

ENHANCE CULTURAL COMPETENCE AND CREATIVE ABILITIES THROUGH INNOVATION EDUCATION OF TRADITIONAL TECHNIQUES

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ABSTRACT

Creative education is a process for training students' creativity and problem-solving skills, it helps them enhance their personal development leading to conduce to their future careers and quality of life. The creativity and innovation industries have become the future trend in Hong Kong's development in order to improve worldwide competitiveness. Alison indicated that cultural differences start to emerge at a young age and those leads to all sorts of subtle differences in the way we think and acts. In which, secondary school students are much easier targeted to integrate into difference cultures. According to Hong Kong Intangible Culture Heritage Office, bamboo crafts provide citizens with a sense of identity and continuity. Bamboo craft is one of the famous traditional techniques in Hong Kong's culture, involved in different application in our daily life such as cookware, containers and building techniques. Besides, there are items that occasionally appear in seasonal festivals or funerals such as bamboo theatres, offerings and lion-dance. The knowledge and techniques taught through this project contains enlightening and cultural-specific elements, contributing to the development of a proper "maker's mentality" in future generations, whilst preserving traditional Hong Kong Craftsmanship in an engaging and meaningful manner. Possible opportunities are identified for educating bamboo crafts for future generations in order to cultivate students' creativity, critical thinking and problem-solving skills. The purpose of this study is to develop techniques for using traditional craft learning and teaching materials to improve students' cultural and creative abilities and to inherit traditional Hong Kong handicrafts.

Keywords: Creative education, traditional crafts, bamboo crafts, cultural education

1 INTRODUCTION

Students lack innovative education in Hong Kong's examination-oriented education system, which limits the students that cultivate their creativity, critical thinking and problem-solving skills. The paper aims to discuss the potential for using traditional crafts to develop creativity and problem-solving skills in students by different methods. In addition, enhancing cultural competence and creative abilities through innovative education of traditional techniques can be a valuable approach to preserving and celebrating cultural heritage while promoting innovation and creativity. To achieve this, combining traditional and modern techniques is an approach that could be used, where traditional techniques are taught using innovative and interactive methods.

2 BACKGROUNDS

2.1 Bamboo crafts in Hong Kong

Bamboo craft is a highly regarded traditional handicraft in Hong Kong, which has found versatile applications in various fields, including daily consumables, building structures and festival items, owing to its adaptability and flexibility (Figure 1). It also demonstrated the cultural significance and the building techniques which only appeared in Hong Kong. Therefore, it is a valuable traditional technique to incorporate into creative learning that educates students on hands-on skills and humanities of Hong Kong. The use of bamboo craft learning and teaching materials to improve students' cultural and creative abilities would be a promising approach to enhancing the quality of education in Hong Kong. By

integrating elements of Hong Kong bamboo crafts' culture, history, and traditions, students can develop a sense of identity and continuity, which can contribute to their personal and academic growth.



Figure 1. Bamboo crafts in Hong Kong

The application of bamboo crafts as a means of developing students' creativity is particularly promising given the cultural and historical significance of this craft in Hong Kong. By teaching students the maker's mind and the design process behind bamboo crafts, they could gain valuable insights into problem-solving and critical thinking skills. Moreover, the preservation of traditional crafts like bamboo weaving is an essential component of Hong Kong's cultural heritage, and educating students about these crafts can help ensure their continuation into future generations.

Furthermore, incorporating traditional crafts into the curriculum also provides students with a more well-rounded education that emphasises the importance of cultural diversity and understanding. As Hong Kong continues to be developed as a hub of creativity and innovation, it is critical that students equip the necessary skills to succeed in these industries [2]. In addition, by utilising traditional crafts as a means of developing students' creativity, critical thinking, and problem-solving skills, Hong Kong can ensure its continued success and global competitiveness.

Given the ubiquitous presence of bamboo in various aspects of daily life in Hong Kong, such as building repairs and seasonal festivals, the adoption of bamboo craft as a traditional technique for education is highly feasible. This craft technique offers a diverse range of applications, including the construction of bamboo theatres for festivals such as Tin Hou's birthday, lion dances, and lantern festivals. Consequently, bamboo craft can facilitate varied learning outcomes for students, contributing to their personal and academic growth. As a completely handmade craft, bamboo technique presents a valuable opportunity to integrate it into design. By incorporating this traditional technique into design, designers can create unique and culturally significant products that preserve Hong Kong's heritage while also promoting its creative and artistic potential.

2.2 Importance of inherit traditional Hong Kong handicrafts

Traditional crafts are defined as those items in our 'everyday life, which means a personal experience only occasionally in one year or in one's whole life such as weddings, seasonal festivals or funerals, that is slowly being less known and abandoned by the public [3]. Due to the rapid development of society, some knowledge, things or skills of crafts are gradually being disqualified by the public because of their limited functions or developments. Most of the crafts are being replaced by machines for mass production to achieve more economic income. Besides, after the transformation of the society in the 1980s, the production of traditional Hong Kong handicrafts was gradually relocated to the mainland (Hong Kong Memory). Therefore, leading the younger generation to lack the cognition of Hong Kong's iconic crafts, they are less concerned about the loss of intangible properties and lack awareness of preserving them.

However, passing down craftsmanship is equivalent to passing down knowledge, which forms the essence of education. The application of traditional handicrafts in people's daily lives demonstrates how knowledge and skills can be used as effective problem-solving methods for various purposes. Besides, the know-how provides enlightening and culturally identified elements and knowledge to the future generation such as notable Hong Kong style design and the maker's mind, that contribute to their personal development and lead to preservation of the Hong Kong traditional crafts. Hence, significant potentials and possible opportunities are identified by applying traditional Hong Kong handicrafts in creative education and are taught by combining traditional and modern techniques.

2.3 Creative education and cultural education

Education plays an indispensable role in human life, which people used to achieve knowledge and understand a variety of subjects to be applied in daily life [5]. Nowadays, people easily obtain diverse subjects on different platforms such as TV, the Internet, and books. Those understandings possess human behaviours, habits, and arts in different places, which allow individuals to equip themselves more to develop the way they think, reason and act. When people apply arts and cultural activities intentionally to guide the development of understanding, knowledge, and skills, it could be defined as creative education. However, the way of life, customs and beliefs of a particular country or group are defined as the culture that people start to learn in their daily life during their childhood. After that, when people invent or create, most of the inspiration comes from the culture. The more diverse knowledge people acquire, the greater number of solutions they can generate. By the view of this, a more effective creative education system should be established by a comprehensive cultural education.

2.4 Creative education and innovation education in Hong Kong

In Hong Kong, there is a lack of students who choose subjects related to creative learning. According to the charts (Big Exam,2022), only 3448 students entered in Visual Arts at Hong Kong Diploma of Secondary Education (HKDSE), and 170 students entered in Music at HKDSE. With the small number of students, the difficulties of getting greater results in examinations are increased because of the unequalled marking scheme of HKDSE, according to the Hong Kong Examinations and Assessment Authority, students' scores are free to vary in line with fluctuations in overall candidate performance. The lower the number of people who study this subject, the lower opportunities for them to get the highest marks. Therefore, students lost their interest in studying creative learning due to the intensely competitive environment.

In recent years, STEM education has become popular in primary and secondary education in Hong Kong. It is an approach to learning and development that integrates the areas of science, technology, engineering, and mathematics. Although the system enhances the efficiency of students to learn hard skills, and techniques using machines or high techs, there are still some limitations that regulate students to develop their abilities in soft skills such as critical thinking, communication skills and creative thinking. Students who are interested in cultures, music or arts are being regulated by this system. Therefore, some of the stakeholders designed a new education system called STEAM, which opens the door of STEM to the arts aids in the process of turning critical thinking into critical making. During the study, students could have more opportunities to apply the concepts learned in STEM but perform their ideas in the form of arts or designs. As a result, the system helps students understand complex knowledge more figuratively and efficiently. However, adding more cultural elements to STEAM education could help students explore their creativity in different cultures because of the diverse humanities. Therefore, there is a possible potential that combines traditional Hong Kong handicrafts and modern techniques to enhance students' hard skills and soft skills.

3 METHOD

Based on the preliminary research, bamboo crafts could be achieved in the creative education system design and education tools design. To further understand the necessary process of the education system and functions of the educational tools to be most effective for creative education, primary research such as surveys and interviews were conducted via Google Forms and interviews. The surveys aim to collect data about the understanding of creative education and traditional crafts of the public. It is given that they will be the targeted product initiators, i.e., there are the main groups who experience cultural and creative education. Questions from different categories, such as the expectation of them learning in creative education and cultural education, the cognition of bamboo crafts, the methods for creative learning, cultural learning and traditional handicrafts etc., were made into the short answers, checkboxes, linear scales and multiple-choice questions for easier and specified responses.

Five interviews were conducted, with ages ranging from 21 to 60, with two students who studied creative learning in Taiwan, Mainland and Hong Kong, 1 student who studied creative education and internship as a music teacher at a secondary school in Hong Kong and 2 experienced teachers who taught creative learning in Hong Kong. The interviews focus on the experience of study in creative learning and educating creative learning. Students are included in the interview part since they have learned creative learning in different places. Potential design opportunities could be found due to the comparison between different education systems in different countries. The interview questions are more flexible

compared to the survey since they allow the users to express their ideas and opinions more clearly, which can stimulate ideas which were not thought of.

4 RESULTS

Over a period of two weeks, there were a total of 46 survey participants (Figure 2). A majority of respondents (above 70%) did not have a clear understanding of creative education and cultural education. The lack of educational resources (textbooks, teaching tools, etc.), study opportunities and teacher resources are the main factors that they think Hong Kong does not have excellent education systems in creative learning and cultural learning (above 50%). Besides, most of them agreed that creative education and cultural education would affect the way they think, reason or act. Statistics about the needs for creative learning and cultural learning were collected from 5 interviews and 46 surveys. The results show that most respondents find a lack of teaching resources and study opportunities in cultural learning and creative learning, reducing the chances of learning humanities and training their soft skills such as problem-solving skills and critical thinking, in which most of them find bamboo crafts a good direction to combine traditional and modern techniques in the creative learning system.

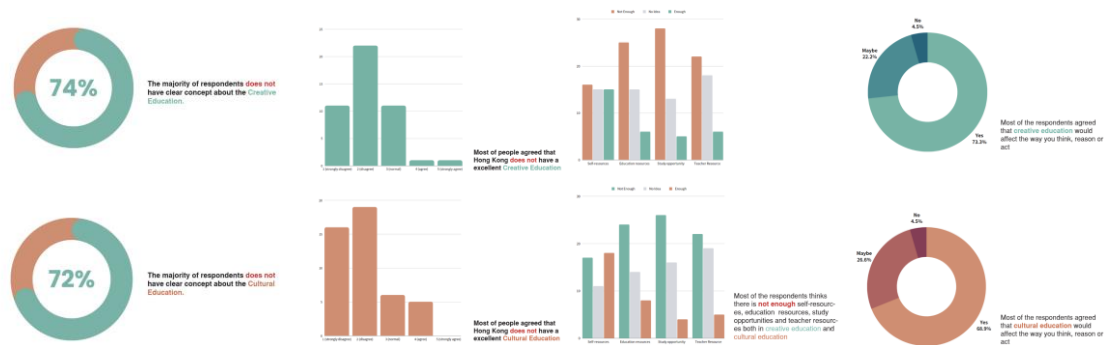


Figure 2. The results of surveys

5 RELATED PRODUCT MARKETING ANALYSIS

According to a scholarly article, contemporary urban society has demonstrated a demand for crafts-based skills and knowledge, leading to a market for such products. In response to this trend, toy manufacturers have developed craft kits for children that have gained popularity among parents due to their ability to replace electronic devices and engage children in playful skill-building activities. These kits have proven to be effective in satisfying children's entertainment needs while simultaneously developing their crafts-based skills. The art-and-crafts toy segment experienced a significant increase in sales in the toy industry from 2013 to 2014, becoming the second-fastest-growing type of toy. Despite the growth of the toy industry, this type of toy continues to occupy a significant share of the market. Notable companies such as LEGOs and Piececool have incorporated their knowledge of architecture and cultural elements into their products, serving as examples of how the toy industry can incorporate knowledge into their products [1].

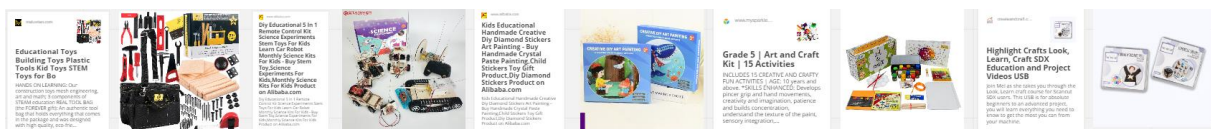


Figure 3. Existing STEM education kits

The limitations of current STEM education products are evident in their design, which primarily focuses on hard skills with less consideration for aesthetics (Figure 3). This approach restricts users from fully utilising their knowledge gained from STEM education to realise their own creative ideas. Similarly, existing craft education products demonstrate limitations in providing users with comprehensive learning opportunities as they lack guidelines on techniques and their associated historical context. Consequently, users are unable to develop a deeper understanding of the creative and cultural aspects of their learning. To address these limitations, there is potential to incorporate innovative techniques such as virtual reality or augmented reality in the design of educational products. These technologies can

provide users with immersive and interactive experiences that enable them to explore and understand the historical and cultural significance of various techniques. Additionally, virtual and augmented reality can facilitate a more comprehensive and dynamic learning experience, allowing users to experiment and create within a simulated environment.

6 CONCEPT DESIGN DEVELOPMENT

6.1 Education system design

The design of the educational system and tools seeks to promote creative learning by blending traditional bamboo crafts skills with innovative techniques. Moreover, culturally identified elements and knowledge would be integrated into the educational materials, which help users improve their experiences of generic skills learning and the application of know-how. The design of an educational product that uses bamboo crafts for creative learning is based on existing STEM education tools and follows the SCAMPER guidelines [4].

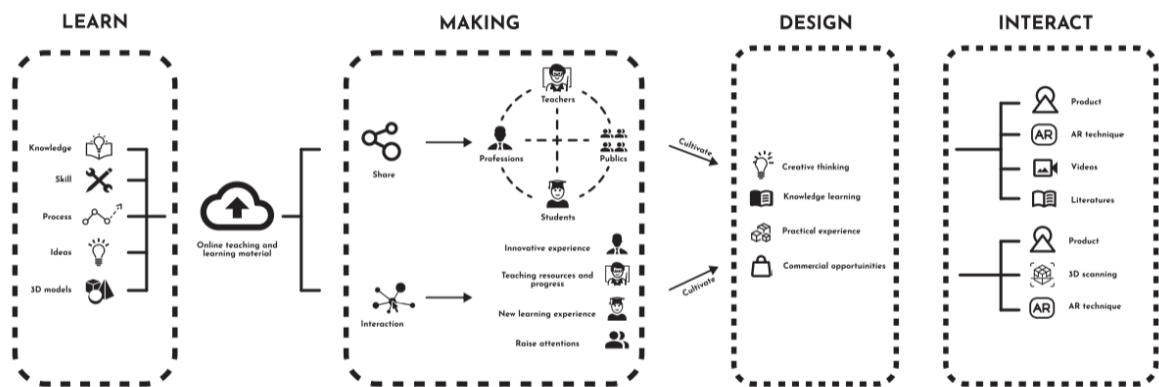


Figure 4. Education system planning

The product takes the remote-controlled car as a model for designing STEM education tools that help users to learn traditional bamboo crafts techniques and modern technology simultaneously. Figure 4 illustrates that the education system design which consider the learning process of students and assisted with the innovative technology in order to enhance the efficiency of learning. Additionally, the product includes tools to guide users in completing the remote-controlled car and encourages them to use their creativity to design its structure (Figure 5).



Figure 5. Prototype process

The education system incorporates hands-on learning experiences that help students understand and appreciate the techniques and materials used in traditional crafts. Besides, the integration of technology, such as virtual reality and augmented reality, can provide interactive learning experiences that allow learners to explore traditional techniques in innovative ways. In addition, bamboo crafts culture is inclusive and diverse, which can help students understand and appreciate the cultural significance of traditional techniques, while also promoting intercultural understanding and respect. As there are designs of the education tools, it encourages students to apply their creativity of traditional techniques which can promote the development of new and innovative designs that reflect the cultural heritage of the techniques. Finally, the design can not only promote the preservation and celebration of cultural heritage but can also foster creativity and innovation in the application of these techniques. The continual development in the design process is to create a 3D-printed, size-adjustable base for the remote-control

car (Figure 6). The bamboo base is too thin to support the weight of all the components, so an adjustable base is needed. Additionally, an adjustable base will enable users to design the car with more flexibility and encourage creativity without limitations. However, an improved exterior design could also help to attract a broader customer base.

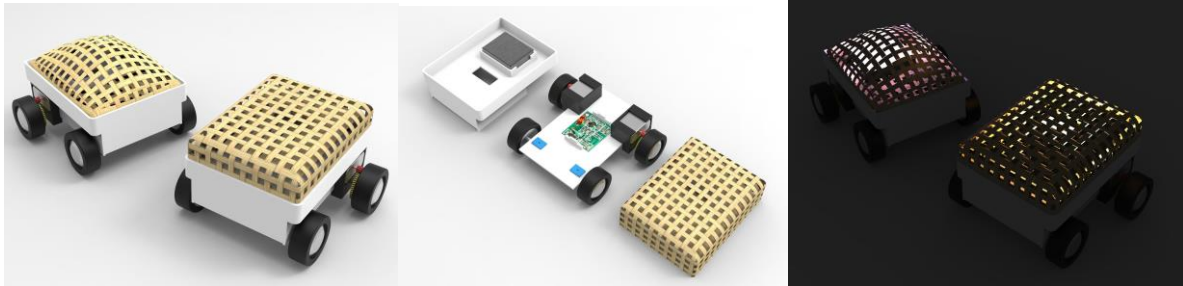


Figure 6. Concept renderings

To demonstrate the cultural knowledge of the technique and encourage users to design their own cars in a unique way, virtual reality (VR) or augmented reality (AR) could be utilized. Utilizing VR or AR technology could enhance the design process by illustrating cultural knowledge and promoting creativity. With AR technology, users can scan the product on their smartphones and enjoy a more interactive and interesting design experience. This would provide a more interesting and interactive platform for users to engage with. Additionally, by integrating AR technology, users could play as a game with their own cars in a virtual world that continues to teach them about traditional crafts and modern techniques.

7 CONCLUSIONS

In conclusion, incorporating traditional bamboo crafts and cultural elements into innovative educational products has valuable potential to promote creativity, cultural understanding, and critical thinking in Hong Kong's education system. The design of tools such as weaving equipment and VR/AR technology can create an engaging and interactive learning experience while preserving cultural heritage. Besides, by integrating traditional knowledge with modern innovations, students can become culturally aware and technologically adapted.

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