香港教育大學
The Education University of Hong Kong

A Project entitled

Using gamification in the museum visit to enhance students' learning motivation and knowledge about Chinese culture

Submitted by

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Declaration

I, Student Name (8-digit Student Number), declare that this research / project report represents my own work under the supervision of Title and Name of Project Supervisor, and that it has not been submitted previously for examination to any tertiary institution.

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Date: 18/04/2022

Content

1. Statement of the Topic

This project aims to use gamification to make museum education more innovative and interesting, which can effectively increase primary school students' motivation to participate in museum education, especially on historical topics, so as to change the current museum education approach. Rather than relying on teachers or guided tours to impart knowledge, the game-like nature of the educational experience provides a sense of autonomy, encouraging students to take initiative and explore historical topics on their own. By integrating gamification into museum education, students can easily substitute historical events and scenes, thereby discovering historical and cultural knowledge in an immersive learning environment. This approach can serve as a valuable tool for teachers to make museum education more appealing and constructive in teaching historical and cultural knowledge about China.

2. Critical Review of Literature

The fifth learning area in the "General Studies Curriculum Guide for Primary Schools (Primary One to Primary Six)" (2017) places significant emphasis on understanding Chinese culture and fostering students' sense of belonging. It encourages inquiry-based learning approaches to deepen students' understanding of the country and their cultural heritage. Understanding the country's history and culture through various heritage sites is one of the main learning objectives of this learning area. Teachers are suggested to consider students' preferences in teaching in order to support their self-directed learning. Since numerous gamified applications facilitate the learning process by adding entertaining features to museum visits. For instance, museum reality games leverage various media, such as mobile devices, real-world props, and museum artifacts, to enhance puzzle interactivity and engage players in a unique learning experience. These games often require players to comprehend specific details about the artifacts, encouraging them to interact with the museum's educational content (Çetin & Erbay, 2021). Therefore, gamification is prioritized as a means to raise the attention and involvement of primary school audiences with museum visits.

In Hong Kong, museum education is not systematically and wisely promoted. In the traditional museum setting, guided tours are an important part of introducing and explaining the information about the museum pieces. In order to gain context and insights about the exhibits, visitors depend on the expertise of the tour guide. This

strategy in guaranteeing that participants have access to reliable and valuable information. However, it is crucial to remember that this traditional method may result in visitors taking a more passive role as learners and observers. They rely heavily on the guidance provided by the tour guide and may not actively interact with the exhibits or take part in critical analysis and interpretation. In addition, certain interactive installations in museums are designed to increase the enjoyment and involvement of the visitor experience. However, there is a concern that they may not always align with the museum's educational objectives. If the interactive installations only prioritize entertainment value without providing substantial educational content, the learning efficiency and motivation of students might be potentially diminished.

To address this issue, it is vital for museum education to strike a balance between immersive experiences and teaching resources. Gamification is an approach that fosters greater interaction between visitors and collections. According to Maroney (2001), there are three major components influence the practice of gamification during museum visits: game elements, game deign and the non-game environment. In the application, the museum reality game in the Law Uk Folk Museum includes a designed story background and missions. Students need to overcome a sequence of clues, puzzles and the ultimate puzzle by utilizing their prior knowledge and observing the museum pieces. During the museum exploration, kids are strongly encouraged to cooperate and communicate with their peers. The non-game environment refers to the goal of the activity is to not only entertain but also educate students. It means that participants need to attain the learning objective through the museum reality game. By providing opportunities for visitors to interact with the exhibits, cooperate with others, ask questions, and taking challenges, museums can foster a deeper and more meaningful engagement with the artifacts and their historical or cultural significance. Meanwhile, gamified elements allow children to see hidden or less noticeable objects and encourage them to observe museum items from a fresh perspective (Liu & Zaffwan Idris, 2018). This shift towards more interactive and participatory experiences aims to empower visitors to become active learners and contributors to their own educational journey within the museum setting.

3. Implementation and key observation of the model

Three components make up the Law Uk Folk Museum's museum visit design: a 40-minute pre-visit lesson, 1.5 hours of museum reality games, and a post-visit activity. There were six primary 4-6 participants from different schools. Students were divided into three groups, each of which took turns going to different rooms and finishing the

associated task. The learning objectives of the museum visit include enhancing students' motivation and sense of curiosity about learning traditional Hakka life through museum education; recognizing that Hakka people lived a thrifty but peaceful farming life in the past; having students reflect on their living environment and develop a positive attitude when facing adversity.

i. *Pre-visit lesson (40-minute)*

(Figure 1-4)

The pre-visit lesson (Appendix I) is a comprehensive and informative session to prepare students for the museum visit by providing them with important knowledge and engaging them in meaningful discussions and comparisons. By providing an overview of Chai Wan and introducing the living environment of a Hakka family, students can gain a better understanding of the historical context in which the farming tools were used. Explaining the tools and their role in rice cultivation aims to help students connect the artifacts in the museum exhibit to their practical applications. Furthermore, the inclusion of videos about the process of agricultural production is a way to enhance students' knowledge and engagement. Visual aids can help students visualize the usage of the tools and the various steps involved in rice cultivation. This can make the learning experience more immersive and memorable for students, especially if they are not familiar with the topic.

(Figure 5-6)

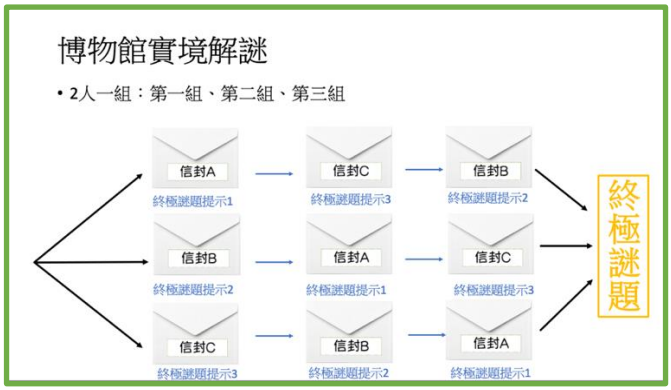
Students' comment on the rice-carrying activity:

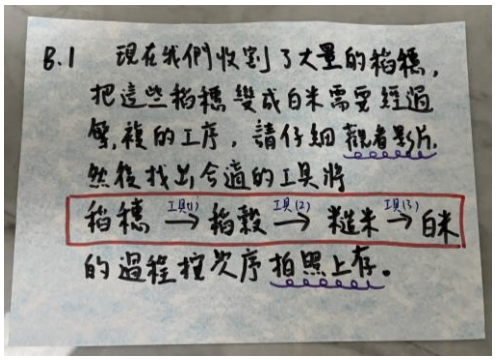
"So heavy! How can they do that?"
"The farmers are so strong. It is impossible for me to do that."
"Would their shoulder get hurts?"

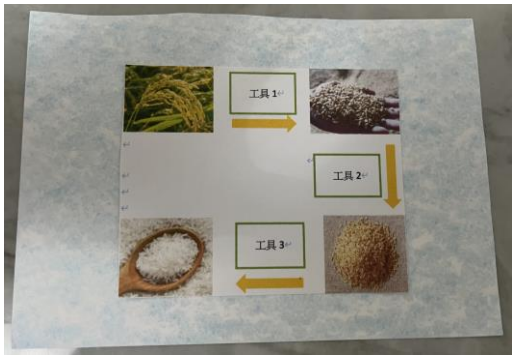
Besides, a rice-carrying activity is designed to allow participants to get a taste of how heavy the crops that farmers carry every day. This experiential activity not only creates a sense of excitement and enjoyment among students but also fosters empathy and appreciation for the hard work involved in farming. Students can develop a deeper understanding and respect for the labor-intensive nature of agricultural practices when they directly experience the weight and strain of carrying rice.

Overall, students are highly concentrated during the lesson, particularly when comparing the source of food and living conditions in the past and present. This indicates that they are actively making connections and reflecting on the changes that have occurred over time. This critical thinking and reflection can lead to a deeper appreciation and understanding of the historical significance of the exhibit.

ii. *Museum reality games (1.5 hours) (Appendix II)*







(Figure 7-11)

During the museum reality game, using words, pictures (Figure 7-11) and videos (Appendix III) to guide students in matching the real objects in the museum is an effective way to enhance their understanding and engagement. By encouraging students to read questions, observe, discuss, and send their answers through WhatsApp, it promotes critical thinking and collaboration among them. Also, students are allowed to ask questions or request hints from the teacher which helps them to clarify any uncertainties and receive additional guidance when needed. This approach fosters a supportive learning environment where students feel comfortable seeking assistance when required. Moreover, the teacher could provide instant feedback (Figure 12-13) to students' answers through WhatsApp which lets students understand their strengths and areas for improvement.

(Figure 12-13)

Conversation of students during the museum reality game:

Student A: Did the attic have any special features? Student B: I am not sure, we can ask or search online later. But I think it is amazing that people in the past could build it.

Student C: Why were all furniture pieces made of wood in the past? Student D: I think they lacked other raw materials for making furniture in the past. Also, wood was abundant in the past, especially in Chai Wan, which is surrounded by mountains.

Student E: How did people control the temperature of wood when they were cooking? Student F: I think they use different amounts of wood to control the temperatures. Student E: I think they put the wood at different positions.

From the conversation of participants, it is showed that students engaged in discussions and shared their thoughts and ideas with each other, it created a dynamic learning environment where they could explore new perspectives and build upon their existing knowledge. Other than that, students applied the knowledge they learned in the pre-visit lesson to the museum pieces. They were actively connecting their prior knowledge with new experiences. The game encourages curiosity and foster discussions among participants which facilitates a deeper understanding and critical thinking skills. At the end of the museum visit, there is a debriefing section in which students are encouraged to give feedback on their museum experience. For example, they shared what they learned and what interested them the most. Many of them love the part about finding

out the answer to the ultimate puzzle. They had never thought about the meaning behind the cooking stove until they played the game and realized the story of the farmers. The meaningful involvement in solving the mysteries enhances their sense of satisfaction and achievement. In addition, it is surprising that some students and their parents stay behind after the visit because they want to know more about the culture of Hakka people and their living style (Figure 14-16). It shows their curiosity and eagerness to delve deeper into the history.

(Figure 14-16)

Students' exploration of the museum

(Figure 17-24)

iii. *Post-visit activity*

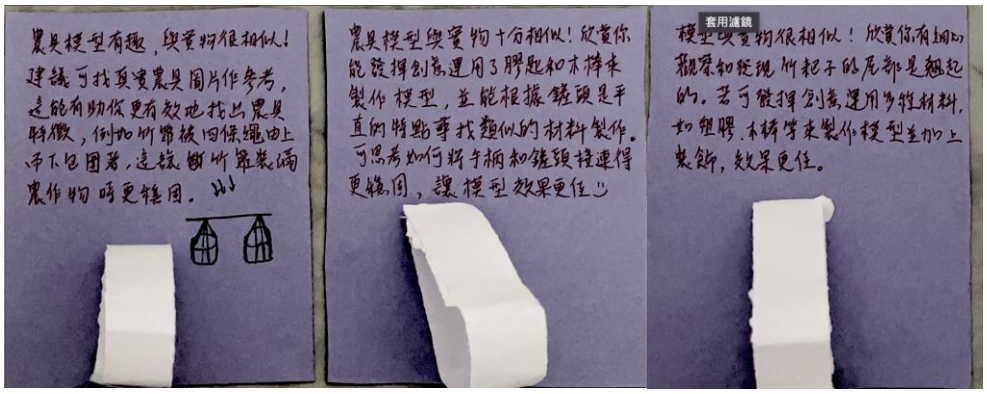
After visiting the museum, students did further research on their chosen agricultural tool and gathered information about its features and function in farming practices. Through the process of data collection and hands-on creation, students not only gain a deeper understanding of the object but also enhance their creativity. It is because students could make use of accessible and everyday materials to construct their mini-model. These materials include cardboard, wooden sticks, strings, paper cups, etc. Some students reflected that in order to make their mini models look more alike to the real objects, they tried several times to adapt and modify their designs based on the properties and limitations of each material. It encourages them to think critically and find solutions when faced with design constraints or obstacles.

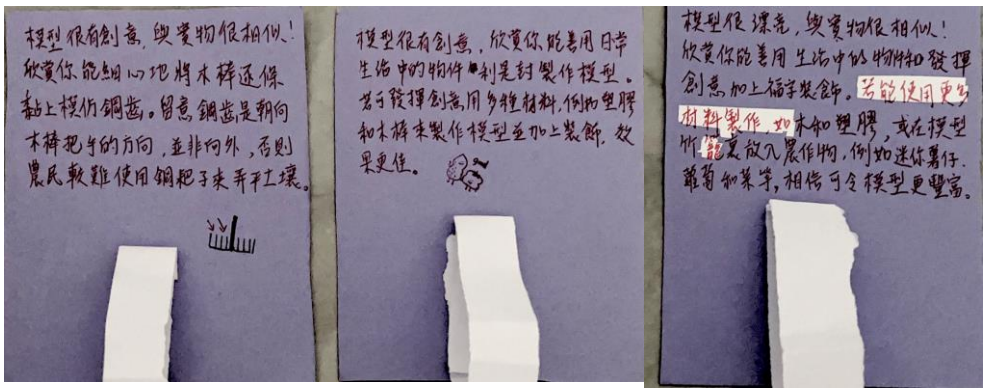
When it comes to evaluating and assessing the students' understanding of the chosen agricultural tool, teachers play a significant role in providing formative feedback to students, helping them understand their strengths and weaknesses, and guiding them towards improvement. For example, pointing out students' misunderstandings regarding the features of the tool by drawing pictures and offering guidance on how they can rectify those misconceptions These personalized suggestions and support contribute to a richer learning experience and promote student engagement and achievement.

Students' work

(Figure 25-30)

Teachers' formative feedback:





(Figure 31-36)

4. Consolidation and Generation of Insights for Future Teaching Profession

The experiential activities in the Law Uk Folk Museum promotes active participation, problem-solving skills, and effective communication among students, making the learning experience more engaging and enjoyable. However, students could not physically touch the museum pieces may lower the sense of immersion of students. It is believed that the act of touching an artifact can create a more tactile and interactive experience. It is understandable that museum items require careful presentation and protection for future generation to appreciate. By utilizing the alternative method of museum reality game, it helps to create an engaging and educational experience that goes beyond physical touch, allowing students to connect with the exhibits and learn in a meaningful way.

As a General Studies teacher in the future, I hope to promote museum education in General Studies teaching. It is known that there are more than sixty museums in Hong Kong that cover various themes, including culture, history, art, science the environment, etc. They are valuable for students to learn. Integrating museums into educational experiences can greatly enrich students' learning and provide them with a broader understanding of various subjects. The goal of applying game elements to museum visits is to engage students and make the experience more interactive and enjoyable. By incorporating cooperation, competition, scriptwriting, designing characters, challenges, visuals, and audios, a multi-dimensional and immersive learning environment is created. These game elements can enhance students' motivation, critical thinking, and problem-solving skills while exploring the museum exhibits. It allows them to actively participate in the learning process and connect the knowledge gained from the museum with the concepts they learn in General Studies.

At the same time, taking the initiative to collaborate with teachers from other subjects to organize interdisciplinary learning activities is another commendable goal. Combining the resources and expertise of multiple teachers is beneficial for creating unique and holistic learning experiences that integrate General Studies with other subjects, such as Chinese, English, Mathematics or Visual Art. Incorporating museum visits and interdisciplinary learning activities into the teaching strategy can make General Studies more engaging, relevant, and impactful for your students. It allows them to explore different perspectives, develop critical thinking skills, and make meaningful connections between classroom knowledge and real-world experiences. More importantly, it can inspire students to become lifelong learners and curious individuals.

Reference

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The Curriculum Develop Council (2017). General Studies Curriculum Guide for Primary School (Primary1-Primary 6). https://www.edb.gov.hk/attachment/en/curriculum-development/cross-kla-studies/gs-primary/GSCG_2017_Eng.pdf

Appendix I: Questions of the museum reality game

羅屋民宿館實境解謎.pptx

Appendix II: PowerPoint of the Pre-visit lessons

香港農業和農民生活.pptx

Appendix III: Videos for the questions of the museum reality game

1. https://youtu.be/5Ma1T2OHjN0
2. https://youtu.be/4EnDn4RuFOw
3. https://youtu.be/tqZpS1n4jX8