A Case Study of Picture Books as a Stimulus for a Project Approach in Hong Kong

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Abstract

The education reform in Hong Kong advocated the Project Approach as an effective pedagogy to support children's learning through exploration and play. This paper outlines a case study of a Hong Kong kindergarten which implemented the project approach using a picture book and digital picture book as a stimulus to begin the project topic and develop the inquiry process. The qualitative data sources included analysis of documentation such as teacher lesson plans, teacher questionnaire on reflection, documentation of children's works and activity photos of the project. The findings revealed that picture book was a good stimulus to arouse children's interest. The children were observed to be highly engaged in the investigation and the benefits from the picture book in project were not limited to literacy learning but also integrated learnings such as in the domains of music and movement, drama, and science. Additionally, the project provided opportunities to use the 21st skills of collaborating, communicating, creativity and critical thinking. The case also acts as an example of implementing the project approach in a non-Western context and recommendations are made for Hong Kong early child educators who participate the education reform.

Keywords: project approach, picture book, early childhood education, Hong Kong, digital picture book.

1. Introduction

A global trend has emerged in early childhood education, away from a teacher-directed curriculum toward a child-centred one. The project approach was first advocated and implemented by Dewey and Kilpatrick in the 1910s (Katz &Chard, 1989). Project-based learning has been applied in Western countries for many years, and its benefits and effectiveness have been widely demonstrated. Mitchell, Foulger, Wetzel, and Rathkey (2009) found that in project-based learning, children become more interested in learning and show greater problem-solving ability.

Research has found that the transition from a traditional teaching approach to a project approach is a huge challenge, especially for cultures in which the traditional teaching approach is highly valued (Clark, 2006). Like Montessori, High Scope, Reggio Emilia and other Western pedagogies, the project approach has been increasingly adopted in a Chinese context, including Hong Kong. The Education Department in Hong Kong first advocated the project approach in 1992. In response to vast changes in society and the needs of children, in 2006 the Curriculum Development Council of Education Department in Hong Kong released a Guide that offers guiding principles for the early childhood curriculum. It advocates play for learning, a child-centred learning curriculum, and a project approach in which child-centredness is a core value. The most recent curriculum review is the Kindergarten Education Curriculum Guide, released in 2017. The key emphases in this Guide include learning and free exploration through play, and encouraging balanced development. Children have enormous potential for exploring and discovering the world, so the project approach fulfils children's developmental needs. However, the shift from a traditional teacher-directed approach to child-centred pedagogies raises many issues concerning the distribution of resources, teaching strategies, classroom discipline, understanding children's motivation, assessment, and the roles of teachers and parents (Ho, 2015). Yelland and Leung (2016) also proposed a new educational approach to early childhood education in Hong Kong that incorporates Western pedagogical approaches.

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1.1 The Project Approach

"Project" has a specific definition in the context of the project approach. According to Branscombe, Burcham, Castle, and Surbeck (2014, p.156), "projects are sustained, in-depth activities initiated by children or children and teachers together for the purpose of studying a topic in depth to increase understanding and appreciation". The project approach is an effective way to enhance children's communication skills, ability to cooperate, intellectual development, and social development (Chard, 1998). The children work and collaborate with teachers and peers to seek answers to questions that arise as the investigation proceeds (Katz, Chard, and Kogan, 2014). One commonly cited definition is by Katz (1994, p.1):

A project is an in-depth investigation of a topic worth learning more about. The investigation is usually undertaken by a small group of children within a class, sometimes by a whole class, and occasionally by an individual child. The key feature of a project is that it is a research effort deliberately focused on finding answers to questions about a topic posed either by the children, the teacher, or the teacher working with the children. The goal of a project is to learn more about the topic rather than to seek right answers to questions posed by the teacher.

There are three phases in project implementation. During the first phase, children and teachers discuss and select a topic based on children's experiences and interests. Through discussion, teachers help the children to develop questions to be answered by their investigation. In the second phase, the children collect information and materials, hold discussions, and participate in field work to obtain answers to the developed questions. In field trips, children interview experts who know a great deal about the project topic. Children work on projects and use different learning skills in this phase, such as collaboration, communication, investigation, and using new technologies. In addition to the three phases, there are three components to consider in a project: 1) content, 2) processes, and 3) products. There are also five structural features: 1) discussion, 2) field work, 3) representation, 4) investigation, and 5) display (Katz & Chad, 2000).

Li (2012) investigated teachers and principals from 51 kindergartens in Hong Kong and reported that the project approach is beneficial to early childhood education in Hong Kong, because it facilitates children's learning motivation, problem-solving, and critical thinking. To implement project-based learning successfully, teachers should design appropriate projects for children based on their interests, needs, and individual differences. Teachers should also organise activities that can meet these needs.

The project approach in early childhood education is a child-centred approach; however, teacher-directed, whole-class-based, product-based teaching is the most common pedagogy in the Chinese cultural context, including Hong Kong (Li, Rao, & Tse, 2012). Therefore, teachers should adapt their teaching style to match the project approach to the curriculum. However, is this curriculum as effective as in Western countries? Li (2012) demonstrated that one reason kindergarten teachers in Hong Kong have difficulty in practice is insufficient training, which means they lack an understanding of the project approach and the skills needed to implement it. Teachers' educational beliefs are also highly influenced by the traditional Chinese culture of teacher-centred, teacher-directed learning. Rao, Ng, and Pearson (2010) suggested that directly applying Western pedagogies in non-Western countries is rarely successful. In addition, localising project-based education in a non-Western context is a topic that still requires investigation. Chen, Li, and Wang (2017) suggested that adaption of the project approach is more important than mere adoption. Thus, to enhance the effectiveness of the project approach in Hong Kong, researchers, educators, and scholars should develop curricula that offer a "project approach with Hong Kong style."

Rahman, Yasin, and Yassin (2011) identified many challenges in the process of implementing the project-based approach, especially in the initial stages. Thus, over the whole process, teachers and educator should elicit feedback from children and parents and adapt the project approach accordingly. The result will be greater acceptance of project-based pedagogy among teachers, children, and parents and enhanced cognitive and social development among children. Research has also suggested that choosing an appropriate topic plays an important role in the success of the project approach. When choosing a topic, it should be based on children's interest, environment, and experience; it will require development over many stages of reflection, modification and improvement (Çabuk & Haktanır, 2010).

1.2 Picture Books and Digital Picture Books

Reading picture books is considered to be beneficial to children's linguistic abilities and literacy. In the reading process, children expand their vocabulary and knowledge by learning new content. Pictures give children a basic understanding of concepts and things, even if they do not physically encounter them in the real world (Fletcher & Reese, 2005). The pictures promote comprehension and stimulate children's imagination. For children with limited linguistic ability, books with pictures help them to understand the whole content of the story. Generally, picture books are simple, colourful, and based on daily life, which not only promotes children's motivation, but also helps them to link what they learn with real life and develops their imagination (Sheu, 2008).

Picture books are now often digitised, which is both convenient and beneficial to children. Compared with traditional picture books, digital picture books have animation, video, sounds, interactive features, and so on. Stephen (2014) found that children benefit from three aspects of technology: improving technological skills, learning new knowledge, and being more disposed to learning. Most children are very interested in reading digital books, and children use technology often in their daily life. Moreover, Barr, Zack, Garcia, and Muentener (2008) suggested that the sounds of digital picture books help children to concentrate. Children also respond more, which promotes effective reading. In addition, children are more motivated by interaction with digital picture books, such as answering questions about the story; such interaction enhances their engagement, memory, understanding, and vocabulary (Segers &Verhoeven, 2002; Smeets & Bus, 2012). In traditional reading, parents may not have the knowledge and skills to benefit children. Digital books can solve this problem, because most of the questions are designed by professional educators, so they will be more appropriate (Kamil, Intrator, & Kim, 2000). Through answering questions, children practice problem-solving and critical thinking.

Furthermore, the interactive features significantly increase children's interest and motivation (Ricci & Beal, 2002). For instance, highlighting is a common function in digital books. It promotes children's concentration and memory of the highlighted context, which in turn promotes word recognition (Smeets & Bus, 2012, Yokota, & Teale, 2014). In addition, there are many interactive features in digital picture books that allow peers, parents, and teachers to interact with it (e.g. work together using the digital platform), which promotes children's cooperative ability and makes the experience more enjoyable (Eagle, 2012).

1.3 Using Picture Books to Implement Projects with Children

Technology can greatly facilitate learning based on the project approach, by providing more resources than a traditional project-based learning and offering a more constructive, cooperative learning environment (Bottino & Robotti, 2007). Developing a project from a picture book in collaboration with children encourages them to talk more about the story, to understand it more deeply and grasp the author's ideas; in turn, this can predict children's future ability to create stories. Rosenquest (2002) stated that the goal of using picture books in a project approach is "to expose the children to books, to engage children in lengthy adult–child conversations based on stories in books, and to create opportunities for symbolic play that is built on concepts and language from familiar text."

The use of multimedia in the classroom is an effective way to enhance children's learning from different perspectives. Hung, Hwang, and Huang (2012) conducted a digital storytelling activity in the classroom using a project approach, and found that students not only had better comprehension and higher achievement, but also showed more ability to problem-solve and cooperate. In addition, the use of technology in teaching facilitates learner-centred learning, which contributes to students' motivation and achievement. A large number of applications are developed for early childhood education, which means they are highly convenient to use. For instance, tablets are popular devices, and many high-quality applications can be downloaded for use in the classroom setting and at home. Research has also found that iPads can help young children to express, explore, and share knowledge, and the effect is stronger if parents and teachers assist, cooperate, and monitor (Khoo, Merry, Nguyen, Bennett, & MacMillan, 2015). For example, teachers can facilitate the process by demonstrating abstract concepts. Digital storytelling is a technique that is popular and useful in early childhood classrooms. Children are able to select topics they are interested in, do related research, and ultimately develop their own stories (Robin, 2008). It is important to develop children's 21st-century literacy, including digital literacy, global literacy, technology literacy, visual literacy, and information literacy; these forms of literacy are emphasised by many early childhood educators (Brown, Bryan, & Brown, 2005).

This paper contributes to the discussion of the project approach in Hong Kong early childhood education by presenting a case in which a Hong Kong kindergarten used a picture book as a stimulus for a project implementation.

This case is used to answer two questions: 1) what is the project approach in the Hong Kong early childhood curriculum? and 2) how can a picture book be used as a stimulus for project implementation in the Hong Kong kindergarten curriculum? Qualitative data include the teaching plan, teacher reflection, and documentation of children's work on the project.

2. The Case

The kindergarten was situated on an island near Hong Kong Airport. It is a newly developed district populated by young, working families. The kindergarten offered half-day classes (three hours) in mornings and afternoons for three- to six-year-old children. The children attended half-day classes five days a week. There were 25 children in the class, with one head teacher and one teaching assistant. The head teacher was a qualified kindergarten teacher with a diploma in early childhood education. She had 13 years' teaching experience, and had been teaching in this kindergarten for nine years.

The kindergarten adopted both the thematic and project approaches. Theme-based teaching using picture books was scheduled at the beginning of the school term and featured topics related to children's daily experiences, such as food, animals, the human body and plants. The children usually participated in one or two projects over one school term. Children learned through different integrated activities based on a theme such as language, mathematics and science, art, music or movement. The teachers implemented projects by observing children's interest in a topic or receiving suggestions from children for more in-depth learning about the theme. The projects were usually implemented for three weeks and the activities included group discussion, investigation, role-play, field trips, expert talks, and an exhibition of the children's work. The activities were child-directed and attempted to represent children's learning about the project topic.

2.1 Beginning the Project

The project presented in this paper was implemented in a k.3 class with 25 children aged five to six. The project topic was generated from the theme "plants." The teacher read the picture book "Woody" to the children. The children were also provided with the same story in an electronic tablet format, as designed by a commercial education company.

The story outline is as follows. Little Wood was a piece of wood in the forest and his friend "Little Bird" was a bird there. One day, a woodcutter cut down the trees to make paper, and Little Bird's nest was destroyed. The friends were forced to leave the forest and travel to different places in the world. They travelled across the desert, to the North Pole, over land and to the city. Little Bird found it difficult to live in these places due to their different climates. The climates of different places were introduced to the children: hot in the desert, freezing at the North Pole, dry on land, and heavily polluted in the city. Little Wood tried to solve Little Bird's problems (by various uses of wood). The teacher read the story to the children from the storybook and the tablet every day in the first week of the project. The children also read the digital picture book with their peers and by themselves in small group activities.

Figure 1. Child's drawing of four climates.

Figure 2. The children retold the story to their peers.

After the teacher read the story, she collected the children's suggestions for the best place for Little Bird (Figure 3). The children said that the best home would have trees, food, mild winds, warm temperatures, water, and sunlight.
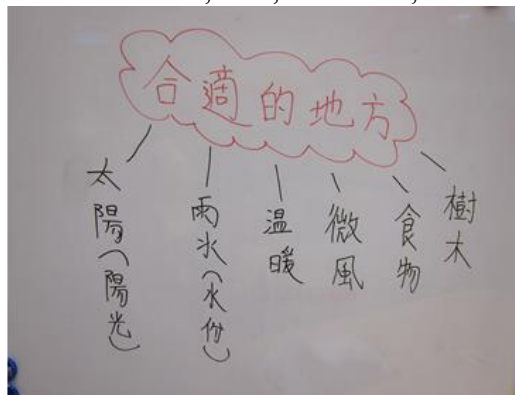

*Figure 3.*Children's suggestions for the best home for Little Bird.

The teacher helped the children to develop their interest in the story through asking questions:
Where did Little Wood and Little Bird live?
What happened to Little Bird in the forest one day?
What kind of machine was it? Why did it cut down the trees?
Can you name anything made of wood?
If you were Little Wood and Little Bird, would you be happy?
Can you predict what would happen to Little Bird if they lost their nest?

2.1.1 What the children knew.

The teacher discussed the different climates of the places in the picture book with the children. The children knew that plants need "sunlight, water, and nutrients" to grow, and that they grow in soil. They also knew about the concepts of hot and cold. At the beginning, the children thought that no plants could grow in the desert because of the heat. However, they observed some plants (cacti) in the pictures in the book. The teacher also sent a letter to the parents to encourage them to talk to their children about the topic and support their children's interest by collecting relevant information on the topic. Thus, the children shared their knowledge about the topic: for example, plants need water and sunlight; toilet paper and writing paper are made from wood; birds need trees for nests; and some insects also live in trees.

2.2 Developing the Project

In the second week, children learned that the cactus is a "remarkable" plant that can survive in the desert. They were curious about the hot, dry desert climate and how cacti can grow there. This became the start of the project. The teacher also took a potted cactus to the classroom. Children examined the cactus and drew pictures of it. They noticed that the leaves were spiky, not flat. They were interested to know why the leaves were spiky, and whether the cactus needed water to grow. One girl noticed that there was some white liquid on the cactus. The teacher asked children to guess what it was. A boy guessed it was milk, because he knew milk is white. Then, other peers thought that they should use milk to feed the cactus, not water.

2.2.1 What the children wondered.

>   What is the temperature in the desert?
>   What would happen to a plant without sunlight or water?
>   How does cactus survive in sand?
>   Do cacti drink milk, not water?
>   Why are cactus leaves spiky?

In this phase, the teacher helped the children investigate more deeply. The teacher provided resources to help them with their investigations: objects, books, and other research materials, including a computer and camera. To prepare for the field trip, the teacher had children watch a video on YouTube about the desert. The children learnt that temperatures in the desert are not only very hot in the daytime but also very cold at night. There is little rain but other plants and animals live there. To answer questions about cacti, the teacher took the children to a flower shop to start the enquiry process. The children asked the florist(expert) why cactus leaves are spiky, and the florist told them that there are different kinds of cacti, and their leaves are not all spiky. The children were also told that the structure of cacti includes small areoles that grow spines, branches, or hair, and store water. They compared the cactus with other plants. They read books and browsed the Internet to learn whether plants other than cacti can grow in the desert. There are also indoor cacti, which need less light and are smaller in size. The children brought different types of cacti back to the classroom from the shop to make more observations about different parts of the plants. They used drawings to record their observations of cacti and compared them to other plants.

*Figure 4.*Using the computer to search for information on deserts.

Figure 5. Observing different plants from the market.

Children learnt from the florist that "sap" oozes out when there is damage to the stems of succulents such as milkweed or spurge. Possible sources of damage include overwatering, poor drainage, lack of light, or too much sun. The children experimented with planting small bean seeds in three pots under different growing conditions (one with water, sunlight, and air; one with sunlight and air but no water; and a box with small holes at the bottom, which was placed under a shelf). The children concluded that sunlight and water are necessary for plants to grow.

Figure 6. Planting bean seeds in three pots.

Figure 7. Observing the seed experiment.

They also observed and recorded the stages of the seeds' growth through drawings.

Figure 8. Children observed and drew the seeds as they grew.

In this phase, the children showed strong interest in reading the digital picture book. They did a role play for the story with their peers and drew a story outline.

2.3 Concluding the Project
2.3.1 What the children learnt. After investigating cacti and the growth of plants through different activities for individual children and small groups, they shared their learning from the project by making an information board about deserts:

- one third of the world's land is desert;
- the Sahara is the biggest desert in the world;
- animals live in the desert and they come out only at night time;
- the desert climate is hot, with daytime temperatures from 60-80 degrees, and minus 10 degrees at night time;
- there are many types of desert plants, such as the baseball plant, silver torch cactus, desert ironwood, saguaro cactus, and Wollemi pine.

Figure 9. Children created an information board about the desert climate.

The teacher concluded the picture book project by following the children's suggestions: the children performed dramatic plays and drew their own stories. The teacher revisited the picture book with the children and asked them questions in small groups:

Teacher: Do you like this book?

Three children: Yes, we like it!

Teacher: Why?

Child A: I like the story in this book because I want to learn from the "wood" to help others.

Child B: After finishing this book, I felt happy.

Child C: I like the main character, because he likes helping others.

Teacher: In this story, the forest was cut down. If you were Little Wood, what would you do?

Child C: Take care of animals. Also, tell them to leave the horrible forest.

Child A: I would tell the animals to leave.

Teacher: We know that forest is very important for animals. What can humans do to help?

Child B: Don't cut down too many trees.

Teacher: How do we stop humans from cutting down the trees? And what does your ideal world look like?

Child A: We can do a poster to promote environmental conservation.

Figure 10. Acting out the story.

Afterward, the children started individually creating posters to promote the idea of "saving the environment" and depict their ideal world.

Figure 11. Children created a poster to promote "saving the environment."

They learnt that sunlight, water, and air are important for plants to grow. There are ways to save the environment, such as conserving water, preserving trees by using less tissue, using fewer plastic bags for shopping, and using more recycled paper.

2.3.2 Teacher reflections. The children were interested in the story from different perspectives. They showed interest in different scenes in the story. The teacher took the plant (cactus) into the classroom, which aroused the children's interest in desert plants. She supported the children's observations of the cactus in the classroom with a field trip to a flower shop. This motivated the children to learn more about different types of cactus, and to learn about cactus milk from the florist (expert).

3. The use of information and communication technologies in project implementation

The children used a computer to browse information on cacti and different climates to enrich their learning. Videos of different climates facilitated the children's learning by displaying real desert scenes, which increased their interest in the hot desert climate. This approach was helpful because they could not visit the desert or the North Pole on a field trip. The children learnt what the four scenes looked like from the video. The digital picture book also benefitted their language skills and literacy. They enjoyed reading on the tablet rather than from a printed copy because of the animation, sound, and interactive features. They could read at their own pace using the software, and repeatedly read the story if they liked. This allowed them to learn more vocabulary. They also role-played the story while shared reading with their peers.

3.1 Children's multi-modal experiences from the project

The benefits of picture books are not limited to language and literacy. Teachers can use them to support children's in-depth learning on a topic. Once the children are motivated by the story, they can express their ideas and what they have discovered through investigation and experiment during the field trip and science activities. They can represent their learning in different forms, such as texts, drawings, and dramatic plays.

4. Conclusion

Educational policy in Hong Kong strongly advocates the project approach, a Western pedagogical method, to sustain and enhance children's interest and motivation in learning. Hong Kong teachers are unsure about how to initiate projects with children and how to develop their questions or directions through the inquiry process. Teachers are also uncertain whether they can manage a child-centred approach with limited project approach knowledge from teaching training programs. The findings of this case from one typical kindergarten demonstrate how a local project was enacted in a non-Western context using a digital picture book. The qualitative data reveals that the digital picture book provided a good stimulus for developing a project topic out of the children's interests. The various functions of tablets can enhance children's literacy, language abilities, and information literacy. These are important skills that children must learn in the 21st century.

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