USING TECHNOLOGIES TO CULTIVATE CREATIVITY IN VISUAL ART

Wan Samiati Andriana WMD¹, Mumtaz Mokhtar² & Aisyah Mohd Yasim³

¹,²,³Faculty of Art and Design, Universiti Teknologi MARA, Shah Alam, Selangor
email: samiati@uitm.edu.my, mumtaz059@uitm.edu.my, aisyah_yasim@uitm.edu.my

ABSTRACT

The emphasis on innovation as part of a super-smart society has forced education structure to STREAM components involving science, technology, religion, engineering, art, and mathematics. In art, creation processes as evidence is also to find out solutions on how to establish art component at par with science, technology, religion, engineering, and math as well as put Malaysian art and innovation up to international standards by using new media art. The gap between all STREAM components has forced nations worldwide including Malaysia to review several doctrines in order that to be in the right track and remain competitive globally. This paper looks into two major areas that mapped and linked together in order to cultivate creativity among visual art student.

Keywords: STREAM; Art Creation; Technology; Innovation; Creativity

INTRODUCTION

Creativity is the highest level of cognitive ability in Bloom’s Taxonomy. In order for creativity to be applied, associative thinking must exist. Craft shows that the understanding of innovation and creativity has developed and developed over time [1]. At the beginning of 20th century, in creativity, it was considered the original quality to be difficult to understand from birth. In the beginning, creativity was closely related to art, but it developed into science, technology, and other disciplines. In the 21st century, creativity is increasingly seen as a process of sharing common sense and solving collaboration and collaborative problems.

It is certain, a predominant trend in contemporary practice that can include the idea of art and science collaboration that basically lead towards conceptual art, which relies on intellectual association making and on a play with words and the medium itself as a message to the society. Intuitively, artists understand how a sensuous receptiveness to the world using the aesthetical value towards their art-making. In relation to the statement, when art and science collaborate, a new way of exploration occurs and this leads to new knowledge, the invention that can lead to the achievement of Industrial Revolution 4 [2]. Collaboration between science people and artist or designer such as 3D animator, sculptor, illustrator, and graphic designer in which artist and scientist need each other, in order to
build advanced communication skills so that the public can reach a better understanding of both fields. This leads to the development of super-smart society in this country.

In Malaysia, with the idea of this, both fields working together can benefit science student yet can also give broader career path towards art student. For science people seeking artistic sense and truly using art as a tool for scientific discovery, it requires people to recognize the collaboration between art and science [3]. Other than that, improving the illustration skill and as a graphic designer, illustrator and sculptor, will definitely reach the value of critical thinking, whereby the designer implements their skills either in the art form and also scientific form.

In forging a new art for the 21st century, it was claimed that projects were tackled that might normally be categorized as science, ranging in focus in the various departments such as astronomy to zoology [4]. Art seems to have been a medium of communication which linked the natural and metaphysical worlds. The major problem when it comes to scientific language, it needs a specific understanding of its theory. At this point, both states of mind need to be linked and connected in order to establish intelligent artist.

**METHODOLOGY**

The data collection was inclusive with two major issues: 1. The artwork and 2. Education. All information was gained from various sources, including academic books, journals, proceedings, as well as exhibition catalogues cum books of painting, retrospectives, biographies, competition booklets and websites. Artworks have ‘aboutness’ and demand interpretation. This is the fundamental principle on which this part depended. It is really basic and readily assumed by critics and aestheticism. Visual art STEAM projects in education similarly support all of these purposes within learning contexts.

**RESULTS AND DISCUSSIONS**

**In Visual Art Scene**

The media technology revolution offers many possibilities for artists to make various forms of art. Artists explore and manipulate different media to give a different impression of their work. In Malaysia, the late Datuk Syed Ahmad Jamal mentioned that contemporary art began in 1980 [5]. In the 1980s, some changes in the visual arts in Malaysia with more emphasis on the use of materials in creative works. Diversity in the use of this material has been infectious until now. In other words, the contemporary value of change from decade to decade is
based just from the use of substances. Artists and art are precursors to the
formation of knowledge covering various fields such as sociology, psychology,
technology, science and much more. The significances of thinking are to generate
knowledge in the visual art itself. Therefore, thinking will determine the impact
on the visual arts in Malaysia, whether it is to shift or to remain an old school
style. The impact is a shift or potential change in one or more areas, whether the
potential change happens in the economic, environmental, and social or health
and well-being. Thinking impact on visual art means the shift or potential change
in ‘art knowledge’ in artworks, as such painting, printmaking and sculpturing.

The late Ismail Zain started experimenting with digital art with a Macintosh
computer in 1983 using the Mac Draw software when he was 53 years old to
create a digital collage [6]. The digital art may have gotten an early start, but it
has not been profitable for the longest time because most art buyers feel that
digital art is not one of a kind. But this is starting to change now. Today, digital
art has progressed as artists are beginning to sell their works. Digital art is any
form of expression that is produced, processed, stored and presented with digital
tools. It can be an illustration drawn with a pencil or pen and then scanned and
coloured with computer software. However, the artist can choose to go digital all
the way by drawing directly on a tablet with a stylus.

According to [6], electronic art is defined as a term that represents the
genealogy between fine arts such as paintings, photography, and ceramics while
electronic media such as videography and computer technology, for example,
Photoshop software, illustrators and subsequently producing works 3D [7].
Electronic art can be categorized in light art, video and video art in the theatre as
well as a video installation, computer art, website or cyber art, and CD-ROM art.

In terms of thinking through art, it has occurred in Malaysian art, but it is not
obvious. The National Cultural Congress in the 1970s has seen the movement of
artists to find their own identity [8]. Various efforts have been made to introduce
Islamic influences, Malay identity or Akar-Akar Peribumi but it must be
presented from an inside of artist’s own self. The artist cannot be tied to a
direction in producing works of art. Their own cultural values and identity come
from inside the heart of the artists themselves [9].

In a paper by [10], it mentioned that Imran Wan Thani expresses the use of
innovative technology through the development of perspective in art. Accordingly
the integration of art and electronic technology has a challenge in the aspects of
authenticity and aesthetic value. This scenario applies when the artist applies
practically out of bounds and approaches through media coverage in the context
of exploration. This is defined as a term that represents the genealogy between
fine arts such as paintings, photography, and ceramics while electronic media
such as videography and the computer technology, like, Photoshop software,
Illustrator and subsequently producing works 3D. Electronic art can be
categorized in light art, video and video art in the theatre as well as a video
installation, computer art, website or cyber art, and CD-ROM art. The used of
Massive Open Courses (MOOCs) and mixed learning environment mod for class learning in education nowadays, have a positive impression of teaching and learning [11,12,13,14].

**In Education Role**

In the Malaysia context, there is a barrier between Art and Science program. Academically, in most university syllabus, the field between art and science will definitely go through a different path and different career. It is claimed that presumably there are indications that a long period of tension between the two areas is closing with what passes in dialogue but is really just a litany [15].

The MyBrainSc introduced by Ministry of Education 2019 only aims for the pure science program. However, the scholarship aims to prepare the nation with innovation and high skill performance together with a scientist at the international level who could win Nobel laureate prizes [16]. To advance STEM at the university level, for example, the School of Chemistry at Universiti Sains Malaysia has developed a micro-scale kit suited for Forms 4 and 5 chemistry experiments [17]. The micro-scale team has been promoting the kits in schools in the northern region. With this kit, schools could save about 70 percent of chemicals and time. The experiments can also be carried out anywhere in the school compound and not necessarily in a lab. The micro-scale kit won the gold medal at the i-IDeA Innovation Competition 2018.

STEAM is the acronym for Science, Technology, Engineering, Arts and Mathematics. This is aimed at balancing the Science and Arts subjects. The Arts skills are based on subjects such as music, literature, arts and craft, sewing, sports, cake-making or culinary arts. By implementing STEM, STEAM, and STREAM, the aim is to produce graduates who acquire moral and knowledgeable characteristics that consist of spirituality, leadership skills, national identity, language proficiency, thinking skills, and knowledge. This is to prepare the future generation for success and not leave it to chance [18].

The art and science collaboration is recommended to maintain and make it practical in the local context [19] especially through the education line where local universities should encourage future collaborative idea between various fields. This would basically help the student to be exposed to the understanding of different languages from different fields. Thus, the engine of that collaboration needs a new framework that all parties will use as the best approach to ensure the innovation towards the development of the country meeting its aims and objectives.

According to Dato Ahmad Zainuddin from Majlis Rekabentuk Malaysia (MRM) in his speech in ARCADESA#2 International Colloquium in National Art Gallery, the art and design students should shift themselves as super-smart society and focus to enhance cultural elements, technological exploration, added value in
functionality and quality, considering on science, technology, and innovation as well as networking with global players [20].

Academy of Science Malaysia which highlighted on Mega Science 3.0 has listed furniture, automotive, creative and tourism components in order to inspire innovations [21]. The national issues and challenges in the development of furniture, for example, relate to lack of knowledge in manufacturing, copycat designer, insufficient brand-building identity and unattractive e-commerce. The guideline listed out several ideas on enhancing Malaysia’s value proposition such as agile manufacturing, R&D on alternative materials, higher education in furniture design and manufacturing, strengthen the university-industry-government link and diversify raw materials.

**CONCLUSIONS**

Technological innovation combined with visual arts can give new possibilities to train the mind in the process of producing new ideas to naturally transfer creative thinking to the other content to enhance creativity. STEAM learning is very effective when students act as artists and scientists. It is now possible to interact with new developments to more clearly locate potentially dynamical properties of visual arts, and its relation to creative actions to illustrate clearly in the capacity of young students to use their creative abilities to learn somewhere higher with the level of engagement and new ideas. This rapidly changing educational environment requires collaborative teachers to use visual thinking methods and strategies effectively to collaborate with art educators and computer experts and identify the relationships and possibilities of visual arts and the overall curriculum in learning aesthetically simulated manner with computing.

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