musical creativity of students with ID. A discussion of the findings reveals that in this sampling: (1) instructional strategies focus on the process not product of musical creativity, (2) creative fostering strategies embody gamification and (3) these music teachers re-frame creativity as being innate and commonly held by their students with ID.

ARTICLE HISTORY

Received 6 May 2020

Accepted 3 December 2020

KEYWORDS

Music; special education; intellectual disabilities; creativity; gamification; Hong Kong

Overview

This study to observe music teachers drawn from across Hong Kong's special schools for students with mild, moderate, and severe intellectual disabilities (ID), seeks to contribute to three areas of expertise: the nature of creativity, gamification pedagogy and third, classroom practice that fosters musical creativity. The Literature Review section follows the above sequencing: from theories about creativity, through pedagogy that fosters creativity to reported examples of creative music classroom practice. The Findings section, drawn from nine cases of special school music teachers, comprises observations of and reflections by them. Given the practical-basis of these findings, the Discussion section begins with a consideration of the reported practice. This practice then informs a discussion of the underpinning pedagogy which in turn informs a discussion of creativity theory.

The nature of creativity

The field of creativity research, once exclusively sited in the discipline of psychology, is now multi-disciplinary (Chan 2014), and subject to multiple perspectives (Abdulla and Cramond 2017). Summarising this shift, Runco and Jaeger (2012, 95) state 'the standard definition of (judging) creativity only pinpoints which criteria must be used; it does not say anything about who is to judge each, and who is to judge the judges'. The agreement on 'which criteria must be used' remains in contention in the field of psychology. Guilford (1950, 444) expresses his sense of its ambiguity: 'creativity is the

characteristic of creative people'. Rhodes (1961) proposed that the creative process formed a four-P framework, Person-Process-Press-Product. – i.e. an interaction between a person's individual's qualities: The Process, that individual's motivation and perception: Press, that individual's environment, and Product the morphing of an idea into a tangible form. More recently, Runco and Jaeger (2012) argued that to be considered a creative Product, this 'tangible form' should also to display *originality* and *effectiveness*; while Simonton (2012) argued that a creative Product need also display a third quality – *surprise*. A subsequent re-working by Acar, Burnett, and Cabra (2017) of Simonton's data – US Patent Office definition, and the Creative Product Analysis Model – suggests that, to be recognised as being creative, a Product needs only one quality – *originality*.

This uncertainty amongst academics is also reflected amongst music teachers, Kladder and Lee (2019, 395) report:

define creativity as a novel or new idea resulting in a formalized product ... that creative students are risker-takers, persistent, and often think outside the box.

For Kladder and Lee (2019) creativity stems from an interaction between product, attitude, environment and collaboration, criteria which differ from Rhodes (1961) four-P interactive framework (above). However, both share an implicit recognition that creativity stems from interaction.

Where creativity is dependent on unpredictable interactions, attempts to define which criteria must be used when judging the product of the unpredictable interactions that form creativity, remain contentious. Agreement about 'who is to judge' and 'who is to judge the judges' remains in contention. The ways how people or researchers judge creativity highlight the dilemma of perspective (James, Clark, and Cropanzano 1999), and the dynamic process of creativity remains a contentious process to judge (Walia 2019). The subtle impact of labelling, such as evoked by society's expectations of special education and students with ID also highlight the contentious nature of judging creativity (Samkange 2015). It is this milieu that frames one of this study's research questions: *What can observations of the special school music classrooms add to our understanding of creativity?*

The pedagogy of gamification

Gamification has been defined as the 'use of game design elements in a non-game context' (Deterding et al. 2011, 9). Justifying this transfer of game design elements into the non-game context of education, Kalinauskas (2014) makes the sociological observation that the new generations are acculturated to being simultaneously stimulated, entertained and engaged. For education to remain effective and relevant to a generation of students acculturated to simultaneously being stimulated, entertained and engaged (Rock 2004), Lee and Hammer (2011, 2) argue that:

Gamification can change the rules, (thereby enhance) ... students' emotional experiences, their sense of identity and their social positioning.

As an emerging trend, gamification has attracted a range of critiques in education and requires more research to determine how the motivation of the learners can be influenced (Dicheva et al. 2015), and requires more evidence to support the benefits of gamification in educational contexts (Dicheva and Dicheva 2017). Majuria, Koivistoa, and Hamaria (2018) report that gamification in education motivates learners' sense of achievement after reviewed in more than a hundred of research. Applying gamification elements in education means to include

Self-elements which get students to focus on competing with themselves and recognizing self-achievement and social-elements stimulating interactive competition or cooperation that put the individual in a community with other students. (Hsin-Yuan and Soman 2013, 3)

As the context of this paper is special schools for students with ID within an Asian milieu, this study addresses the following research question: *What is the contribution of gamification to fostering Asian students' creativity in special schools?*

Identifying a gap in our understanding of musical creativity

In the field of music education, definitions of and approaches to research in musical creativity are diversified. Mazzola, Park, and Thalmann (2011) consider music as a performing art, a context that defines creativity significantly different from that of other disciplines.

The fact that music is a performing art makes it significantly different from many other domains. Musicians create in real time in front of an audience. The musical product can range from a faithful rendering of a work, to an embellished interpretation, to an entirely unplanned free improvisation. (147)

Burnard (2012a) argues that it is more appropriate to view musical creativity from a practice-based perspective that recognises multiple approaches, to practice, each embedded in different social, cultural and activity systems.

Most of the world's traditional musics, ... have not originated through formal acts of 'composition', but are rather through improvisation. ... Musical creativities are born of, and infused with, musical practices. (235)

As music comprises both performance and practice, it is therefore to be expected that the literature about musical creativity, will not present a consensus view of musical creativity but rather reflect multiple perspectives. For example, some studies report that the process of music creativity is non-linear (Girdzijauskienė 2015), individualised (Nevels 2013), or related to non-musical factors, such as interests and engagement (Crawford 2013), as well as social interrelationship arising from collaboration (Dobson and Littleton 2016).

There are various tools for assessing creativity, such as the Consensual Assessment Technique (CAT) (Stefanic and Randles 2015), the Musical Expression Test (Barbot and Lubart 2012); the Cantometrics (Hickey and Lipscom 2006), or the Experience Sampling Forms (Byrne, MacDonald, and Carlton 2003). Common across all such tests is that their reliability remains defined by context. Where context defines research results, reported findings will not be uniform but spasmodic. For example, whereas some studies report music's impact on child development (Swanwick and Tillman 1986) or social development (MacDonald and Miell 2000), other studies reverse the connection by positing that students' musical creativity is influenced by sociological or psychological factors (Kiehn 2003), or formal and informal instructions and prior musical experiences (Burnard and Younker 2002). Other studies broaden the research-context by reporting that students' musical creativity can be enhanced by teachers' feedback (Byrne, MacDonald, and Carlton 2003), by reflective and collaborative practices (Gruenhagen 2017); by the opportunities for exploration (Kemple, Batey, and Hartle 2004), and the availability of music technology (Triantafyllaki 2016).

Where the research context is special music education, reported findings reflect shifting perceptions of its extra-musical benefits. For example, musical creativity is reported as being therapeutic (Eaglestone 2008), enhancing cognitive processing (Portowitz and Klein 2007) or fostering the cognitive development and social esteem of high risk children (Portowitz et al. 2009). More recently, music is seen as improving the quality of lives of people with special needs (Miranda 2010), or improving their social adaptation (Urazaliyeva et al. 2014).

Where reported research considers the musical creativity of students with special educational needs, findings are both sporadic and reflect low-expectations. For example, students with special educational needs are able to improvise music with an organised structure (Orsmond and Miller 1995); develop their social and music skills requires both opportunities and positive support (Bell 2008); make music composition with the support of technological devices (Triantafyllaki 2016); and finally, students with special educational needs who create music do so at their pace of musical development (Ockelford 2015). Given this limited international research on creativity in the ID music classroom and its complete absence within the Hong Kong special education system, this study seeks to address this significant gap in the literature.

Musical creativity: pedagogical practice in the mainstream classroom

Where research seeks to identify means to support musical creativity, consistent findings suggest the application of technology (Coss 2019; Triantafyllaki 2016; Wise 2016) and appropriate pedagogy (Tafari 2006). Common to these studies is the finding that the activation and the development of students' musical creativity are both dependent on the teachers' creative design and exploration of tasks. Crystallising this commonality, Burnard (2010, 10) states that fostering mainstream students' creativity means:

allowing children choice and ownership of their learning, time for reflection, creating a stimulating environment; an enabling context within which posing questions and play, innovation and risk-taking, being imaginative, self-determined and intentional. The pedagogies which foreground flexibility of space and time and engage the imagination are more often those in which the teachers position themselves off-centre stage, ... and promoting learning through the children's self-chosen activities and interests.

Having identified which pedagogies work for mainstream students, we now turn to consider the instructional strategies that are employed for students with ID in Hong Kong.

Contextual background of this study

In Hong Kong, students identified as having intellectual disabilities [ID] are commonly placed in special schools. All special schools in Hong Kong are funded by the government. There are 10 schools for students with mild ID; 14 schools for students with moderate ID, 7 schools for students with mild or moderate ID, and 10 schools for students with severe ID (CHSC 2020). Implementing the non-discriminatory principle of 'one curriculum for all', students with ID undertake the same curriculum and learning targets as their counterparts in mainstream schools (EDB 2020).

Music is studied by all students (age 6–14) and has mandated, as one of its overall aims 'to develop creativity', and one of the four major learning targets for studying music is 'developing creativity and imagination', while the three other targets are: 'developing music skills and processes', 'cultivating critical responses in music', and 'understanding music in context' (CDC 2003, 12). Music teachers in both mainstream schools and special schools for children with ID are expected to implement school-based music curriculum that include performing, listening and creating activities. Although the curriculum and learning targets are centrally prescribed, school-based music curriculum design and adaptations for students with ID are the responsibility of music teachers (Wong 2015).

As there has been no research into the instructional strategies that music teachers employ for fostering musical creativity in Hong Kong special schools, this study poses the research question: *What instructional strategies are employed by these music teachers to foster musical creativity in Hong Kong special schools?*

Research methodology

This is a qualitative multiple-case study employing purposeful sampling (Merriam and Tisdell 2016). The research context is music teaching in Hong Kong special schools, from which population is drawn a total of nine cases: three music teachers from each category (mild, moderate and severe ID) of special schools for children with ID. Sampling criteria were: The participant

- (1) is an in-service music teacher in a Hong Kong special school for children with ID;
- (2) allows the researcher to observe and video record his/her teaching in one of his/her music classes for four consecutive lessons during the research period (AY 2017–2019). The choice of music class is left to the convenience of the participant;
- (3) attends a face-to-face video-elicitation interview after every observed lesson.

After contacting all special schools for children with ID, nine music teachers volunteered to participate in this study. Pseudonyms are used in reporting to ensure the anonymity of the participating teachers. Personal profiles of these nine cases are shown in Table 1.

The research tools comprise classroom observation and face-to-face video-elicitation interviews. Classroom observations comprised four consecutive music lessons of each participant’s music class during the research period (AY 2017–2019). Interviews were conducted after each of the classroom observations. Using stop-start video recordings of their music lessons as an elicitation tool, each music teacher narrated and explained their individual pedagogic choices and instructional strategies they thought foster musical creativity of students with intellectual disabilities (VanBraak et al. 2018). Each interview was scheduled at the convenience of the participant and extended for more than an hour. To identify both the creative musical behaviour of their students and the instructional strategy(ies) that stimulated those creative behaviours, each interview employed the consensual assessment technique (CAT) (Baer and McKool 2009). CAT, which seeks to minimise deviation between ‘experts’ views of musical creativity, is considered to be an effective method for assessing the quality of creative products and processes independently by the observers who are knowledgeable and familiar with the domain of the creative products or processes. As all the participants and the researcher of this study are experienced in teaching music to students with ID, during the video-elicitation interview the researcher could seek CAT-level agreement of the participant’s views about his/her students’ musical creativity.

The data collection procedure was applied across all cases and standardised against both a pre-set observation guide and a set of semi-structured interview guide/prompt questions. All observations and interviews were conducted by this study’s sole, non-participant researcher and interview transcriptions were verified by the participants. Music lessons, interviews, transcriptions and data analysis were conducted in Cantonese, the most commonly spoken Chinese language in Hong Kong and the medium of instruction in special schools. Translation of the data reported here in English was made by the researcher who is fluent in both languages.

Findings

The nine cases studies are reported here in three groups reflecting the three categories of children’s ID. Cited quotations that address this research’s questions, are extracted from the data of the post-lesson video-elicitation interviews. For convenience, a summary of these findings, including the number of students and level/age group of students, is provided in Table 2.

Three cases from schools for children with mild ID

Ada’s use of music-induced movements for fostering students’ musical creativity were ‘turn-taking’ to encourage students to create movements; verbal feedback to encourage students to create more; and repeating the same activity but with different movements.

Table 1. Music teachers’ personal profile.

Case Pseudonym	1 Ada	2 Ben	3 Clara	4 Diana	5 Eliza	6 Fanny	7 Grace	8 Helen	9 Ivan
Sex/Age	F/30+	M/30+	F/40+	F/30+	F/30+	F/50+	F/20+	F/50+	F/30+
Type of sp. sch.	Mild ID	Mild ID	Mild ID	Moderate ID	Moderate ID	Moderate ID	Severe ID	Severe ID	Severe ID
Education	B. Ed	B. Mus	B. Mus	B. Ed Sp. Ed	B. Ed Sp. Ed	B. Ed Sp. Ed	B. Ed.	B. Ed. Sp. Ed.	B.A. (Mus)
Music ed.	✓	✓	✓	✓	✓	✓	x	x	✓
Teaching experience	>10 years	>10 years	>15 years	>10 years	>15 years	>25 years	< 5 years	>25 years	>10 years

Table 2. Curricular emphasis & strategies for fostering musical creativity.

Pseudonym Level / number of students	Ada	Ben	Clara	Diana	Eliza	Fanny	Grace	Helen	Ivan
	KS 1 / 7	KS 3 / 5	KS 3 / 14	KS 3 / 10	KS 3 / 8	KS 2 / 9	KS 2 / 3	KS 3 / 2	KS 2 / 8
Curricular emphasis & strategies	• Sing w/ creative movement • Play percussion instruments w/ music • Improvise rhythm • T demo • Peer leader	• IT apps • Explore sound effects • Mix sound tracks • Compose melody & rhythm • T demo • Peer sharing	• Sing/ listening w/ creative movement / play percussion instruments • Improvise rhythm • Peer leader • Group perform	• IT apps • Re-arrange sound tracks • Explore & record sound effects • T demo & feedback • Peer- / self-assessment	• Listen to music w/ creative movement • Use of proms / toys • Play percussion instruments w/ music • IT apps • Perform and explore sounds w/ apps	• Sing w/ microphone & creative movement • Re-arrange melody w/ tuned percussion instruments (limited pitches) • Use of visual aids / numbered / colour score	• Listen to music w/ creative movement, improvise w/ percussion instruments	• Listen to music w/ creative movement, improvise w/ percussion instruments	• IT apps • Explore & improvise sound effects along w/ background music • Free play on students' own-choice adapted music instruments

Ada: 'When I conduct listening activities, they will take turns to create movements. ... Sometimes they just follow what I did or what their classmates did. I would ask them to try again and encourage them to do something different. ... After playing music-induced movements several times, some of them might develop new movements when seeing their peers' creative movements. Repeating the same activity provides them with more opportunities to show their musical creativity.'

Ada's strategies for fostering musical creativity in singing activities conflated students' repeated opportunities for experimentation with individual percussion instruments to accompany their singing.

Ada: 'When I teach them to sing, I let them choose a percussion instrument to play along with singing. ... Every time we repeat singing the song, I would ask one of them to select an instrument to play along with our singing. I'll let them explore the ways to play along with the songs.'

In composing rhythm for fostering musical creativity, Ada used call-and-response strategy.

Ada: 'I often play call-and-response rhythm games with my students, so they are very familiar with it. Some students are more ready to create new rhythm patterns, but some could only follow. I'll continue to play call-and-response with them and hope that more students can create new rhythm patterns.'

Ben encouraged his students to creatively compose music using a mobile app. He adopted a step-by-step approach before letting students to explore sounds freely, and gave individual help whenever necessary.

Ben: 'Before I let them use the App, I taught them some basics about melody writing. I compose a melody with them and sang the melody to them so that they know how their choices actually sound. This gives them some concrete experience of melody writing and example to start with. ... I asked them to work on only one sound track in every lesson. I prefer teaching them step-by-step before letting them explore the App freely. I teach them a new function in every lesson. I also guided them individually and help them to familiarize themselves with the App.'

To develop their imagination, Ben guided his students to analyse and compare sound effects.

Ben: 'I taught them to analyze and compare the sound effects through listening because analytical listening can help them to develop imagination. Imagination is essential when they make sound effects or mix sound tracks or improve sound tracks.'

Clara highlighted praise as an effective strategy for fostering her students' creativity in music-induced movements.

Clara: 'Whenever I praise them, they'll be more eager to create more alternatives in music-induced movement.'

To foster creativity in rhythm composing, Clara employed grouping, assessment strategies and giving more time for activities and show time.

Clara: 'I had to spare more time for composing activities and show time. I assign them into small groups of two or three to compose rhythm patterns. The strong ones can lead and help the weaker ones to try different rhythm patterns. Show time is important for them to share their work with others and learn from others work. ... I used questions, verbal feedback and hints to help them to find directions for improvement. Whenever I give them some hints, they'll be enthusiastic to try more creative alternatives in composing rhythm patterns. My questions and hints also help them to express themselves better in peer assessment and self-assessment. These assessment strategies can enhance their ownership of their work and their musical creativity.'

Three cases from schools for children with moderate ID

Diana regarded the use of music technology as an effective tool to foster her students' musical creativity.

Diana: 'The 'record' function and the music arrangement function are easy for them to use. They may explore how it sounds when they move the sound track here and there and alter the sounds by pressing the buttons of different music arrangement functions.'

Ellen encouraged students to choose, explore and respond through call-and-response with Chinese percussion instruments.

Ellen: 'I played call-and-response with Chinese percussion instruments while I sang familiar greeting songs with them. This is a way to develop their musical creativity through choosing, exploring and responding with the Chinese percussion instruments.'

To engage her students better in the learning process, Ellen designed many small tasks along with more time for their completion. To develop their imagination, she prepared simulated playing of Chinese instruments, associated each with the timbre of Chinese instruments, and encouraged students' responses through music-induced movements.

Ellen: 'I planned many small tasks in every lesson and allow more time for them to familiarize with the music and activities. These were helpful to engage students in the learning activities. I prepared simulated Chinese instruments for them to play when listening to music of that instrument. Simulated instruments are toys in their eyes. Playing with the simulated instruments can help them to develop imagination of timbre and sound production. Some of them move with the simulated instruments along with the music they heard. Their movements illustrated their musical creativity.'

To build student confidence and ownership of creativity in performance, Fanny employed microphones and recorded performances which were then reviewed.

Fanny: 'With the use of microphones, my students would be brave to participate in singing activities even though many of them had speech disabilities. They would make up some sounds or mouth shapes as if they were singing. When they review their own performance, my feedback and their friends' applause could strengthen their self-confidence to sing. It's a feeling of ownership of their performance. Their ways of making the sounds or mouth shapes showed their musical creativity.'

To encourage music exploration, Fanny notated sound and the chime bars with colour stickers, set individualised tasks and gave individual advice.

Fanny: 'I showed them how to alter a selected phrase of the song. I set the number of notes by limiting their chime bars according to the harmony of the song as well as their ability. The more capable ones may have more chime bars and challenging task while the less capable ones may have less chime bars and easier task. It's for helping them to get the notes that fit my piano accompaniment that give it a holistic feeling. They may explore the arrangement with the available notes/chime bars with color stickers. The color stickers helped them to notate the sound that they preferred and show their work. I walked around to give individual advice and encouragement for exploration.'

Three cases from schools for children with severe ID

Grace's students were visually impaired. To ensure that her students could play and be tactile with musical instruments, Grace adapted and placed them within her students' easy reach.

Grace: 'In addition to severe ID, they have multiple disabilities. I adapted the instruments for them, and they had their own ways of playing instruments. They couldn't see clearly, so I had to put the instruments near to their hands for them to touch and explore while listening to the festive Chinese instrumental music. I don't know which instrument they may like because their ability of communication was so low, so I let them play with different instruments in every lesson and observe their ways of interacting with the instruments and guess their preferences.'

To ensure familiarity and allow their creativity to fully emerge, Grace repeated her students' musical experience many times.

Grace: 'I repeated the music many times so that they could have ample opportunities to internalize the music and to show their creativity through reacting with music with their body movements, and their interactions with the percussion instruments. Their body movements may be slight, but they were using all their might to move and react with music. When they were more familiar with the music excerpt, I edited the sound track to leave blank at some points. When they noticed that my music had stopped, they would start to add in their music with the instruments in hand.'

Helen's students had physical, visual and hearing impairments. To address these multiple disabilities, Helen magnified the sound by using a recorder pen; selected marching band music to stimulate her students' motivation to move with music, and an iPad drum machine to facilitate her students to explore sounds.

Helen: 'I put the recorder pen close to their ears so that they could listen to music more clearly. The music (marching band music) was so rhythmical and stimulated them to move with music. Their muscles were weak and could not play real drums. The use of iPad facilitated them to explore the use of drums to play along with the music and show their creativity.'

To free her students' physical responses when listening to music, Helen had them lie on floor mats.

Helen: 'I put them lying on the floor so that they could relax and move freely; allowing freedom to move on the floor mat, and more time for listening.'

Exploiting the electronic sound possibilities of Makey Makey (Deck and Moyer 2020), Ivan reported both enhanced students' motivation and engagement with exploring a range of sound-possibilities.

Ivan: 'I prepared Makey Makey for them to explore sounds. They were so motivated to find out that they could make sounds with water, and spent more time to explore different ways of playing with water for making different sounds.'

Ivan also exploited the possibilities of the iPad for recording students' work to enhance their sense of ownership and musical creativity.

Ivan: 'I prepared iPad for my students to play with apps and recorded the sounds that they made. They were so happy to hear their own works when I share their works in class. They were so motivated to explore music making with the apps. It's important to allow them to choose the way they like when exploring sounds with the App.'

Discussion

Given the absence in the literature on this area, one focus of these findings is to address the research question: *What instructional strategies are employed by these music teachers to foster musical creativity in Hong Kong special schools?* An initial impression is that respondents chosen array of pedagogic instruments was limited. During the 36 classroom observations (9 teachers each observed over 4 lessons) and across the spectrum of (mild, moderate and severe) ID, the reported pedagogic instruments are few: percussion & Chinese musical instruments; mobile apps for music composition, iPad musical features and the Makey Makey electronic system. Yet, despite this limited array of instruments classroom observations did record evidence of teachers in Hong Kong special school classrooms attaining the learning target of fostering musical creativity. This observation suggests that although pedagogic instruments are helpful, what foster musical creativity are the teacher's implementation strategies.

Observed implementation strategies may be summarised as 'giving students time to explore sounds'. For example, music-induced movement, marching music, singing games and playing call-and-response rhythm all have in common the strategy of exploring sounds. This exploration is student-based and given sufficient classroom time to facilitate individual, creative musical responses. The findings suggest a key to fostering musical creativity in Hong Kong special schools is the implementation strategy of giving students sufficient time to explore sounds.

These findings resonate with the literature. The observed lessons were structured (Orsmond and Miller 1995); the students with ID were provided with both learning opportunities and positive support (Bell 2008); technological devices did enhance music making (Triantafyllaki 2016) and finally, students with ID proceeded at their own pace (Ockelford 2015). However, these findings also strongly resonate with Burnard's (2010) description that fostering mainstream students' creativity means of allowing children to have time, space, opportunities and environment for exploration, making choice and developing ownership of learning.

To explain why pedagogies that serve mainstream students are equally helpful for students with mild, moderate and severe ID, the reported findings are now discussed in terms of gamification. Specifically the discussion now addresses the research question: *What is the contribution of gamification to fostering Asian students' creativity in special schools?* Gamification has been defined as the 'use of game design elements in a non-game context' (Deterding et al. 2011). The reported classroom observations display a transfer of technology, i.e. iPad and the Makey Makey electronic system. More significant is the observation that these students with ID were given a lot of time to explore and freely interact with sounds. Explaining this significance is the observation by Lee and Hammer (2011) that gamification 'can change the rules', and enhance 'students' emotional experiences' (2). Illustrating these qualities of gamification are the following three inter-locking examples. First, the reported importance of being encouraged and given time to self-express. Second, the conversion of the teacher-centered approach of teaching music into students' self-exploring of sounds – a conversion that introduces elements of gamification appropriate to students with severe ID. Third, the motivational exploration of instructional aids – e.g. simulated musical instruments, iPads with mobile apps and Makey Makey electronic system – encouraged these students with ID to engage in the process of music creating and music making.

While the evidence here disagrees with those who questioned the influence of gamification on learners' motivation (Dicheva et al. 2015), the same evidence supports the view that gamification enhances learners' affordances, signalling achievement and progression (Majuria, Koivistoa, and Hamaria 2018). The observed nine teachers employed, yet in their reflections, never mentioned the term gamification. This absence supports the view that gamification need not involve advanced IT skills but instead a lesson-plan re-focused: a re-focus that encourages students to compete with themselves, to acknowledge self-achievement; a re-focus that stimulates both interactive competition and cooperation to place the individual within a community of explorers of sounds (Hsin-Yuan and Soman 2013).

The discussion now seeks to address this research question: *What can observations of the special school music classroom add to our understanding of creativity?* The findings report the judging of creativity as a process. First, by individual students and their peers, then by individual classroom teacher, and then as observed by the researcher. This process echoes both view that the definition of creativity does not specify whom to be the judge for creativity and whom to be the judge of the judges (Abdulla and Cramond 2017; Runco and Jaeger 2012). However, the validity of this process is dependent on seeking congruence from diverse perspectives, a congruence achieved by this study's participants but not in the literature (Runco and Jaeger 2012; Simonton 2012; Guilford 1950). Noting this disparity, suggests that definitions of creativity are products of perspective located in context and as such, destined to be contentious.

To illustrate how perspective and context defines creativity, the following compares a recent study of Western music teachers with the findings of this Hong Kong study. Kladder and Lee (2019, 395) define 'creativity as a novel or new idea resulting in a formalized product' whereas the findings here display creativity in students' informal individual expressions. Rather than being considered as polar opposites, creativity as product or individual expression has been seen as a dynamic process (Walia 2019). It is perhaps this interactive, dynamic process that Guilford (1950) had in mind when observing that creativity is the characteristic of creative people.

Reporting a dynamic process that fosters creative characteristics, the findings here reverses the view of Kladder and Lee (2019, 395), that 'creative students are risk-takers ... often think outside the box'. Instead, the findings here are that students with ID, when encouraged both to take risks and expand their comfort zones then display creative characteristics. This reversal views creativity not as elitist, but rather as innate – a characteristic that responds to nurture.

The findings here suggest a need to revise the notion of Kladder and Lee (2019, 395) that 'important to the creative processes (is) providing space for collaboration and enhanced creative thinking'. Rather, the findings here suggest more specific classroom requirements than simply providing space and time. First, time is required for students to move from novelty to familiarity to musical

ownership; then a gamification pedagogy that encourages students' risk-free experimentation, play-time and self-development. In summary, this study adds to our understanding of creativity by illustrating why attempts to define creativity are inherently contentious, and how it is helpful to re-frame creativity as an innate characteristic, responsive to nurture.

Conclusion

This study of music teachers that has drawn from across Hong Kong's special schools for students with ID addresses three areas of expertise. First, it identifies instructional strategies that foster musical creativity. Reported pedagogic instruments were few, highlighting the importance of teacher's implementation strategies, summarised as giving students time to explore sounds. Moving from considering classroom practice to pedagogic modelling, this study then reported the contribution of gamification to fostering creativity in special school music classrooms. The findings illustrate that gamification fosters classroom creativity by re-focusing a lesson-plan to encourage students with ID to compete with themselves, to acknowledge self-achievement; to stimulate interactive competition and cooperation and thereby placing the individual within a community of music explorers. Thirdly, the study sought to add to our understanding of creativity by illustrating why attempts to define creativity are inherently contentious, and the benefits that accrue by re-framing creativity as an innate, commonly held characteristic, that is responsive to nurture.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by Hong Kong Research Grants Council [grant number General Research Fund no. 12603817].

Notes on contributor

Marina Wong is an associate professor and the Director of the Doctor of Education Program at Hong Kong Baptist University. She obtained a PhD at the University of British Columbia in Canada. She is involved in teacher education courses in the areas of music education. She has obtained various competitive research and development grants for developing integrated-arts curriculum and inclusive music curriculum for mainstream schools and adapted music curriculum for children with intellectual disabilities in special schools.

ORCID

Marina Wai-ye Wong  <http://orcid.org/0000-0003-2364-8435>

References

- Abdulla, A. M., and B. Cramond. 2017. "After Six Decades of Systematic Study of Creativity: What Do Teachers Need to Know About What it is and How it is Measured." *Roeper Review: A Journal on Gifted Education* 39 (1): 9–23.
- Acar, S., C. Burnett, and J. F. Cabra. 2017. "Ingredients of Creativity: Originality and More." *Creativity Research Journal* 29 (2): 133–144.
- Baer, J., and S. McKool. 2009. "Assessing Creativity Using the Consensual Assessment Technique." In *Handbook of Research on Assessment Technologies, Methods, and Applications in Higher Education*, edited by C. Schreiner, and J. Aitken, 65–77. Hershey, PA: Information Science Reference.
- Barbot, B., and T. Lubart. 2012. "Creative Thinking in Music: Its Nature and Assessment Through Music Exploratory Behaviors." *Psychology of Aesthetics, Creativity, and the Arts* 6: 231–242.
- Bell, A. P. 2008. "The Heart of the Matter: Composing Music with an Adolescent with Special Needs." *International Journal of Education & the Arts* 9 (9), <http://www.ijea.org/v9n9>.

- Burnard, P. 2010. "Creativity in Music Education: Inspiring Creative Mediation in Pedagogic Practice." *Hellenic Journal of Music, Education & Culture* 1 (1): 4–16.
- Burnard, P. 2012a. "Commentary: Musical Creativity as Practice." In *The Oxford Handbook of Music Education*, edited by G. E. McPherson, and G. F. Welch, Vol. 2, 2nd ed., 319–336. doi:10.1093/oxfordhb/9780199928019.013.0022.
- Burnard, P., and B. A. Younker. 2002. "Mapping Pathways: Fostering Creativity in Composition." *Music Education Research* 4: 245–261.
- Byrne, C., R. MacDonald, and L. Carlton. 2003. "Assessing Creativity in Musical Compositions: Flow as an Assessment Tool." *British Journal of Music Education* 20 (3): 277–290.
- Chan, J. 2014. "Researching Creativity and Creativity Research." In *Handbook of Research on Creativity*, edited by Kerry Thomas, and Janet Chan, 21–32. Edward Elgar. <http://ebookcentral.proquest.com>.
- CHSC (Committee on Home-School Co-operation). 2020. *Hong Kong Special Schools Profile 2020*. https://www.chsc.hk/spsp/school_category.php.
- Coss, R. G. 2019. "Creative Thinking in Music: Student-Centered Strategies for Implementing Exploration Into the Music Classroom." *General Music Today* 33 (1): 29–37.
- Crawford, R. 2013. "Evolving Technologies Require Educational Policy Change: Music Education for the 21st Century." *Australasian Journal of Educational Technology* 29: 717–734.
- Curriculum Development Council (CDC). 2003. *Music Curriculum Guide (Primary 1 – Secondary 3)*. Hong Kong: CDC.
- Deck, A. S., and L. A. Moyer. 2020. *Makey Makey: Educator's Guide*. https://cdn.shopify.com/s/files/1/0162/8612/files/Makey_Makey_Educators_Guide.pdf?16481577170705338427.
- Deterding, S., D. Dixon, R. Khaled, and L. Nacke. 2011. "From Game Design Elements to Gamefulness: Defining Gamification." In *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments*, 9–15. Tampere: Association for Computing Machinery. https://www.researchgate.net/publication/230854710_From_Game_Design_Elements_to_Gamefulness_Defining_Gamification.
- Dicheva, C., and D. Dicheva. 2017. "Gamifying Education: What is Known, What is Believed and What Remains Uncertain: A Critical Review." *International Journal of Educational Technology in Higher Education* 14 (9), <https://doi.org/10.1186/s41239-017-0042-5>.
- Dicheva, D., C. Dicheva, G. Agre, and G. Angelova. 2015. "Gamification in Education: A Systematic Mapping Study." *Educational Technology & Society* 18 (3): 75–88.
- Dobson, E., and K. Littleton. 2016. "Digital Technologies and the Mediation of Undergraduate Students' Collaborative Music Compositional Practices." *Learning, Media and Technology: Digital Media and Data; Learning, Knowing and Opportunities for Participation* 41 (2): 330–350.
- Eaglestone, B. 2008. "Music Composition for the Multi-Disabled: A Systems Perspective." *International Journal of Disability and Human Development* 7 (1): 19–24. doi:10.1515/IJDHD.2008.7.1.19.
- EDB (Education Bureau). 2020. "Special Education Needs." <https://www.edb.gov.hk/en/curriculum-development/major-level-of-edu/special-educational-needs/index.html>.
- Girdzijauskienė, R. 2015. "How Pupils Create Compositions: The Analysis of the Process of Music Creation." *Problems in Music Pedagogy* 14 (1): 107–118.
- Gruenhagen, L. M. 2017. "Developing Musical Creativity Through Reflective and Collaborative Practices." *Music Educators Journal* 103 (3): 40–45.
- Guilford, J. P. 1950. "Creativity." *American Psychologist* 5: 444–454.
- Hickey, M., and S. Lipscom. 2006. "How Different is Good? How Good is Different? The Assessment of Children's Creative Musical Thinking." In *Musical Creativity: Multidisciplinary Research in Theory and Practice*, edited by I. Deliege, and G. Wiggins, 97–110. New York: Psychology Press.
- Hsin-Yuan, H. W., and D. Soman. 2013. *A Practitioner's Guide to Gamification of Education*. Research Report Series, Behavioural Economics in Action. Rotman School of Management University of Toronto. <https://inside.rotman.utoronto.ca/behaviouraleconomicsinaction/files/2013/09/GuideGamificationEducationDec2013.pdf>.
- James, K., K. Clark, and R. Cropanzano. 1999. "Positive and Negative Creativity in Groups, Institutions, and Organizations: A Model and Theoretical Extension." *Creativity Research Journal* 12: 211–226.
- Kalinauskas, M. 2014. "Gamification in Fostering Creativity." *Socialines Technologijos* 4 (1): 62–75.
- Kemple, K. M., J. J. Batey, and L. C. Hartle. 2004. "Music Play Creating Centers for Musical Play and Exploration." *Young Children* 59 (4): 30–37.
- Kiehn, M. T. 2003. "Development of Music Creativity among Elementary School Students." *Journal of Research in Music Education* 51 (4): 278–288.
- Kladder, J., and W. Lee. 2019. "Music Teachers' Perceptions of Creativity: A Preliminary Investigation." *Creativity Research Journal* 31 (4): 395–407.
- Lee, J. J., and J. Hammer. 2011. "Gamification in Education: What, How, Why Bother?" *Academic Exchange Quarterly* 15 (2): 1–5.
- MacDonald, R. A. R., and D. Miell. 2000. "Creativity and Music Education: The Impact of Social Variables." *International Journal of Music Education* 36: 58–68.

- Majuria, J., J. Koivistoa, and J. Hamaria. 2018. "Gamification of Education and Learning: A Review of Empirical Literature." GamiFIN Conference, Pori, Finland, May 21–23. <http://ceur-ws.org/Vol-2186/paper2.pdf>.
- Mazzola, G., J. Park, and F. Thalmann. 2011. *Musical Creativity: Strategies and Tools and Composition and Improvisation*. Heidelberg: Springer.
- Merriam, S., and E. Tisdell. 2016. *Qualitative Research: A Guide to Design and Implementation*. 4th ed. San Francisco, CA: Jossey-Bass.
- Miranda, E. R. 2010. "Plymouth Brain-Computer Music Interfacing Project: From EEG Audio Mixers to Composition Informed by Cognitive Neuroscience." *International Journal of Arts and Technology* 3 (2/3): 154–176.
- Nevels, D. L. 2013. "Using Music Software in the Compositional Process: A Case Study of Electronic Music Composition." *Journal of Music, Technology & Education* 5 (3): 257–271.
- Ockelford, A. 2015. "The Sounds of Intent Project: Modelling Musical Development in Children with Learning Difficulties." *Tizard Learning Disability Review* 20 (4): 179–194.
- Orsmond, G. I., and L. K. Miller. 1995. "Correlates of Musical Improvisation in Children with Disabilities." *Journal of Music Therapy* 32 (3): 152–166. doi:10.1093/jmt/32.3.152.
- Portowitz, A., and P. S. Klein. 2007. "MISC-MUSIC: A Music Program to Enhance Cognitive Processing among Children with Learning Difficulties." *International Journal of Music Education* 25: 259–271.
- Portowitz, A., O. Lichtenstein, L. Egorova, and E. Brand. 2009. "Underlying Mechanisms Linking Music Education and Cognitive Modifiability." *Research Studies in Music Education* 31 (2): 107–128.
- Rhodes, M. 1961. "An Analysis of Creativity." *Phi Delta Kappan* 42: 305–310.
- Rock, M. 2004. "Transfiguring it Out: Converting Disengaged Learners to Active Participants." *Teaching Exceptional Children* 36 (5): 64–72.
- Runco, M. A., and G. Jaeger. 2012. "The Standard Definition of Creativity." *Creativity Research Journal* 24: 92–96.
- Samkange, D. W. 2015. "The Role of Labelling in Education: A Focus on Exceptional Learners." *Global Journal of Advanced Research* 2: 1419–1424. <http://www.gjar.org/publishpaper/vol2issue9/d275r66.pdf>.
- Simonton, D. K. 2012. "Taking the U.S. Patent Office Criteria Seriously: A Quantitative Three-Criterion Creativity Definition and its Implications." *Creativity Research Journal* 24: 97–106.
- Stefanic, N., and C. Randles. 2015. "Examining the Reliability of Scores from the Consensual Assessment Technique in the Measurement of Individual and Small Group Creativity." *Music Education Research* 17: 278–295.
- Swanwick, K., and J. Tillman. 1986. "The Sequence of Musical Development: A Study of Children's Composition." *British Journal of Music Education* 3: 305–339.
- Tafari, J. 2006. "Processes and Teaching Strategies in Musical Improvisation with Children." In *Musical Creativity — Multidisciplinary Research in Theory and Practice*, edited by I. Deliège, and G. A. Wiggins, 134–157. Hove: Psychology Press.
- Triantafyllaki, A. 2016. "Musical Creativity and Technology: Pedagogical Considerations." In *Children's Creative Music-Making with Reflexive Interactive Technology Adventures in Improvising and Composing*, edited by V. Rowe, A. Triantafyllaki, and F. Pachet, 6–53. New York: Routledge.
- Urazaliyeva, M. A., Sh Kulmanova, B. Yerbolat, A. Ye, S. S. Zhusupova, G. Sh. Omirbayeva, M. S. Sultanova, and D. S. Akhmetzhanova. 2014. "Features of Musical Education of Children with Intellectual Disabilities." *Mediterranean Journal of Social Sciences* 5: 941–950.
- VanBraak, M., E. DeGroot, M. Veen, L. Welink, and E. Girolodi. 2018. "Eliciting Tacit Knowledge: The Potential of a Reflective Approach to Video-Stimulated Interviewing." *Perspective of Medical Education* 7: 386–393.
- Walia, C. 2019. "A Dynamic Definition of Creativity." *Creativity Research Journal* 31 (3): 237–247.
- Wise, S. 2016. "Secondary School Teachers' Approaches to Teaching Composition Using Digital Technology." *British Journal of Music Education* 33 (3): 283–295.
- Wong, M. W. 2015. "Adapting the Music Curriculum for Senior Secondary Students with Intellectual Disabilities in Hong Kong: Content, Pedagogy and Mindsets." *Music Education Research* 17 (1): 71–87.