



Practical Research on Creative Ideas during the COVID-19 Pandemic

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Abstract: This article focuses on the teaching and learning of creative thinking and design courses during the pandemic, conducted through online or in-person classes. The process involved guiding students through brainstorming sessions to stimulate creative ideas and record them. Subsequently, discussions on the ideas were held, followed by feasibility analysis and idea selection. Finally, the most innovative and representative concepts were selected for implementation, including the creation of creative posters, simple prototypes, and promotional videos, which were submitted to international invention exhibitions and competitions, all of which earned excellent results. These outcomes provide valuable insights for future related research.

Keywords: COVID-19, Salinity Spoon, Epidemic Prevention Supplies, Diatomaceous Earth Ointment.

1. Introduction

During the pandemic, schools at all levels were required to follow the directives of education authorities regarding whether to conduct in-person classes or online teaching. As the pandemic escalated and tragically claimed many lives, it indirectly guided both teachers and students in the creative thinking and design courses toward developing ideas for epidemic prevention products, as well as innovations and improvements in related items.

Furthermore, while collecting creative ideas, the teacher used extracurricular time to provide online guidance to students, helping them further develop and concretize their ideas into practical concepts. In addition, through the creation of posters, simple prototypes, and short videos, the students participated in a selection process for internal funding to cover international competition registration fees. After winning the selection, they entered international invention exhibitions and competitions, where they achieved excellent results. These outcomes provide valuable insights for future teaching and learning in related practical research.

2. Literature Review

During the pandemic, numerous related epidemic prevention products were developed, aiming to protect human life and the environment [5]. Some of these products were created in response to the severe impact the pandemic had on daily life, utilizing various algorithms to implement preventive measures [4]. In particular, the medical field has been actively engaged in research and the development of pharmaceuticals [1].

Additionally, there have been simulations and designs for related products aimed at ensuring safety in airports and aviation during the pandemic [3]. The scientific community has recognized that the transportation of goods and passengers is a key factor in the spread of infectious diseases. Especially during the COVID-19 pandemic, public transportation systems were considered high-risk environments for virus transmission; as a result, many regions around the world imposed restrictions on passenger transport. While various aspects of transportation were studied during the pandemic, there is still a gap in understanding the specific impacts of different modes of transportation and intervention strategies for vehicle designs that reduce transmission rates [2].



3. Creative Concept

In the teaching and learning process of the creative thinking and design methods course during the COVID-19 pandemic, this article focuses on creative concepts aimed at reducing contact between people, the environment, equipment, and objects to ensure personal safety. After extensive brainstorming, discussions, and revisions by both the teachers and students, three representative creative concepts were selected as the outcomes of the course. These include: a spoon used for making soup, named the "Salinity Spoon"; a portable epidemic prevention bottle designed for regular hand washing and alcohol spraying to maintain personal safety; and a diatomaceous earth-based, non-toxic insect-repellent ointment developed in response to the increased activity of tiny microorganisms, which often cause itching and discomfort. The following provides further explanation of each creative concept.

The Salinity Spoon is designed in response to the COVID-19 pandemic to minimize direct contact during cooking. When making soup, you press the "On" button and pull the spring-loaded ring to automatically add salt according to the desired salinity. The scale will display the relative salinity based on the amount of salt added. Once the required salt level is reached, you can push the spring ring back and press the "Off" button, reducing contact with hands and mouth, thus achieving hygienic cooking and epidemic prevention.

The Portable Epidemic Prevention Bottle was created in response to the widespread need for alcohol during the pandemic. To meet the demand for portability and encourage the habit of frequent handwashing, this bottle combines alcohol and hand sanitizer in one, reducing storage space while fulfilling the essential requirements for epidemic prevention.

The Diatomaceous Earth Non-Toxic Insect-Repellent Ointment was designed in response to climate change, which has led to increased activity of small microorganisms. Many people experience discomfort from the constant itching and stinging caused by these tiny creatures, which are often invisible and difficult to eliminate. This ointment is made from non-toxic, food-grade diatomaceous earth, plaster, and water, mixed in specific proportions to form a paste. Similar to filling holes, it can be applied to wall seams or corners. The diatomaceous earth particles, which are sharp and lethal to tiny organisms, cause them to bleed out and die, effectively achieving insect control.

4. Creative Implementation

This study presents creative designs focused on food safety. One such design is a salt-adding spoon for cooking, which allows users to add the required amount of salt according to a scale, reducing contact between the mouth and the spoon. This concept won a bronze medal at the 2021 Thailand International Invention Exhibition and Competition (figure 1~2).

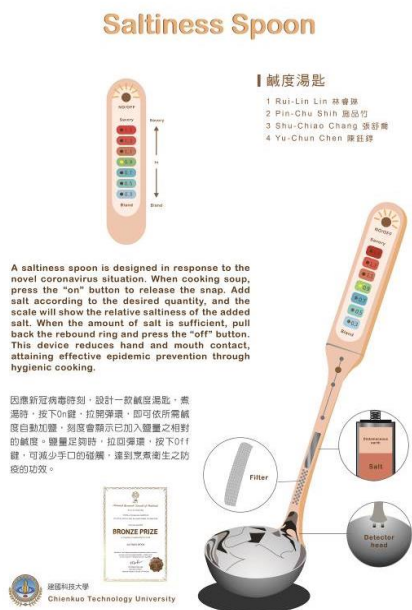


figure 1



figure 2



Secondly, to ensure personal safety during the pandemic, it is not only essential to reduce human-to-human contact but also to maintain frequent handwashing and alcohol sanitization. To facilitate this, a portable epidemic prevention bottle was developed, combining hand sanitizer and alcohol in one convenient bottle for easy carrying. This idea won a silver medal at the 2023 WICO World Invention and Innovation Competition in Korea (figure 3~5). Lastly, due to the drastic reduction in human activity during the pandemic, many nearly invisible microorganisms have been found to be active in home environments, causing discomfort such as itching, stinging, and redness. In response, a natural, food-safe paste was developed, which can be applied to seal cracks and prevent microorganisms from entering. This not only alleviates discomfort at home but also avoids contaminating the environment, making it a two-in-one solution. This idea won a gold medal at the 2024 WICO World Invention and Innovation Competition in Korea (figure 6~8).



figure 3

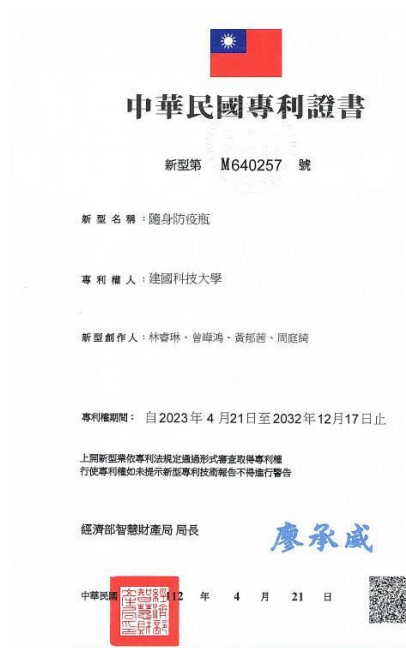


figure 4



figure 5



figure 6

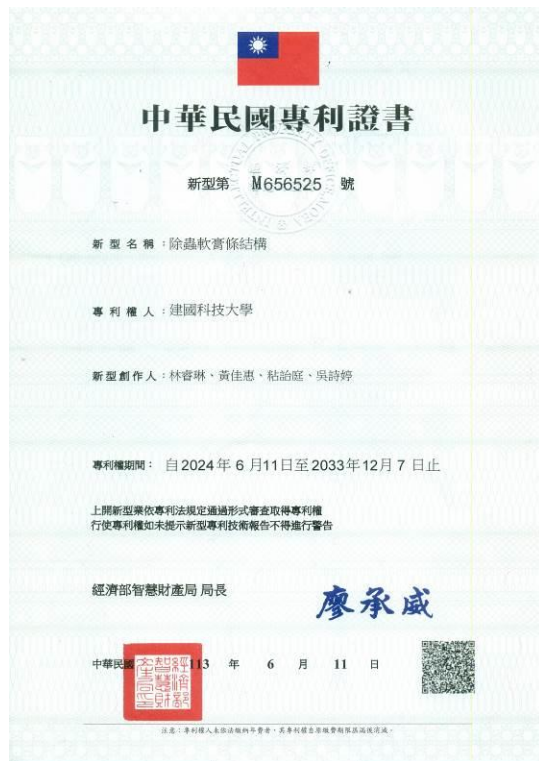


figure 7



figure 8

5. Conclusion

After developing concrete creative concepts, this study proceeded with sketching, discussions, and revisions. Next, the design of posters, creation of prototypes, and production of short videos were carried out. Additionally, internal funding was applied for to cover the costs of new patent applications and participation in international invention exhibitions and competitions. Finally, the new patent was successfully reviewed and approved, and excellent results were achieved in the international invention exhibitions and competitions. In the future, the teaching and learning process in creative-related courses can continue to integrate existing resources in this way, enabling a "learning by doing" approach that combines theory and practice. This allows students to experience more concretely and clearly the application of creative thinking and design methods, as well as the potential for future imaginative possibilities. Therefore, incorporating more practical operations into creative thinking and design method courses can greatly benefit both teachers and students in terms of practical experience. Furthermore, obtaining patents and winning awards in international competitions help raise the school's reputation, providing multiple benefits. This approach should be promoted in future course teaching.

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