

# CHAPTER I

## INTRODUCTION

This chapter describes the project background, the problem statement, the objectives, the project limitations, the project benefits and the systematics of writing technical reports.

### 1.1 Project Background

The applications for mobile AR in education are increasing rapidly and feasibility of mobile AR has increased due to advances in mobile technology (Khan, et. al., 2019; Köse & Güner-Yildiz, 2021; Theodoropoulos & Lepouras, 2021). Aforesaid Augmented Reality has been more accessible lately compared to generation Z.

The use of technology in the learning process cannot be separated but need to be used wisely in order not to harm. Following the development of education in the world should be the purpose of education in this modern world, rather than a dependence on the knowledge and static systems (Roopa, et. al., 2021). Likewise, students are expected to use technology to support their success in the academic field (Kim & Lee, 2021). Like said, student's generation Z prefers to use technology than peer to peer discussion especially on an education basis. In order to adopt current trend teachers as knowledge transmitters requires to improvise their knowledge in technology and produce creative contents.

Most of the school have been confronted with a sudden and unprepared shift to online teaching to respond to the need to continue teaching and learning activities and to engage and motivate students when social distancing measures are in place. The transition can be decomposed into several interconnected dimensions that impact the feasibility and the quality of the distance learning provided (Lumbe, et. al., 2021; Shorbagi, et. al., 2021). Aforesaid, happened due to unawareness of covid-19 and took unpredictable time to cure purely.

Utilization of Information Technology as a learning for visual art education (VAE) can be through the use of the internet in e-Learning and the use of computers as interactive media. The use of this media can stimulate the thoughts, feelings, interests, and concerns of students so that the learning process can occur. Learning activities are more effective because the use of learning media enables the overcoming of obstacles in the teacher-student communication process such as physiological, psychological and environmental barriers (Ghavifekr & Rosdy, 2015; OECD, 2016; Alam, 2019).

By sourcing the interactive application of AR Wood Carving Art tends to help manufacture new path to make an exploration of contributions on figures including the types, techniques, and processes of producing local wood carvings in a realistic way and provide significant effort to expand student reference material which is not only limited to the use of KSSM Form 4 Visual Arts Education textbooks that have been published that can be referenced either in print or digitally.

Visual Arts Education is one of the finest and enthralling subjects for Arts group students. According to Malaysian curriculum system, Standard Based Curriculum for Secondary Schools (KSSM) and Primary Schools (KSSR) registered students suggested to enroll respective subject to enhance into the visual arts knowledge. Purpose of teaching this subject is to provide opportunities for students to cultivate interest, develop personality, provide awareness and sensitivity to values the arts and environment. Wood Carving Art chapter embedded into Visual Arts Education subject of Form Four in chapter seven.

Wood Carving Art is a form of sculpture in which a flat piece of wood is carved to reveal the illusion of a three-dimensional form. The process begins with a design from the wood carver's imagination (Fortuna, 2019). Wood Carving Art is part of the handicrafts that exist in line with other design art forms, heritage that has the valuable and skills and knowledge that can be applied in various forms of stuff around us (Kamarudin, et. al., 2020).

Students will learn Wood Carving Art in simple and realistically by integrating with Augmented Reality Technology. Therefore, the aim of this

research paper is to discuss the development of Augmented Reality application to Wood Carving Art from syllabus of Form 4.

Main keywords used in this project are Augmented Reality, Wood Carving Art and Visual Arts Education. Future belongs to Augmented Reality whereas an effective platform to educate knowledge and improvise imagination and advanced thinking skills. Besides that, enables to show craft in 3 Dimensions vision. The interactive application of AR through digital technology is capable of accessing the marketability of wood carving products in the local market to the global market in an effort to generate national economy. This is in line with the National Timber Industry Development Strategic Plan for the period 2021-2030 which covers various aspects in an effort to uphold and strengthen the wood carving industry in Malaysia.

Visual Arts Education is an approved subject by the Ministry of education in Malaysia for primary and secondary school. Mentioned subject aims to improve students' creativity and innovative techniques. Finally in the Visual Arts education subject for Form 4, Wood Carving Art is one of the chapters included in the syllabus. Impact on the achievement of Sustainable Development Goals (SDG) covering local, national and regional levels because local wood carving art products have been recognized as local heritage craft art. Joint venture with Adiguru Abd Muhaimin bin Hasbollah, world-class wood carving activist for active participation in competitions and representing Malaysia at international level has been recognized by the Government of Malaysia which has been awarded the letter as Adiguru Kraf Wood Craft Field on 30 January 2020.

## 1.2 Problem Statement

Students need to have technology access as the primary indicator of the online learning readiness. As students also take their learning independently, instructors may also need more time to design their content delivery effectively as learners will most definitely be facing technical and adapting difficulty. Highlighting a report from UNESCO reported that over 87% of the world's student population from more than 160 countries were impacted by the lockdown.

In Malaysia, this unprecedented crisis has provided an opportunity to improve online education for almost 5 million school students and 1.2 million university students (Kamal, at. al., 2020)

Foremost teachers as intermediaries deliver teaching and students as recipients of learning content need to have a paradigm shift to accept new scenarios in order to be literate on digital technology. Therefore, to adapt to a new environment and deliver structure content on mark is impractical. Aforesaid, an appropriate presentation tool is essential to convey importance and syllabus of art carving in 3-Dimensional. AR helps students to visualize objects realistically and improve imaginary skills.

Besides that, the global crisis following the outbreak of the Covid-19 epidemic warns against the readiness of the teaching and learning process (PdP) through a virtual gateway. The limitations of conducting activities outside the classroom are not an excuse because teachers can take students to visit certain locations in addition to making explorations a closer look at the study subject through the interactive AR application developed.

By integrating AR into wood art carving, learning applications can be used to teachers or self-learning by students to uphold lessons. To build an application requires your own devices via Augmented Reality application for better understanding and knowledge.

### 1.3 Objectives

The purpose of this project is to develop an interactive application of Augmented Reality that can be used as a tool to support online learning in industry 4.0 environments.

### 1.4 Scope and Limitations

Scope and limitations in this project are as follows:

1. This project develops an Augmented Reality application for learning about wood carving art in Form 4 who enroll in Visual Arts Education subject in secondary school of Malaysia.
2. Augmented Reality application is to be developed by using Unity 3D and Vuforia.
3. Creation of every art might be a stand-alone approach to unite in a single frame, android studio will be use to centralized application.
4. Marker-based Augmented Reality are proposed to visualize the image from paper to realistically.

### 1.5 Project Significance

Augmented Reality mobile application intended to help teachers and students to lubricate the teaching and learning process. Since covid-19 possibilities for face-to-face class seems impractical and virtual classes are not effective as face to face. By developing this application delivery of planned teaching aids would be more innovative, straightforward and effective. Teachers as a source of information deliverable would find more content to carry through effectively using this application.

Moreover, this application will support and follow the industrial revolution 4.0 to distribute successful educational transformation in context of syllabus, delivery innovative pedagogy and management in education to produce highly intellectual and analytic thinking graduates.

### 1.6 Project Report Outline

The report contain five chapters. The project background, the problem statement, the objectives, the project limitations, the project benefits describes in Chapter 1. While Chapter 2 describes the literature relevant to the project, which includes the types of Augmented Reality, tools used for developing an Augmented Reality, Augmented Reality in education, carving arts in visual arts education, ADDIE model and related works.

Chapter 3 describes chosen methodology to complete the project with appropriate formula and practice, and it includes hardware and software specifications and research instruments that used for the development process.

Testing and evaluation by target user describes in Chapter 4 while Chapter 5 describes some summaries deduced from the result of Chapter 4. Chapter 5 included project summary, contribution, and suggested future work.

