

Contextualizing Creative Teaching as a Math Teacher in China: A Reflection of Teaching Practice based on the Model of Creative Teaching Framework

Meiyu Lu¹, Xueqin Fang²

¹Faculty of Education, The University of Hong Kong, China

²Faculty of Education, Central China Normal University, China

Abstract

Going beyond a single focus on the teaching method for nurturing students' creativity, a growing body of literature has explored analytical models of creative teaching that feature creative teachers. Drawing on the creative teaching framework proposed by Cremin, Barnes and Scoffham (2009), this article highlighted three dimensions of creative practice, including school ethos, personal characteristics and pedagogy. Invoking the above model, I examined how my creativity was developed through teaching practice across these three inter-related dimensions. While many existing studies were conducted in the Western contexts, it is intriguing to scrutinize how creative teaching is featured in China, where the educational paradigm is still test-driven with a high-stakes assessment system. This case analysis revealed how a Chinese primary math teacher perceived, implemented and improved her creative teaching, which will hopefully provide insights into the vernacularization of creative teaching and the development of creative teachers in China.

Keywords

Creative Teaching; Teaching Case Studies; Model of Creative Teaching Framework; Math Teacher; Contextualization.

1. Introduction

Over the last few decades, the premium placed on 21st-century skills has made creativity a pivotal component in many educational systems. For example, researchers in the US have pinpointed the urgent need to investigate the working of the human mind such as intelligence and creativity (e.g., Goleman, 1996). Similarly, the report of the National Advisory Committee on Creative and Cultural Education (DfEE, 1999) issued in the UK emphasized creativity and creative thinking in schools. Creative teaching as an educational ideal has been extensively studied in the Western contexts. In contrast, the definitions and implementations of creative teaching are less examined in non-Western contexts such as China (Here and for the rest of the paper, China refers to the Chinese mainland.). While the education system in China is featured as task-driven, this socio-education context offers an interesting site for us to investigate the application and advancement of creatively teaching.

Creativity is framed as one of the desired pedagogical outcomes of “*新课改*” (New Curriculum Reform). According to the New Curriculum Reform documented by The Ministry of Education (MoE) in China, one of the educational goals of the national curriculum is to guide students to bring forth new ideas with creative competence and practical ability, aiming to empower students with advanced skills in independent problem-solving and innovation (MoE, 2001). Against the backdrop of the promotion of creativity by educational authorities, many schools and educational participations in China have introduced creative practice in the classroom. For

example, my journey of being a creative teacher embarked on my teaching practice in an international primary school in Shenzhen, a tire-1city in southern China.

This article commences with a quick review of related literature on creativity, followed by theoretical frameworks on which the current case study is based. I then extend the case study from an ethnographical perspective (i.e., my own experience as a teacher), presenting how my creativity is developed. Then, I add to the extant literature by reflecting on my creative teaching experience in China. This article closes with a general conclusion.

2. Literature Review

2.1. Creative Teaching Framework

Cremin, Barnes and Scoffham (2009) identified three inter-related dimensions for researchers investigating creative practice in various socio-educational contexts. Specifically, the model examines three aspects, including the personal qualities of the teacher, pedagogy adopted by the teacher and ethos of the class and school. Figure 1 illustrates the inter-relation between the three dimensions, as presented below.

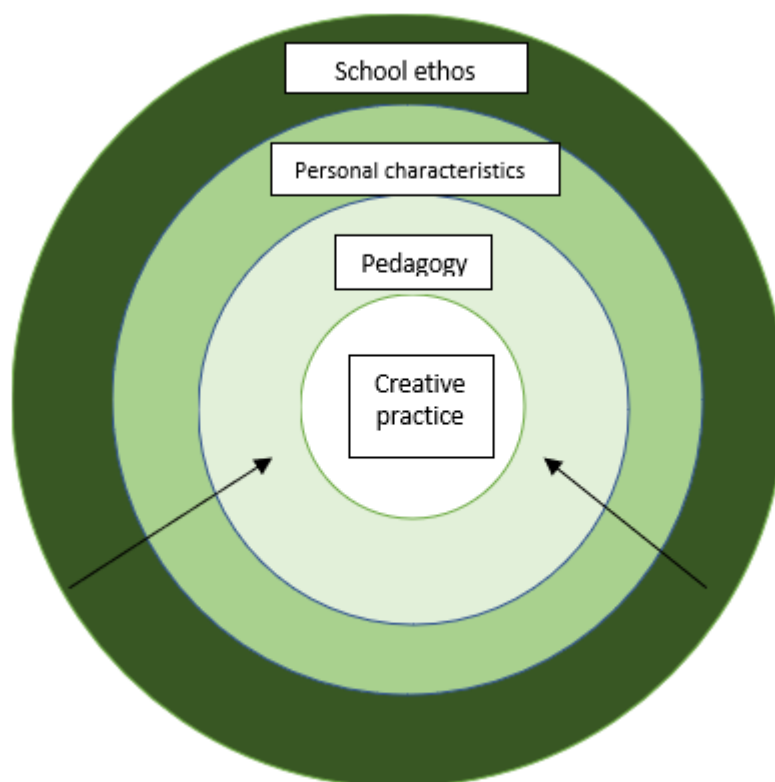


Figure 1. Model of the Creative Teaching Framework

Note: Model of the Creative Teaching Framework. Adapted from *Creative Teaching for Tomorrow: Fostering a Creative State of Mind Deal*, by T. Cremin, J. Barnes and S. Scoffham, 2009, Kent, UK: Future Creative. Copyright 2009 by the Future Creative CIC.

According to the researchers, understanding the interplay between these dimensions is pivotal in achieving creative practice. These dimensions also provided a basis for us to inquire about the core features of creative teachers. The researchers identified four central characteristics, including curiosity and questioning, connection making, originality and autonomy. Their descriptions of creative teachers have echoed previous studies concerning qualities possessed by creative teachers.

Boden's (2001) study showcased that creative teachers were more likely to take risks in the professional sphere. Their demonstration of creativity may coexist with ambiguity and uncertainty in actual practice, and yet such practice gave rise to their creative endeavor. Additionally, as Richhart (2002) suggested, creative teachers often asked many questions themselves, featuring their curious characteristics.

Regarding the dimension of pedagogy, it involves high expectations and the flexibility of style and pace. To feature high expectations of students, creative teachers often promote students engaging in proactive thinking and problem-solving. In this way, students are provided more opportunities to tackle the given problem independently and stretch further than their current capacity. Creative teachers might also flexibly switch their teaching styles by foregrounding students in the class, constructing a learner-centered classroom.

School ethos refers to the extent to which the school and class can support teachers' and students' development of creativity and values. Creative practice often emerges from a learning environment that ensures students' emotional security. Positive emotional engagement, trusting educator-learner relationships and pedagogically-sound values (e.g., values about gender and ethnic group) feature school ethos, resulting in an inclusive learning environment. All that being said, the distinction made between creative teachers and others is somehow blurred, since creative teachers are not all alike across all socio-educational contexts. We can hardly find an unimpeachable answer to the question - "what is a creative teacher?". This article aims to add to the pertinent literature through case study and reflection, as I will present in the next sections.

3. Case Analysis

3.1. Context

My journey of being a creative teacher took place in a newly-established international primary school in Shenzhen. The leaders, parents and other stakeholders in the school have dedicated to building a sound school ethos, supporting teachers' innovative attempts. The largest class size was 20 students. The small-sized class allows each student to present, practice and develop their creativity sufficiently. However, as noted previously, China's educational system is characterized with high-stakes tests such as college entrance examination, which often force teachers to focus more on students' test performance than other qualities. The school introduced was not an exception, even though it values teachers' creative practice. For me, it is nonetheless important to equip students with academic skills to ace the standardized test. However, mobilizing students' engagement in discovering their interests outside the test realm is equally. To this end, adopting creative teaching strategies can possibly stimulate students' interest in learning per se rather than good marks. In what follows, I illustrate three episodes where I demonstrated my teaching practice as a creative teacher.

3.2. Episode One: The Creative Combination of Multiple Teaching Models

My journey of honing creativity began with a request from a desperate parent of a new transfer student. She asked me how she could motivate her child to devote more time in math-learning. Her child was discontented with the tediousness and tension in previous math class, to the point that he did not want to go to school anymore. Thus, I have sought to incorporate some creative components in the class so that the child might find something that interested him in math. For example, games, cartoons and adventure stories were the "candies" for many young learners. Since my students were in grade 2, activities such as reading cartoons and stories were their interests and even a part of their daily routine. Therefore, I started my "risky" endeavor by adapting appropriate plots in a popular god-evil novel and children-oriented drama, *the journey to the West*, as my teaching materials. I also designed mathematical serial stories that

incorporated mathematics concepts from several textbook units. The story focused on how mathematicians found the solutions to mathematical problems and overcame those issues through collaboration and long-term endeavor. Meanwhile, students were tasked to elaborate on their findings drawn from the stories with their group members, and I offered scaffoldings to them as a coach. After constructing their understanding of the mathematical concepts via investigation, presentation, discussion and reflection, students were rewarded with board games, puzzles and jeopardy games that covered teaching content instructed in the class. Fortunately, this innovative teaching plan succeeded. It was very inspiring to see that the student who barely wanted to learn math became a proactive participant in my class.

3.3. Episode Two: Interdisciplinary Curriculum Design

It is not uncommon for primary school students to be curious about the necessity of learning math, because students found no connection between abstract mathematical concepts and mundane life. Without realizing the significance of math in personal life, they may lack intrinsic motivation to learn it. Thus, I adopted the STEM project-based learning (PBL) approach in my class to demonstrate the relation between abstruse mathematical concepts and students' personal life. After measuring students' current capacities, I began to design an interdisciplinary project. Students could grasp the value of mathematics while solving problems in collaboration with their classmates. For instance, a project called *Let's Run a Fruit Tea Shop* gave the third-grade cohort opportunities to model real-life shopping scenarios. Students were assigned different roles such as entrepreneur, fruit tea specialist and interior designer. In this project, students perceived the necessity of applying math in real life. They engaged in various math-related activities such as weighting, checking fruit tea recipes and measuring areas for decoration. Some students even extended to the concepts of the proportions and percentages, which will be taught in fifth grade. Via hands-on practice, students developed a concrete perception of different weighting measurements (e.g., 20g of sugar is approximately as heavy as a small eraser). Moreover, students astonished me with their extraordinary interdisciplinary creativity, such as the tasty fruit teas they prepared, the effective marketing strategies, decoration for the shops and their marketing plans. More importantly, I found PBL can not only help teachers achieve teaching goals prescribed in the National Curriculum Standard but also guide students to recognize the role of math subject in real life.

3.4. Episode Three: Emotional Engagement is Indispensable in Teaching Innovations

Barring innovative instructions, it is essential for creative teachers to get students emotionally engaged in the classroom. I utilized individualized teaching strategies for absentminded students in the class. For example, a little girl in my class easily burst into tears when she made a tiny mistake. I told her that she could take deep breaths to resist overwhelmed and depressed emotion. Additionally, given her parents' anxiety regarding her math scores, I also invited her parents to the school for one-on-one consultation. At one time, she burst out crying again, and I said nothing but gave her a warm hug. Surprisingly, she stopped crying and started taking deep breaths. I have tried my best to mobilize her positive emotion and encourage her parents to show their attention, care and love to the child. At the end of the semester, although her emotional breakdown persisted, she made salient progress in the test and emotion regulation. Moreover, she demonstrated her divergent think in solving non-routine and open-ended questions. Thus, it is not farfetched to say that emotional engagement is an intangible yet powerful element in innovative pedagogy.

4. Reflection

Overall, my creative practice was based upon Cremin, Barnes and Scoffham's (2009) model. Underpinned by their theoretical framework, I identified five creative strategies from the above episodes, including (1) the use of stories, metaphors, anecdotes and analogies, (2) the flexibility of style and pace, (3) making connections, (4) curiosity and framing questions, and (5) creating an inclusive environment for emotion security, as presented below.

4.1. The Use of Stories, Metaphors, Anecdotes and Analogies

Cremin, Barnes and Scoffham (2009) highlighted that creative teachers often employ metaphor, anecdote and analogy to facilitate students' understanding of transmitted knowledge. In episode one, I used a story-based instruction style, analogizing math-learning as a journey to success. Similarly, in episode two, students took up various roles, such as entrepreneur, fruit tea specialist and interior designer, contextualizing real-world scenarios. All these demonstrated my attempts to integrate stories, metaphors, anecdotes and analogies into maths teaching. As Blenkiron (2005) suggested, rhetorical devices were effective in helping students to find a connection between math and mundane life, generating a new perspective for them to view the role of math.

4.2. The Flexibility of Style and Pace in Teaching

Different teaching strategies serve different pedagogical objectives. Switching flexibly between diverse instruction styles and paces is a feature shared by creative teachers (Grainger, Barnes & Scoffham, 2004). As seen in the episodes, I adopted story-based learning (e.g., mathematicians' stories in episode one), inquiry-based learning (IBL) (e.g., asking students to raise questions based upon the given text) and game-based teaching approach (e.g., implementing tea shop project). When the teaching units were associated with real-life situations, I would implement a PBL project. When it comes to abstract concepts, I would choose the story-based approach to help students understand the text. The flexibility of teaching style brings varied tempo and pace, which would meet different students' needs.

4.3. Making Connections

Previous studies have validated that creative teachers often make cross-disciplinary connections, helping students identify latent relations between different disciplines (Cremin, 2009). In episode two, my students demonstrated a low autonomy towards math study, since they could barely find a connection between math and personal life. Thus, I implemented a series of PBL projects (e.g., *Let's Run a Fruit Tea Shop project*) for students to perceive the connection between math and their everyday life, incorporating games to stimulate young learners' interests and raise their awareness of the value of math subject. This project was designed to guide students in identifying relations between math and mundane life, showcasing my attempts to connect math study with general knowledge commonly utilized in real-life scenarios.

4.4. Curiosity and Framing Questions

In addition to the above aspects, creative teachers are often associated with curiosity (Cremin, Barnes & Scoffham, 2009). However, raising students' interests in framing questions can be challenging in China's classroom because good students are often featured as one who holds teachers in high regard and passively receives one-way delivery of information with dedication and humility (Tan, 2020). Grounded in such a context, I adopted IBL and PBL approaches to motivate young learners sharing their questions with the class. In episode one and two, my rationale for adopting IBL and PBL approach was contextualized in the face that these two approaches can create more opportunities for students to inquire about the task, text and teaching content. Thus, a series of scaffolding questions may emerge from "what if", to "what is

this and what does it do”, and then to “what can you do with it”, facilitating students’ divergent thinking (Craft, Burnard & Chappell, 2007). Additionally, I often adopted “is it applicable to all situations?” as a response to students’ answers to promote their critical thinking in the course of questioning.

4.5. Create Positive, Secure and Inclusive Learning Environment

A focus on students’ emotional engagement can be seen in all episodes. The innovative combinations of various teaching approaches in episode one and two were designed to construct an inclusive atmosphere where students’ thoughts, questions and curiosity are valued. Additionally, as highlighted in episode three, the girl who had difficulties in maintaining her emotion received sufficient support from an inclusive learning environment with limited yet observable improvement as regards her emotional security.

5. In Pursuit of Creativity Development in China

Although creativity is nowadays an essential element in the education system in China, many endeavors are still needed in pursuit of creativity development in China’s primary schools. Teachers need to consider how to contextualize the idea of creativity in China. Following Cremin, Barnes and Scoffham’s (2009) model, I practiced creativity broadly from the three dimensions, namely school ethos, teachers’ characteristics and pedagogy. Since China is the largest education system worldwide, students’ creativity across the country is diversely and unevenly developed. Disparities exist in regional admission standards, educational qualities and development status in the rural and urban areas. Unsurprisingly, it is difficult to generalize the practice of creativity across China’s schools and its associated school ethos. In my case, I delivered my creative practice in an international school in a tier-1 city in China, which might offer a more creativity-motivating learning environment for students. Nonetheless, it can be difficult, if not impossible, for teachers in rural regions to implement similar PBL projects illustrated in the above episodes. While the MoE promotes creativity nationwide, educational authorities may consider incorporating the creative practice into the standardized curriculum, providing more professional training for teachers in less-developed regions.

Regarding teachers’ characteristics, teachers in China need to creatively adapt the traditional teaching approach. Given the high-stakes examinations in its education system, teachers can adopt various teaching strategies to instruct creativity implicitly. For example, I utilized PBL projects to introduce the concept of quality and measurement, making the connection between the mathematical concept and its application in students’ personal life. In this way, I can strictly follow the mandatory curriculum and creatively deliver the teaching content at the same time.

Pedagogically, creative teachers should engage students in creative reflection of the given text. While students in China were often hesitant about raising questions, creative teachers could consider featuring a learner-center classroom, guiding students to explore unknown areas on their own through both IBL and PBL approaches.

6. Conclusion

Drawing upon Cremin, Barnes and Scoffham’s framework of creativity, this article has examined a math teacher’s creative practice in China. This reflection reported that creativity was mainly achieved via IBL and PBL approaches, which improve Chinese students’ willingness to inquire and their problem-solving skills. As presented in the analysis, I contextualized five teaching strategies for raising students’ awareness of creativity, including the use of stories, metaphors, anecdotes and analogies, the flexibility of style and pace, making connections, curiosity and framing questions and creating an inclusive environment. In sum, Cremin, Barnes and Scoffham’s core concepts of creativity offered a guiding lens for my creative practice. This

case study extends the existing literature on the diverse approaches to nurturing creativity in China's education system.

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