

Using Augmented Reality (AR) in Creating Digital Art Magazine to Promote Malaysian Arts

An Augmented Reality Mobile Application in magazine to Promote Malaysian Arts

Nur Atiqah Adzra Binti Norizan
Creative Multimedia Section
Universiti Kuala Lumpur

Malaysian Institute of Information Technology (MIIT)
atiqah.norizan@s.unikl.edu.my

Zuriani AB Ghani
Creative Multimedia Section
Universiti Kuala Lumpur

Malaysian Institute of Information Technology (MIIT)
zuriani@unikl.edu.my

Abstract—Malaysia is a country full of Malaysian artists that draws the heart of Malaysia into spectacular painting and people need to appreciate it with full of concentration and open minds and observe it. Augmented Reality Mobile Application was developed for this research. Augmented Reality has existed in around the world and it became useful for many industries to be achieved. Therefore, in order to appreciate the art and the artist achievement is to develop magazine for Malaysia and to exist an Augmented Reality (AR) app in creating digital art magazine in Malaysia. It is developed as an approach to make life easier and to attract younger generation in Malaysia as an era nowadays people used smartphones around the world as it become important in daily life. The research methodology used ADDIE model and the testing has been conducted with 48 respondents. Based on the results, it shows that the user have heard of Augmented Reality (AR) before and majority of people has strongly agreed of the contents that bring arts come alive and majority has most agreed to continue Augmented Reality (AR) in the future.

Keywords—Augmented Reality; Arts; Malaysia; digital art magazine; application

I. INTRODUCTION

Nowadays, there are many platforms and media that promote Arts such as displayed the arts on gallery or showcased on internet and produced audio and video promotional commercials. The common promotion contents are mostly in art galleries and display with a price tag. However, traditional artwork made by Malaysian artist is less appreciation and less concentration. With Augmented Reality attract more people to appreciate more about arts.

Augmented reality (AR) has been around in an era after Virtual Reality has born. Most of the people aware the familiarity of Augmented Reality (AR) and aware that it changes life and make life easier than Virtual Reality. In addition, virtual reality (VR) technology used special equipment to immerse ourselves into the artificial world used goggles and one of the famous industries produced Samsung that made a special headset or goggles called Samsung Gear VR for Virtual Reality (VR).

However, it is required to produce an application that could merge the contents such as 3D models on printed media with interacting, engaging technology such as Augmented Reality (AR). The printed media for this application is magazine. Therefore, this research is to aims the existing of Augmented Reality (AR) in creating Digital Art Magazine to promote Malaysian Arts. Magazine is a marker for Augmented Reality (AR) application. The application applied the techniques of marker tracker to work together the Augmented Reality (AR) technology with the printed media.

Therefore, the objectives of this study are:-

- To develop an Augmented Reality Magazine of Malaysian digital arts.
- To promote the existence of Malaysian digital arts using Augmented Reality magazine.

A. Problem Statement

Art is one of the highest achievements of the human mind and it should be appreciated and love. Art is including as knowing, understanding, recognizing, and appreciating. Art make Malaysia become the exceptional and unique. Besides that, people often forget the existence of art and their perception is lost due to mobile phone that has become a very important in life where their eyes only sees on screen as they should be appreciate art. People lack of knowledge on arts. With an Augmented Reality (AR) mobile application can make the art come alive with 3D content with buttons and animations and it draw people to appreciate more about arts using smartphones in real time.

II. RELATED WORKS

Augmented Reality (AR) Mobile application has been used in a lot of industries and it has become the center of media and uses modern technology to collect data and images in a real world in real time. One of the famous game industry has created Augmented Reality (AR) Mobile application called Pokemon Go that became the most popular high rated

around the world. This shows that the world need this modern technology to produce traditional arts to come alive.

A. Benefits of Mobile Application

Mobile application is an application that has been used by many people as smartphones are daily needed. It used wireless devices such as smartphones and tablet. Based on majority, the application has its own specialist to help life become easier. Augmented Reality (AR) is also categorized as mobile application. It benefit for educational used and promotional items. Augmented Reality (AR) is a new type of technology application to enhance the effectiveness and attractiveness of the environment.

B. The importance of Art in Digital

Art is a way to express through paintings and it has been an era that made by various artist in this world. However, digital technology allows the artist to create a part that can be seen and appreciated all around the world. Augmented Reality (AR) is a future technology that can turn the art into 3D contents and can bring art around the world so that people appreciated more.

C. 3D Animation in Mobile Application on Magazine

In order to draw people attention is to create digital art magazine using 3D augmented reality application whereas the artwork main object in artwork itself will turn into animated 3-dimensional (3D) with buttons and sound. This shows that people will on journey in time and explain what is the behind story of the artwork.

D. Virtual Reality and Augmented Reality

Augmented Reality (AR) was born after Virtual Reality (VR) that replaces reality of the world. Virtual Reality (VR) is technologies that immerse ourselves into a world using goggles or helmet such as Samsung industry. Augmented Reality is a technology that combines the data, information and images on the real world in real time. Virtual Reality (VR) has already reached the level to create games. Furthermore, augmented Reality (AR) is much easier than Virtual Reality (VR) whereas people always use smartphones rather than wearing goggles. Augmented Reality (AR) provides a tremendous way to exhibits the artwork and brings artwork come alive to attract more people.

E. Case Studies/ Previous Work

1) There are few similar work that used Augmented Reality (AR) application

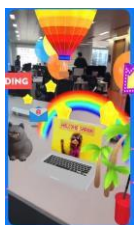


Fig 1: Blippar

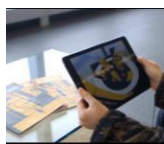


Fig 2: Cover of New Yorker



Fig 3: The development art book to promote Malaysia traditional game

These are the Augmented Reality (AR) application that has been used for this project.

In Figure 1 above shows that the product has used Augmented Reality (AR) application for packaging, brochure, magazine etc. It used markerless where the camera can detect without marker or tracker and it uses computer vision to recognize the world around people.

In figure 2 above shows that the cover of New Yorker magazine brings the images come alive with animation shapes and people of New Yorker.

In figure 3 above shows that the Interactive Augmented Reality (AR) Mobile Application Art Book to Promote Malaysia Traditional Game. The application developed through this research applies a tracker on printed media.

III. METHODOLOGY

In this phase, for this research model will use ADDIE. This part will elaborate on the overall project development. According to (Aldoobie, 2015) ADDIE model is one of the most common models used in the instructional design field for an effective design. ADDIE stand for Analysis (A), Design (D), Develop (D), Implement (I), and Evaluate (E), as shown figure 4 below.

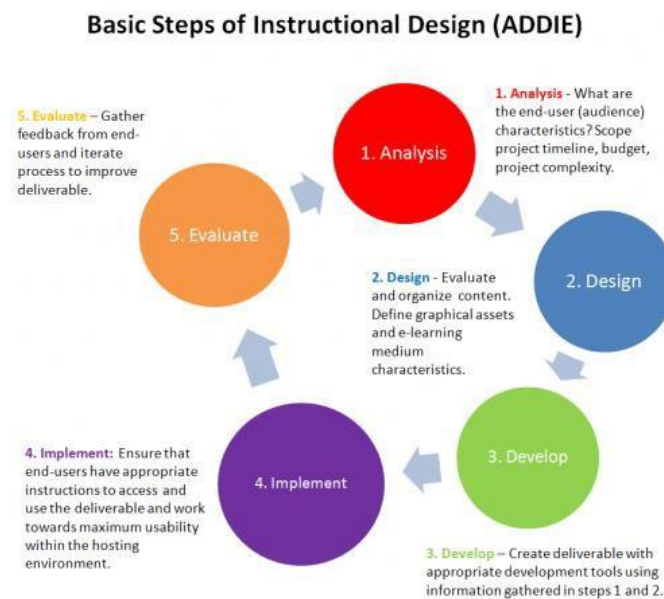


Figure 4: ADDIE Model

1) Analysis

During this analysis phase, it is where the problem found, defined and the solution recommended. To find the step of how to create mobile AR application with a marker is by analysis phase. Furthermore, the analysis included searching a problem statement, the goal and the objectives of the mobile AR application to be created with the content itself. The main focus is on the artwork using magazine as marker. The content

of Mobile AR application has shown below in picture 1.

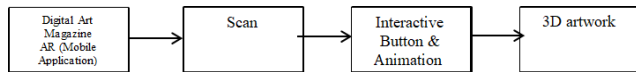


Figure 5: the content of Mobile AR Application

2) Design

During designing phase is where the flow chart has create, the flow of how to visualize the application before finalizing it in the development phase. The storyboard has developed through sketching and decided on screen to make the application work as planned.

Besides that, the design of the content would include button design and the 3D models of every main object from artwork itself with panel design that include full information about artwork.

3) Development

During development stage, the Augmented Reality (AR) will be developed using Unity 3D and vuforia plug-in. Unity 3D is software that can create a mobile application and vuforia Engine is a software development kit (SDK) for creating Augmented Reality (AR) App itself.

In addition, as for 3D modeling created using blender software for 9 artworks. After that, it will be animated and transfer to unity 3D for creating Augmented Reality (AR) application.

4) Implementation

During implement stage, a prototype has been created and the application used in unity software will be exported as android package kit (apk) to be installed in Android mobile. Android is the only option that easy to use for people as many people used android smartphones. The application will be tested in testing phase which is Alpha Testing and Beta Testing. This is to found out to test the functionality of the application to make sure that there are no bugs and errors in programming. The buttons and scene change used coding and to augment 3D models used vuforia.

5) Evaluation

On the last stage, a prototype has been created and questionnaire will be sent out regarding to the augmented reality (AR) application. This is to found out the measure the effectiveness and attractiveness of learning environment for people. All the questionnaire from Malaysian people will be analyze.

IV. DESIGN AND DEVELOPMENT

After the analysis phase where the objectives were found and problems were analyzed has been discussed with the supervisor. The following included from the sketch that is storyboard, a target marker and 3D modeling into an Augmented Reality (AR) application.

A. Flow Chart

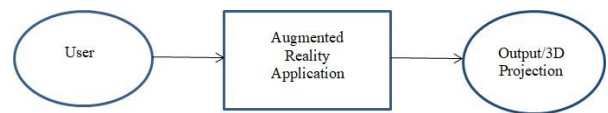


Figure 6: Flow Chart of AR Mobile

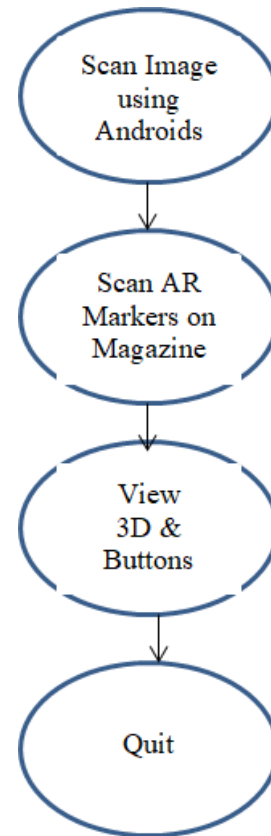


Figure 7: Flow Chart of AR Mobile

From the figure above, in order to make the application worked is to open Android mobile and use the camera to detect the Augmented Reality (AR). The magazine was used as marker to augment 3D models. There are 9 different artworks with 3 different artists. As user aim the camera to an image, it transform to 3D models with animations and the friendly buttons and the panel information of artist statement.

B. Design

To appear the 3D model is to design magazine as marker where the artist artwork are the image markers in magazine page for the Augmented Reality (AR) recognition and tracking of the 3D modeling and others.

1) Finalized Design on Magazine Book

The finalized design of magazine has developed with the right color and the image as marker tracker to augment the 3D models.



Digital Art Magazine

Contents	
01	Artist Biography
	Artwork 06
08	Artwork
	Artwork 10
12	Artist Biography
	Artwork 14
16	Artwork

18	Artwork
	Artist Biography 20
22	Artwork
	Artwork 24
26	Artwork
	Credits 28



Azizul Nasir

He was born in 21 November 1991, Johor Bahru. He started his education in 2009 in Diploma in Art & Design, Universiti Teknologi Mara (Bendu, Melaka) until 2012 Bachelor of Fine Art (Painting) with Honours Universiti Teknologi Mara (Batu Alam).

He started his show around 2017 Art Exponing with G13 Gallery, Selatun. Another show of his artwork at ArtElegi Malaysia Plus 2017 Gallery, Malaysia. His artworks already gone to international art hatch Art Gallery, Singapore.

Ke pantas Sunda

For Azizul Nasir, he took up a romanticist approach, inspired by the Persian poem "the conference of the Birds" by a Sufi poet Farid Ud-Din Attar, he portrayed by men to be represented by the birds on their journey to otherworldly Godliness. This work of art is titled "Ke pantas Sunda" which refers to the Sunda pine that is located within our region of South East Asia.



Langkah Sabi I

Azizul Nasir took a different stance, a rather subtle point of reference, he attempted to visualize the continuity of the Persian poem "The Conference of the Birds" on "Speech of the Bird" to which each bird represents a human fault that hinders them to attain enlightenment or in this case, possibly men. These birds are then embroiled on a voyage to seek for the legendary mythical bird Phoenix to govern them, the continuation of his work of art encapsulates the concept of men on their journey of life towards the transcendent Divinity. This work of Art by Azizul Nasir is entitled "Langkah Sabi" which means "Stepping in the name of god".



Di Penghujung Rasa

This work of art is titled "Di Penghujung Rasa" or by means "The last Bar" which he portrayed a fan for his artwork.



Artist Biography

Syahmi Jamaluddin

He was born in 1982, Batu Pahat, Johor Bahru. He started his education in 2003 in Diploma in Fine Art after finishing, September until 2014 Bachelor Degree (Paint) in Fine Art, Universiti Teknologi Mara (Batu Alam).

He started his exhibition from 2015 until 2022. He achievement for gone in Grand Award, Golden Phoenix, Director's Award, Bronze Award, Most and Most Creative, Perdana Gallery, Kuala Lumpur. He attempt to create an artwork with a representation to deliver the message.

As an artist also, he try to observe more about the subject that he choose including the character, body language, emotion and scene, to create tension and dramatic. Though his artworks are common in outdoor and social concern, he try to deliver the correct with ethics and the word and not too loud.

Looking Notes Policy

In 1962, Malaysia Government launched a policy of looking east that made Japan and Korea as a model country of work ethics. In 2017, based on my observations, the political policies that look place were more about money politics & corruption issue, as a reflection on the issue that he make a look at the Look-Notes Policy.



Calm and Intruders

Calm & Intruders

According to Syahmi, his work done after the end of the PEU, which in the past of his observation was so exciting with the party and also looking for important points to fight against other parties, but after the PEU, the issue arose quite quietly and at the same time, the issue in the administration of the country, there is no foreign intervention because our country has an independent country.

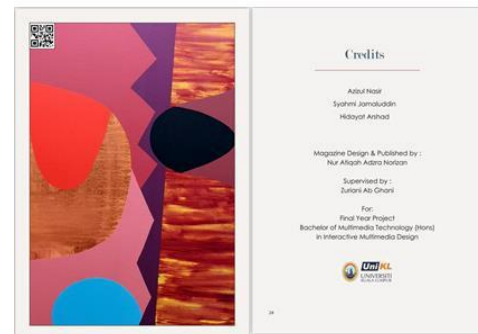


Figure 8: Magazine Book

In figure 8 shows the screen on design of the contents for an Augmented Reality (AR) application. These are the main for the project where magazine developed as marker

2) Finalized Design for Augmented Reality(AR) Application.

In the figure below shows the complete design in Mobile application. There are 4 buttons and panel design shows the artist statement of artworks.



Figure 9: Application in android tablet/smartphone



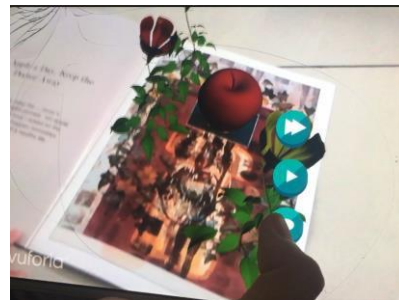
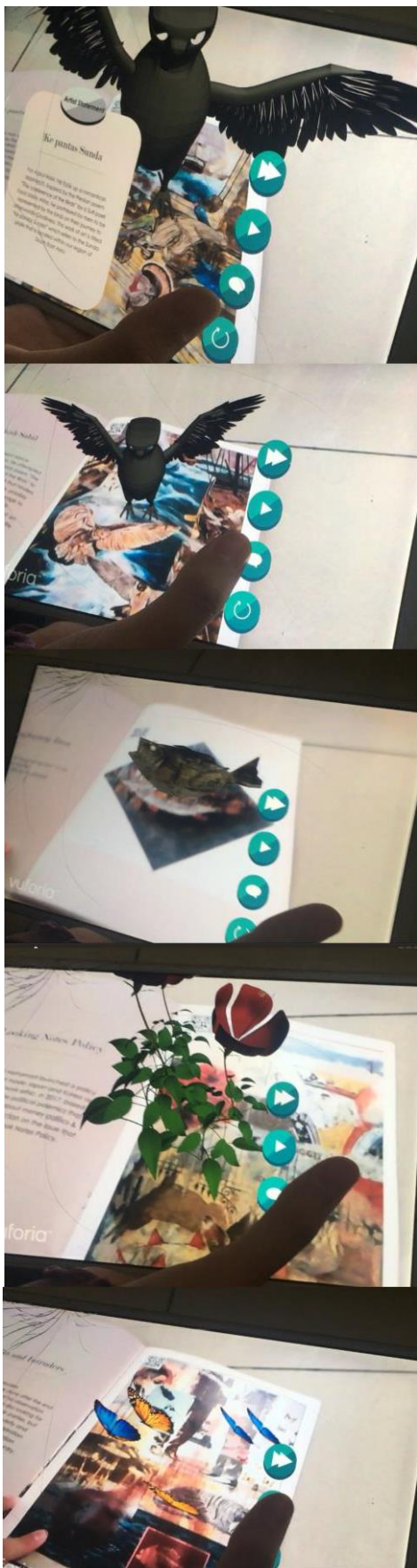


Figure 10: All 3D models in Android Mobile Application

V. TESTING AND RESULT

A) Introduction

Testing was carried out during the development process to Malaysian people. To collect data and feedback from people used a link within online called Google Drive with the video attached in file for them to see.

1) Have you heard Augmented Reality before?

47 responses

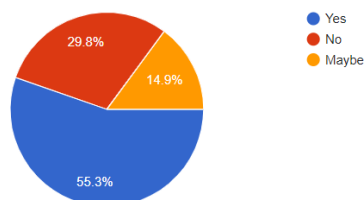


Figure 11: Familiar of Augmented Reality

In figure 11, majority of respondent that choose yes is 55.3 percent that they heard Augmented Reality before in Malaysia and 29.8 percent respondent choose no and lastly 14.9 percent are maybe. This shows that the Augmented Reality (AR) application is familiar with the application.

2) Have you tried Augmented Reality (AR) Application in your mobile?

47 responses

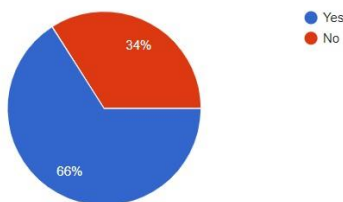


Figure 12: Tried Augmented Reality (AR) application in mobile

In figure 12, majority has responded yes with 66 percent that they have tried AR application in their mobile and 34 percent responded choose no. This is shows that Augmented Reality is among popular around the world and aware the existing of Augmented Reality.

3) Have you seen any art in public using Augmented reality for example: Museum Art Galleries in Malaysia?

46 responses

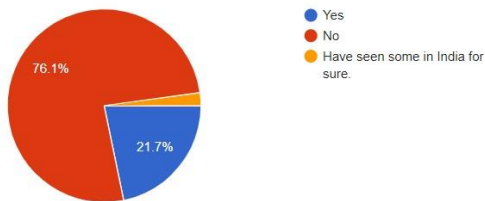


Figure 13: Augmented Reality that exist in Malaysia

In figure 13, the respondents have chosen No in majority with 76.1 percent and with 21.7 percent respondent chose yes. This shows that the application is less familiar in Malaysia and should be exist as it attracts people more.

4) The 3D content bring the Malaysian Arts comes alive.

47 responses

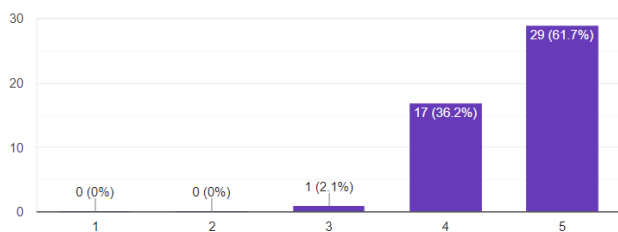


Figure 14: Content 3D design flow

In figure 14 above indicate the respondents chose strongly agreed that the 3D bring the Malaysian Arts come Alive. 61.7 percent strongly agreed that the 3D content bring the Malaysian Arts comes alive and 17 respondents with 36.2 percent is agree and 1 respondent with 2.1 percent is neither agree nor disagree. It shows that the 3D content is interesting to bring art to come alive and draw people attention to appreciate more.

5) The AR application its practical for daily uses, user friendly and handy.

47 responses

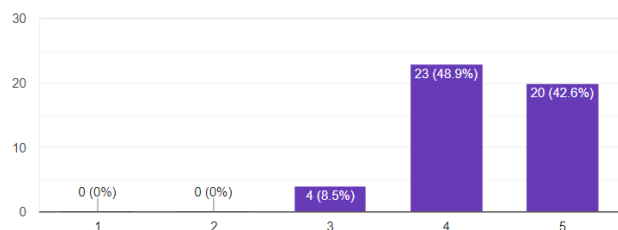


Figure 15: AR Application is practical for daily uses, user friendly and handy.

In figure 15 above shows that majority 23 respondents agreed on practical uses, user friendly and handy. There are 20

more respondents strongly agreed and 4 respondents are neither agree nor disagree. It shows that the application is agreed for its practical for daily uses, user friendly and handy.

6) The AR application won't make people lazier.

47 responses

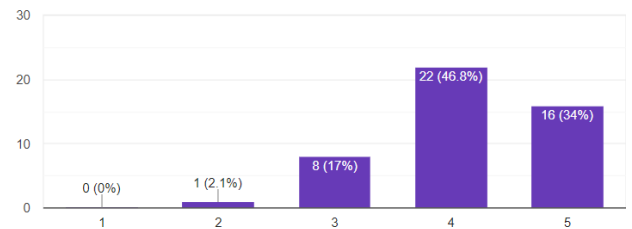


Figure 16: Usability and perception

From figure 16 above indicates the majority of respondents have agreed that the application won't make people lazier. Although 22 respondents with 46.8 percent have agreed where 16 respondents with 34 percent strongly agreed that the application won't make people lazier. Another 8 respondents with 17 percent are neither agree nor disagree and 1 respondent disagree for 2.1 percent. This shows that the AR won't make people lazier.

7) The application should continue using AR application magazine in the future.

47 responses

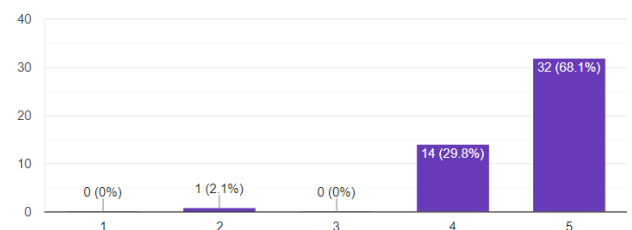


Figure 17: Application used in the future

From figure 17 above shows the majority of respond is strongly agreed to continue AR in the future. 32 respondents with 68.1 percent strongly agreed and 14 respondents agreed with 29.8 percent and 1 respondent disagree with 2.1 percent. It shows that the application is definitely will continue in the future for young generation.

8) Ideas and Opinions about Augmented Reality Application.

47 responses

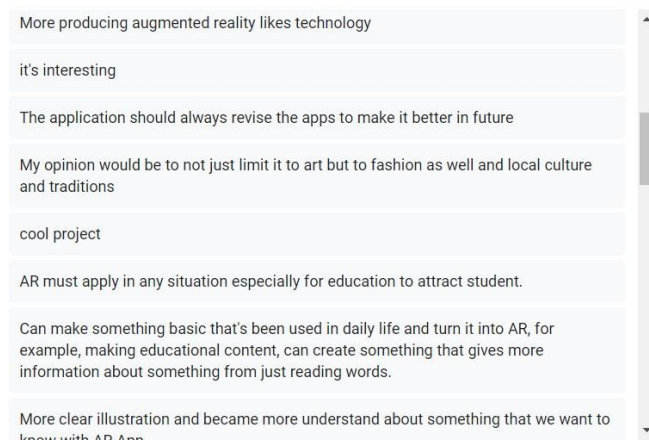


Figure 18: Ideas and Opinions

In figure 18 shows that the respondents gives ideas and opinions. One of the ideas and opinions, respondent suggest to put something basic that been used in daily life for example, making educational content. Another respond was Augmented Reality (AR) must apply in any situation especially to attract student and young children. This shows that the Augmented Reality is interesting and should be exist in Malaysia to attract more people appreciate arts and it is less existent in Malaysia.

VI. CONCLUSION AND RECOMMENDATIONS

Augmented Reality (AR) application has been widely used around the world and it bring a great opportunity for Malaysian Artist to promote their artwork using an Augmented Reality (AR) in Digital Art Magazine. People will amazed and appreciate more to traditional arts. However, for recommendation in the future, it needs to have more

animations on 3D models and more amazing artwork from other Malaysian artist.

This Augmented Reality (AR) application in creating Digital Art Magazine to promote Malaysian Arts has received good feedbacks.

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