

VISUALIZATION OF CREATIVE THINKING THROUGH STEAM TEACHING

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Abstract

The Hong Kong Education Bureau (CDC, 2015) started promoting STEM education in 2015. However, the Korea government made it clear in 2011 that it would shift from STEM education to STEAM education, and expected to foster creative and artistic talents like Leonardo da Vinci or Steve Jobs (Jon & Chung, 2015).

Creativity and innovation have become basic and essential skills for the 21st century across the globe (Burke, 2015; Nakano & Wechsler, 2018), and STEAM education aims to cultivate talents who are creative and think like artists through interdisciplinary activities. The project team came from 3 STEAM related departments of the Education University of Hong Kong. 30 student-teachers from Science, ICT, Visual Arts, and Mathematics disciplines were invited in Dec, 2020 to form 4 collaborative teaching teams with teachers from 2 primary schools and 2 secondary schools and adopted a 5-stage design thinking process to visualize creative STEAM teaching.

The project team is interested in exploring ways to integrate STEAM-related knowledge and skills to produce creative works. Nilsson (2011) stated that there are three regions of creativity: the material, the modal, and the mental. He constructed a taxonomy of creative design to evaluate creative works from the novelty of content and form at five levels: imitation, variation, combination, transformation and original creation. After the implementation of STEAM teaching, 4 teaching teams were interviewed. They invariably pointed out that the learning process and creative performance of primary and secondary school students have surpassed the combination level and reached the transformation level. If you want to see an original level of creation, giving them more time for creative development and creation is essential. This sharing session will provide you with QR codes to visualize the creative thinking process in STEAM teaching, students' creative process, and creative products. The project hopes to enable researchers and educational authorities who are interested in promoting STEM education to recognize, identify and reflect on what STEAM education is and the educational significance of the A.

Keywords: *STEAM education, design thinking, taxonomy of creative design.*
