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Personal and Environmental Factors Affecting Teachers' Creativity-Fostering Practices in

Hong Kong

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Factors Affecting Teachers' Creativity-Fostering Practices in Hong Kong

Abstract

This small-scale exploratory study with 10 primary school teachers in Hong Kong investigated their views on creativity enhancement and the factors that facilitate or impede its development in schools. In particular, the study focused on teachers who were involved in gifted education and who have had training in creativity and gifted education. The study employed a qualitative research approach using semi-structured in-depth interviews. Four themes related to personal factors emerged: (a) personality traits; (b) motivation; (c) attitude; and (d) sense of purpose. In addition, there were two themes related to environmental factors: (a) school and (b) community. Implications for schools and for teacher education in the area of creativity are discussed.

(111 words)

Key words: creativity, gifted education, Hong Kong, teaching

1. Introduction

As a response to 21st century needs, fostering students' creativity has been explicitly included in the school curriculum in Hong Kong (Curriculum Development Council, 2000). Local studies have found that while teachers have been working hard to implement this new emphasis on creativity in the classroom, many of them have encountered difficulties (Cheng, 2010; Forrester & Hui, 2007). To some extent these problems usually stem from large class size, shortage of teaching time, pressures to cover an academic curriculum, and lack of teachers' pedagogical knowledge on how best to stimulate and support students' creativity. In order to improve this situation, a better understanding of personal and environmental factors that can enhance creativity in the classroom may be helpful to teachers.

2. Literature Review

While there has been no consensus on an exact definition of creativity in the literature, most definitions have usually included the two elements of 'novelty' and 'appropriateness' (Hennessey & Amabile, 2010; Plucker & Beghetto, 2004). Recent theories emphasize an interaction among several elements that together represent creative ability. Examples include the *systems approach* (Csikszentmihalyi, 1996), the *componential model* (Amabile, 1996), and Sternberg's *investment model of creativity* (Sternberg & Lubart, 1993, 1995, 1996, 1999).

One area of research interest in the field has been to investigate factors that influence creative behaviours. For example, a Korean study suggested that cognitive factors, together with personality, motivation, and environmental factors all influence creative achievements (Cho, Chung, Choi, Suh, &Seo, 2011). Similarly, a study by Hong, Hartzell and Greene (2009) in a school setting found that teacher characteristics, such as a clear goal orientation for learning, are associated with creativity-fostering instructional practices. Teachers' personal characteristics

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may also play an important part in their approach to fostering creativity in others. For example, Bramwell, Reilly, Lilly, Kronish and Chennabathni (2011) suggested that teachers' intelligence (intrapersonal and interpersonal), motivation and values are crucial factors in their commitment to creativity. The teachers in that study were also found to be hard-working, nonconforming, knowledgeable, intuitive, confident, flexible, and energetic. Learning outcomes were thus seen to be a result of a teacher's personal characteristics, their pedagogical skills, and the environment in which they were operating (Bramwell et al., 2011).

In Hong Kong, recent educational reforms have seen 'creativity' together with critical thinking, and communication specifically included for the first time as important major goals in the general school curricula (Curriculum Development Council, 2000, 2001; Education Bureau, 2007a, 2007b). Fostering creativity, critical thinking and communication should now be part of the teaching of all school subjects, and not something that is unique to gifted education. By emphasizing these skills, the intention in Hong Kong was to change teachers' traditional role from that of transmitter of knowledge to "facilitator of learning" (Forrester & Hui, 2007). This change has led already to some local studies exploring teachers' success in promoting these important goals. For example, Cheng's (2010) research with in-service primary school teachers found that, despite efforts to implement creative teaching ideas in the classroom, these teachers experienced many tensions and dilemmas. Similarly, Forrester and Hui (2007) looked at teachers in primary schools who attended a creativity training workshop. They found that the teaching aims usually espoused by the teachers seemed to lean more towards promoting mastery of subject knowledge rather than creativity or flexibility in thinking.

Interestingly, creativity, critical thinking, and communication in the general curriculum are also specifically referred to as key aspects of gifted education in Hong Kong (Education

Bureau, 2007a). The gifted education curriculum is intended to complement the general curriculum, in that it aims to help students develop their multiple talents and potential (Education Bureau, 2007a). It has always been envisaged that most gifted education would occur within mainstream classrooms, and schools have been given considerable flexibility in implementing the government's gifted education policy. For example, schools can include enrichment and extension activities in the regular classroom, as well as provide pull-out programmes for high-ability students or students with strengths in specific areas.

The fact that creativity is now regarded as a goal to be included in all areas across the curriculum has greatly increased the need for all teachers, at all stages of education, to gain the pedagogical knowledge and skills to help students develop their creativity. This has immediate implications for pre-service and in-service teacher education.

3. Purpose of study

This exploratory study is part of a larger mixed-methods study of creativity that also explored teachers' beliefs concerning creativity and their creativity-fostering practices in the classroom. The study reported here aimed to investigate the factors that may influence creativity enhancement for Hong Kong teachers involved in gifted education. The research question addressed was: 'What are the personal and environmental factors that appear to influence teachers' creativity-fostering practices in the classroom?'

4. Method

4.1 Participants

The research focus was on teachers who have had first-hand experience in developing creativity and gifted education. Purposeful sampling (Patton, 2002) was used in the selection of participants. Teachers trained in gifted education can be found in local schools across Hong

Kong. Most of them teach the mainstream curriculum in their schools, but some may also be conducting gifted education activities, such as creativity and leadership pull-out programmes. It was expected that these teachers could draw most easily upon their experience in fostering creativity in students.

The interviewed teachers all taught in local primary schools. They had to be trained in creativity and gifted education. In particular, teachers who were conducting creativity-related pull-out programs in their school were approached. An additional optional quality was recognition for teaching excellence in gifted education. Based on these criteria, a total of 10 teachers (9 females, 1 male) were recruited (Table 1).

[INSERT TABLE 1 HERE]

Apart from one school where it was reported that there was a relatively large proportion of gifted students, all the other schools only had a small number of students who had been officially identified as gifted. Identification mechanisms vary from school to school, with some not finding it necessary to have their gifted students specifically identified, or not having allocated resources for gifted identification.

4.2 Procedure

Semi-structured in-depth interviews were conducted by the principal author at the participant's school or at a local library. Interviews lasted 1 to 1.5 hours, and were recorded and later transcribed. Participants were fully informed of the purpose of the interview and of their rights as study participants in research (confidentiality and the right to withdraw at any time). They were required to sign a consent form before the interviews began. An interview protocol was used during the session (see Table 2 for Sample Questions), and was also given to the

participants in advance so that they could prepare before the interview.

[INSERT TABLE 2 HERE]

4.3 Analysis

Following the interviews, transcripts were analysed using a coding procedure (Miles & Huberman, 1994) (Table 3). As a check on inter-coder reliability, all transcripts underwent a second coding analysis by a colleague knowledgeable in qualitative methods and experienced in school guidance. The two versions of coding revealed a very high degree of agreement (89.9%), ensuring reliability. Inter-rater reliability was calculated according to a formula from Miles and Huberman (1994) (reliability = the total number of agreements ÷ [total number of agreements + disagreements]). Finally, the coded data enabled emerging themes to be identified (Saldana, 2009) (Table 4).

[INSERT TABLES 3 and 4 HERE]

5. Findings

5.1 Personal factors

Four themes related to personal factors emerged: (a) personality traits; (b) motivation; (c) attitude; and (d) sense of purpose.

5.1.1 Personality traits

The teachers interviewed displayed many creativity-related personality traits; for example, they were curious, independent, open-minded, persistent, and unconventional. Most importantly, these teachers were themselves creative. They liked to have fun and to try new things. Also, they were knowledgeable in many areas, and had great enthusiasm and motivation for teaching and learning. For example, one teacher (T07) said,

> I enjoy teaching, and the students also like taking my lessons, especially the students in this school. Perhaps the other teachers are more traditional, and I am rather unconventional. (T07)

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This teacher's curiosity and creativity transferred into her teaching. For instance, out of personal interest, she had taken a course in Chinese paper cutting a few years ago. Later, she designed a pull-out programme which combined creative storytelling and paper cutting.

5.1.2 Motivation

The teachers' own enthusiasm appeared to be driven by intrinsic motivation to foster creativity in their students. Also, having an inherent interest in their job and the student programmes they were conducting was a positive influence. For example, one teacher (T08) shared how she had designed various pull-out programmes over the years, including programmes on creative problem solving, mind-mapping, and SCAMPER. There were themes on environmental protection, scientific discovery, and everyday heroes. She said:

> If the contents of the pull-out programmes are not interesting, the students will not want to come. But they really like coming to my programmes. The pull-out group meetings are very enjoyable. The units were designed based on my interests and the students' interests. (T08)

Throughout the interview, she mentioned many times how much she liked the topics of discussion and the units she had designed. It was clear that she really enjoyed what she was doing, and in turn she was able to motivate her students.

5.1.3 Attitude

Having a positive attitude about creativity and talents is certainly necessary in the classroom. The teachers' attitude can directly affect whether they have the desire to infuse creativity in class. This is what one teacher shared:

> Compared to the past, I am more sensitive now. I didn't use to think that every child has a talent, but now I do, and I will help my students discover their strengths . . . and then assign responsibilities to them based on their strengths. (T01)

Other teachers talked about how they were open to students' alternative ways of finding a solution, gave students recognition for their work, and helped students develop a sense of

achievement. On the other hand, participants also mentioned how a teachers' attitude can also be a constraining factor:

> I think the teacher mentality and the teacher training are so important for . . . enhancing creativity. . . . I think teachers don't really take the time to think of how they want students to express it in class. . . . They don't really think how they can bring it out . . . because they are bound by textbooks. (T02)

> I have seen that . . . not all teachers are sensitive to students' individual strengths and interests. I have shared this with my co-workers. It really is a pity. (T03)

5.1.4 Sense of purpose

The teachers were willing to spend time on creativity because they had a clear purpose in mind: to improve teaching and learning. For example, one teacher (T01) said,

> If the strategies work, I will use them. I don't have any intentions other than improving teaching and learning and making the students more interested.

Three of the teachers specifically mentioned their concern for students who were intellectually capable but not achieving high grades. These students might need more encouragement to discover their interests and build up self-confidence. The teachers described some ways of doing this, including personal goal setting, presentation activities in class, and involvement in pull-out programmes in leadership or personal growth.

5.2 Environmental Factors

The environmental factors identified from the interviews were related to: (a) the school and (b) community.

5.2.1 School

There were four areas which affected the teachers in the context of their schools: Time and space, atmosphere, curriculum and subjects, and gifted education delivery. All areas exerted both positive and negative influences. A summary of these factors can be found in Table 5.

[INSERT TABLE 5 HERE]

5.2.1.1 Time and space

In Hong Kong schools, one of the biggest constraints for both teachers and students is time. The teachers said that their students did not have enough time to accomplish all they needed to do in a day, as they were often busy with extra-curricular activities. Gifted and high-ability students in particular were involved in a great number of activities. One teacher said:

> Our school is always fighting over [the availability of] students. I have a gifted course on Friday [but] in the first term, one student in the group had to practice for the Speech Festival, another had choir practice, and still another was involved in Mathematics problem solving. After one hour, some students came back. Many of them have not been able to attend my course fully. When will the gifted students have time for my course? (T08)

For the students, good time management was necessary to balance activities, competitions, and responsibilities outside of school.

The teachers also had limited time, both in class and outside of class, and this is a common problem for teachers around the world, not only in Hong Kong. The teachers mentioned how their class time was limited, and there was often not enough time to complete planned activities or to respond to students individually. Some wanted to take courses to improve their knowledge and skills, but have found that it was not possible because of various other demands on their time. Furthermore, the workload and pressure on teachers have increased considerably with new initiatives which have come with the education reforms (Poon & Wong, 2008).

In addition, the teachers acknowledged that space is often necessary for some forms of creativity (e.g., performing arts), and that in-class group work is frequently necessary to achieve goals in some curriculum subjects. However, they found difficulties in having a large number of students in a limited space within the classroom and within the school campus. For example:

> In our school, some classes have 34 to 36 students. It's not easy to circulate around in the classroom during a lesson. In a class today, I had students in groups. I tried my best to walk around the six groups to answer their questions, listen in on their discussion, or give some feedback. Having students in groups is problematic [due to lack of space]. This is something to be improved. (T04)

> There are too many students in a class. This is a big problem. You can put them in groups, but there isn't a lot of physical space. You can have unlimited imagination, but in reality, the environment makes it hard for them to have discussions or interaction. (T10)

The problem of space highlighted by the teachers is not incidental, as Gallagher and Gallagher (1994) have mentioned that a psychologically safe environment with open space and freedom to move around is one of the factors conducive to creativity. However, physical space is an issue in Hong Kong schools, one that does not have any short-term solutions because many city schools have no additional land on which to expand, and no spare classrooms.

5.2.1.2 Atmosphere

Many of the interviewed teachers believed that it is necessary to create a classroom atmosphere conducive to fostering creativity. This atmosphere is one that is open to new ideas and safe for students to take risks and make mistakes. Interactions in the classroom should be fun, promote appreciation and acceptance, and give students opportunities to do things on their own. The atmosphere should also allow time for students to think and reflect without needing to cover material in a rush. Classroom atmosphere stems from teachers' own approach to students and from students respecting and appreciating others. Interactions between teachers and students can play a part in increasing or decreasing the students' level of creativity. Creating such a climate may not always be easy in some settings, as one teacher explained:

> [In the pull-out programme], the students are not too worried about their mistakes, and they have a sense of humour. This is a safe environment. Unfortunately, in the mainstream where classes are large, and at the upper grades, even high-ability students are afraid of making mistakes. This is a problem. So when they get to Secondary 1 or 2, they will be less willing to raise their hands, because they are afraid of making mistakes. (T06)

Class size may have a part to play in this, as it is more inhibiting when one makes a mistake in front of a large class as opposed to a smaller group. In addition, pull-out programmes group students who are similar in ability and interest, and thus more camaraderie may be developed

rather than in larger classes.

5.2.1.3 Curriculum and subjects

The teachers identified both positive aspects and also constraints on creativity in the general school curriculum. For instance, some schools are supportive of gifted education and have addressed it throughout their curriculum. In certain subjects, teachers might use project work and challenging problems to create opportunities for students to develop and use their creative problem solving skills. One teacher shared:

> In our school, we do collaborative lesson planning twice a year. We aim to put gifted education elements, especially creativity, into the lessons. So, we hope to see these elements in the lesson plans, in lessons, and in the classroom activities. (T10)

Some individual subjects lend themselves well to creative elements. For example, teachers of General Studies can make use of scenarios and role-plays to bring out teaching points and stimulate students' ideas. Nevertheless, some of the interviewed teachers have pointed out that certain school subjects, as currently taught in Hong Kong schools, might negatively affect creativity. For example, a teacher remarked that in mathematics, creativity can be limited by the nature of the subject matter, how it is delivered, and the questions asked. Another teacher talked about how requirements often set for writing can limit students' imagination:

> Writing is not always creative if you need to fulfil TSA [Territory-wide System Assessment] requirements or do exam papers. There are many rules that tend to restrict originality, for example: what you can do to get high marks, what kinds of idioms are logical, what kinds of analogies make sense. . . . So writing an essay has all kinds of limitations. (T05)

It can be said that even though creativity has been explicitly explained in the curriculum guidelines, it seems that the mode of assessment has inadvertently limited creativity. In fact, under the reformed curriculum, students now have to face more assessment hurdles (Poon & Wong, 2008).

5.2.1.4 Gifted education delivery

Since the Hong Kong Education Bureau guidelines do not stipulate *compulsory* gifted education provision, the situation varies from school to school. The interviewed teachers came from different schools, with varying policies and practices towards gifted education. Some schools have integrated elements of gifted education into the total curriculum; for others, gifted education is acknowledged in name only. Not all schools are able to provide all kinds of gifted resources for students. Some schools only offer part-time pull-out programmes, while others are able to extend gifted education into all teaching in regular classes. There is also a danger that in schools with specific gifted education programmes, 'creativity' is seen as something that occurs only in such programmes and not in all classrooms and subjects.

The interviewed teachers described how gifted education was delivered in their schools, and many of these models provided opportunities for creativity enhancement. Some teachers gave examples of whole-class provision, which included collaborative lesson planning by staff, project learning as part of the curriculum, differentiated teaching, open-ended questioning, tiered assignments, and multiple resources in the classroom. These opportunities were available to all students in the regular classroom. Curriculum compacting, though not as common, was mentioned by one teacher (T09), where a few high-ability students in a certain subject area would do a mini study during class time, and later share their findings with the class, enriching learning for all.

In addition, teachers also conducted academic enrichment and thematic programmes on topics such as creativity, leadership, and debating. Many such programmes appealed to student interests and were beyond the school curriculum, so students were able to work on topics that they would not be able to otherwise. Students also had opportunities to be involved in inter-school competitions related to academic subjects.

It can be concluded from the teachers' interview data that developing creativity in students needs to be a collaborative effort. For example, most of the teachers interviewed worked together with other teachers in their school on curriculum and lesson planning, as well as offering pull-out programmes. These were schools where there was support from the administration, and most teachers were already aware of, if not trained, in gifted education. However, a few of the interviewed teachers were delivering gifted education alone. One said:

> I think this [lack of teamwork to integrate gifted education] has to do with the conceptions and policy of gifted education of the school. The school seems to think it is important, but hasn't given us any resources. . . . There is a lot of work that I have to do that shouldn't really be done by me. Sometimes I feel I am too busy, and this inhibits my creativity. (T07)

This teacher mentioned that the school has not provided resources or personnel for gifted education. She has tried to find teachers to assist in her programmes, but in the end they were too busy with other school responsibilities and were unable to do so, most likely because the school placed higher priority on student academic achievement. She continued to say:

> I think the greatest difficulty is how to let the school system understand the importance of what I am doing and be willing to cooperate, because I often find that the education system in Hong Kong keeps adding to our workload. (T07)

5.2.2 Community

Another theme that emerged was that the greater community can also affect the level of creativity in the classroom. 'Community' in this context includes the role of parents and that of society.

5.2.2.1 Parents

Parents play an important role in students' creativity. Five of the teachers mentioned parents as crucial stakeholders in their children's education. One teacher said that parents can be a positive influence in their children's creativity. Her school has been organizing talks for parents on the concepts of giftedness and talent, and the aspects of ability and creativity that can

be encouraged in school and home. Another teacher encouraged parents to recommend their children for entry into her pull-out gifted programmes. If students can feel that parents and teachers together are interested and supportive, this is a source of additional motivation for them.

5.2.2.2 Society

Even though the role of the society was not always explicitly mentioned by the teachers, the difficulties and pressures they mentioned often came from the Hong Kong education culture and societal expectations. For example, there was always the fine balance between creativity enhancement and the need to prepare students for examinations. Two teachers shared:

> Your whole environment, family, or societal atmosphere [places a lot of emphasis on the end product]. Even if we say in school that learning is not all about grades – when it is time for examinations, those who do not perform well will be reprimanded, because this is how it is in a Chinese society. (T04)

> When it is time for examinations or applying to secondary school, there will often be conflicts between creativity and pressure from examinations. Inevitably, there will be some adjustments. . . . This is a very realistic fact that students have to face. Under the Hong Kong education system, there is no choice, and priority needs to be given to academics. (T09)

It is interesting to note that the teachers interviewed seemed to find that fostering creativity contradicts with preparing students for examinations. While examinations are a reality, Andiliou and Murphy (2010) argued that they need not contradict creativity education, as creative thinking is a type of higher-order thinking that is necessary in learning across subjects and domains.

6. Discussion

The teachers identified several important factors that affected their ability to foster creativity in the students. Some factors, such as teachers' personality, available time for teaching and planning, and the physical environment of the school are difficult to modify; but other aspects are more open to change, where change is deemed necessary. As Woods (1995) has observed, "creative teachers can, to some extent, affect the situations in which they work, applying their talents to changing or modifying the circumstances and increasing the range of

opportunities" (p. 3).

 Creativity is an attribute that should be found in all teachers, and the teachers in this study displayed some traits that have been documented in the literature as typical of teachers who are themselves creative and inspire creativity in others. Important qualities evident here and in the literature include intrinsic motivation, and a clear sense of purpose. These factors are reminiscent of variables suggested within the 'componential framework of creativity' (Amabile, 1996) where an appropriate level of task motivation, creativity-relevant skills, and domain-specific skills can result in more creativity.

 While the present study findings cannot suggest any causation between a teachers' training in gifted education and their use of more creativity-fostering practices, the literature has suggested that there is definitely an influence. For example, Starko (2008) mentioned that teachers who have been identified as teachers of gifted students were more likely to use curriculum strategies recommended for use with gifted learners [e.g. practices for enhancing creativity]. Furthermore, studies by Forrester and Hui (2007) and Bramwell et al. (2011) have shown a positive relationship between a teacher's personal characteristics and teaching techniques. Similarly, teachers' attitude towards creativity and creativity enhancement can also directly shape their teaching objectives and practices, as illustrated by Quek, Ho and Soh (2008).

 In terms of environmental factors, the interview findings revealed that the teachers experienced some tensions in trying to achieve a good balance between fostering student creativity while also conforming to other school demands. This is not surprising, as authors have observed that schools seem to be the very places that can limit student creativity rather than support it (Morgan & Forster, 1999; Sawyer, 2012). Teachers are often prevented from fostering creativity by physical restrictions in the buildings and resources, administrative procedures, and

competing demands within the curriculum. Similarly, Woods (1995) has noted that teaching is frequently constrained by various factors. For example, there are syllabuses to be followed, assignments to be set, tests and examinations to be assessed, and other curriculum requirements to be met.

From the interviews, it can be ascertained that the teachers who were generally positive about their role in creativity enhancement were from schools which were supportive and provided the necessary resources. On the other hand, the teachers who did not sound as positive and who mentioned more tensions they encountered came from schools which may place more emphasis on other priorities, such as student examination achievement. Therefore, a supportive school environment would seem to be an important factor in facilitating creativity enhancement.

7. Implications

There are two main implications arising from this study. First, while we cannot directly modify the personality of teachers (for example, forcing them to be more enthusiastic and inspirational) we can, at the skills level, provide more effective initial and on-going professional training. This training must equip them with strategies to increase the emphasis they place on stimulating students' creativity, despite the limitations that exist in most schools. They should also be encouraged to see that creativity *complements* and contributes to achievement objectives, such as school assessments (Andiliou & Murphy, 2010). Furthermore, all teachers, not only those directly involved in gifted education, need to be aware of the personal and environmental influences that may affect their creativity-fostering endeavours. An awareness of these factors can help them anticipate difficulties they may encounter, and thus prepare them to minimize possible problems in their planning.

Second, a supportive educational environment is necessary. Schools as organizations can

be resistant to change. Even though the curriculum reforms in Hong Kong have been in place for more than ten years, some schools are slow to adapt to the new guidelines. Institutional constraints on creativity enhancement are a reality, and they often outweigh the teachers' desire to foster creativity (Andiliou & Murphy, 2010; Sawyer, 2012). If schools can give more practical support to teachers in terms of resources, training, time for planning and implementation of programmes, the facilitation of creativity in the classroom will be more viable. In view of this, authors such as Bramwell et al. (2011) advocate close collaboration among teachers, principals and school administrators, backed up by support from parents. Such involvement from different parties can result in creative change. In Hong Kong, principals and school administrators should be made aware of the issues in creativity education, and should work together with teachers to formulate objectives and plans to make creativity education operational in classrooms. Parent education is also necessary in a society where academic achievement is still regarded as the number one priority.

This study has shown that enhancing creativity in Hong Kong primary classrooms is not without its difficulties, but it can be done. It is best achieved by a combination of the teacher's own attributes, a supportive school environment and administration, and understanding parents.

8. Future directions and conclusion

Future research needs to evaluate the relative success of the greater emphasis on creativity as a goal in general education in Hong Kong. It is also recommended that research should explore the longer-term impact of increasing a focus on creativity in all pre-service and in-service teacher education programmes; and on providing teachers with practical guidelines for incorporating creativity into specific school subjects.

9. Limitations

Clearly this was an exploratory study, and the small sample size limits the extent to which findings can generalize to other teacher populations. Also, the study was based on interviews, and depended in a major part on data coming from the teachers' self-reporting. Self-reporting often tends to be subjective, so the picture would be more complete if other perspectives had been included – for example, data from school visits and classroom observations. Finally, while the personal and environmental factors that emerged here are clearly influential, they are not necessarily the only variables in the teachers' ability to support students' creativity.

References

Amabile, T. M. (1996). *Creativity in context: Update to the social psychology of creativity*. Boulder, CO: Westview Press.

Andiliou, A., & Murphy, P. K. (2010). Examining variations among researchers' and teachers' conceptualizations of creativity: A review and synthesis of contemporary research. *Educational Research Review, 5*(3), 201-219. doi: http://dx.doi.org/10.1016/j.edurev.2010.07.003

Bramwell, G., Reilly, R. C., Lilly, F. R., Kronish, N., & Chennabathni, R. (2011). Creative teachers. *Roeper Review, 33*, 228-238.

Cheng, V. M. Y. (2010). Tensions and dilemmas of teachers in creativity reform in a Chinese context. *Thinking Skills and Creativity, 5*, 120-137.

Cho, Y., Chung, H. Y., Choi, K., Suh, Y., & Seo, C. (2011). The creativity of Korean leaders and its implications for creativity education. *The Journal of Creative Behavior, 45*(4), 235-257.

Csikszentmihalyi, M. (1996). *Flow and the psychology of discovery and invention*. New York: HarperCollins.

Curriculum Development Council. (2000). *Learning to learn: The way forward in curriculum development*. Hong Kong: Government Printer.

Curriculum Development Council. (2001). *Learning to learn: Life-long learning and whole-person development*. Hong Kong: Government Printer.

Education Bureau. (2007a, 29 June, 2009). Chapter One: Overview.   Retrieved February 18, 2011, from http://www.edb.gov.hk/index.aspx?nodeID=3605&langno=1

Education Bureau. (2007b, 28 September 2009). Gifted education.   Retrieved 3 November, 2009, from http://www.edb.gov.hk/index.aspx?nodeID=2377&langno=1

Forrester, V., & Hui, A. (2007). Creativity in the Hong Kong classroom: What is the contextual practice? *Thinking Skills and Creativity, 2*, 30-38.

Gallagher, J. J., & Gallagher, S. A. (1994). *Teaching the gifted child* (4th ed.). Needham Heights, MA: Allyn and Bacon.

Hennessey, B. A., & Amabile, T. M. (2010). Creativity. *Annual Review of Psychology, 61*, 569-598.

Hong, E., Hartzell, S. A., & Greene, M. T. (2009). Fostering creativity in the classroom: Effects of teachers' epistemological beliefs, motivation, and goal orientation. *The Journal of Creative Behavior, 43*(3), 192-208.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis*. Thousand Oaks, CA: Sage.

Morgan, S., & Forster, J. (1999). Creativity in the classroom. *Gifted Education International, 14*, 29-43.

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.

Plucker, J. A., & Beghetto, R. A. (2004). Why creativity is domain general, why it looks domain specific, and why the distinction doesn't matter. In R. J. Sternberg, E. L. Grigorenko & J. L. Singer (Eds.), *Creativity: From potential to realization* (pp. 153-167). Washington, D.C.: American Psychological Association.

Poon, A. Y. K., & Wong, Y.-C. (2008). Education Reform in Hong Kong: The "Through-Road" Model and its Societal Consequences. *International Review of Education / Internationale Zeitschrift für Erziehungswissenschaft, 54*(1), 33-55. doi: 10.1007/s11159-007-9073-9

Quek, K. S., Ho, K. K., & Soh, K. C. (2008). Implicit theories of creativity: a comparison of student-teachers in Hong Kong and Singapore. *Compare: A Journal of Comparative Education, 38*(1), 71-86.

Saldana, J. (2009). *The coding manual for qualitative researchers*. Thousand Oaks, CA: Sage.

Sawyer, R. K. (2012). *Explaining creativity: The science of human innovation* (2nd ed.). Oxford: Oxford University Press.

Sternberg, R. J., & Lubart, T. I. (1993). Creative giftedness: A multivariate investment approach. *Gifted Child Quarterly, 37*(1), 7-15. doi: 10.1177/001698629303700102

Sternberg, R. J., & Lubart, T. I. (1995). *Defying the crowd: Cultivating creativity in a culture of conformity*. New York: The Free Press.

Sternberg, R. J., & Lubart, T. I. (1996). Investing in creativity. *American Psychologist, 51*(7), 677-688.

Sternberg, R. J., & Lubart, T. I. (1999). The concept of creativity: Prospects and paradigms. In R. J. Sternberg (Ed.), *Handbook of creativity*. Cambridge: Cambridge University Press.

Woods, P. (1995). *Creative teachers in primary schools*. Buckingham, UK: Open University Press.

TABLE 1. Participant profiles

Teacher	Years of Teaching	Subjects	How they promoted creativity in their school
T01	8	English	Led teams for the Odyssey of the Mind competition
T02	4	English	Designed and conducted thematic units for English enrichment and pull-out programmes which included creativity elements
T03	16	Chinese, Putonghua, Visual Arts	Designed and conducted whole-class differentiation units incorporating creativity, higher-order thinking, and affective education
T04	11	Chinese, General Studies	Designed and conducted pull-out programmes in leadership
T05	11	Chinese, Religious Studies, General Studies	Designed and conducted pull-out programmes in leadership and affective education
T06*	15	Mathematics, General Studies	Led teams for mathematics creative problem solving competitions; designed whole-class differentiation units
T07	20	Personal Growth Education	Designed and conducted pull-out programs on creativity, affective education, and leadership
T08	30	Chinese, Mathematics, General Studies	Designed and conducted pull-out programmes on creativity and affective education. Led teams for the Odyssey of the Mind competition
T09	10	English, General Studies	Designed and conducted pull-out programmes; conducted creativity assessment on students
T10	15	English, General Studies, Science	Designed and conducted pull-out programmes and project learning units

*Teacher T06 is male. All other teachers are female.

TABLE 2. Sample questions

Key Interview Questions
1. In your opinion, what is creativity?
2. Can you give an example of a creative student?
3. What are some of your personal qualities or factors in your own background which have enabled you to be a better facilitator of creativity in your students?
4. What are some improvements you could make at the personal level which would enable you to be a better facilitator of creativity in your students?
5. What are some things in the school or classroom environment that would enhance your students' creativity?
6. What are some things in the school or classroom environment that would inhibit your students' creativity?
7. What is your training in creativity and in gifted education?
8. What is your involvement in gifted education activities at school (e.g. pull-out programmes)?
9. How is gifted education at the whole-class level supported by your school?
10. How are pull-out programmes supported by your school?

TABLE 3. Initial encoding table and categorization

Highlights in the transcripts	Code (Level 1)	Code (Level 2)
A. Personal factors of the teachers	PFac	
• Attitude	PFac -Att	
• Beliefs	PFac -Be	
• Continuous learning	PFac -Cont	
• Intentions	PFac -Intent	
• Mentality	PFac -Ment	
• Personality	PFac -Person	
B. Environmental factors	EFac	
• School	EFac -Sch	
o Time		EFac -Sch -T
o Curriculum / Subjects		EFac -Sch -CS
o Atmosphere		EFac -Sch -A
o Physical environment		EFac -Sch -PE
o Student attitudes		EFac -Sch -SA
o Gifted education provisions in school (for students)		EFac -Sch -GEP
o Teacher training and resources for gifted education		EFac -Sch -GERT
• Parents	EFac -Par	
• Society	EFac -Soc	

TABLE 4. Personal and environmental factors

Categories	Sub-categories	Elements
Personal factors	Personality traits	
	Motivation	
	Attitude	
	Sense of purpose	
Environmental factors	School	Time and space
		Atmosphere
		Curriculum and subjects
		Gifted education delivery
	Community	Parents
		Society

TABLE 5. Positive and negative influences from school

Factor	Positive Influences	Negative Influences
Time and Space		• Students do not have enough time • Teachers have a heavy workload • Large class sizes and limited physical space
Atmosphere	• A safe atmosphere allows students to make mistakes and is open to new ideas	• Students in higher grades and bigger classes are more afraid of making mistakes, or of speaking out and asking questions.
Curriculum and Subjects	• Creativity and other gifted education elements are incorporated into the curriculum	• Creativity is limited by subject requirements and the nature of examination questions
Gifted education delivery	• Some schools support gifted education curriculum and encourage teacher training in gifted education.	• Some schools are not supportive of gifted education and do not provide enough resources