

A DEVELOPMENT OF 2D VECTOR BASED ANIMATION THEMED MOTHER'S DAY



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

A DEVELOPMENT OF 2D VECTOR BASED ANIMATION THEMED MOTHER'S DAY

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This report is submitted in partial fulfillment of the requirements for the Bachelor of [Computer Science (Software Development)] with Honours.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY UNIVERSITI
TEKNIKAL MALAYSIA MELAKA

[2021]

DECLARATION

I hereby declare that this project report entitled
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DAY]

is written by me and is my own effort and that no part has been plagiarized
without citations.

STUDENT : _____ Date : 5 September 2021

(AHMAD AMIR BIN OTHMAN)



اونيورسيتي تيكنيكل مليسيا ملاك

I hereby declare that I have read this project report and found
this project report is sufficient in term of the scope and quality for the award of
Bachelor of [Computer Science (Software Development)] with Honours.

SUPERVISOR : _____ Date : _____

(TS. DR. SYAHRIL BIN PARUMO)

DEDICATION

This Year End Project I am dedicated to all mothers around the world. Your sacrifices will not be forgotten. Thank you for giving birth to us, giving us guidance and undivided love. Always protect and take care of us until we grow up. Without a mother, who are we students who make our family, nation and country fragrant. May the sacrifice and kindness of the mother be blessed by the Almighty God.

Aamiin.



ACKNOWLEDGEMENTS

Millions of thanks and many thanks to the supervisor of the Final Year Project, Ts Dr. Shahril bin Parumo who has given me guidance, advice and guidance to complete this project with full dedication.

This appreciation is also addressed to both my parents, Mrs. Siti Zaleha binti Bujal and Mr. Othman bin Md. Jan who gave me too much support and encouragement throughout the course of this study. Not to forget the family, comrades and loved ones who also helped and gave support to complete this project. All your guidance, advice and kindness will not be forgotten.

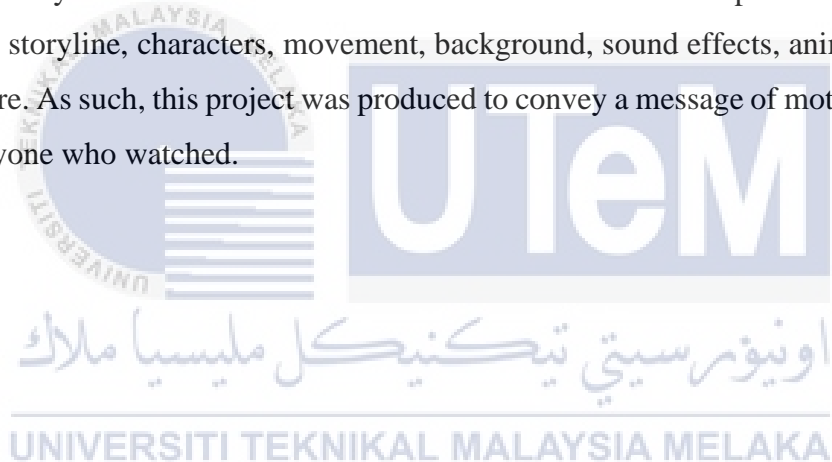
May the study conducted will be blessed by God Almighty.

Thank You.



ABSTRACT

In this very modern and rapid development of technology, various technologies and techniques of animation production have shifted from traditional to modern methods. That is from hand painting methods to digital painting or pixels. Similarly pixels graphics shift to vector graphics that are clearer and smoother. Nowadays, many animations are produced using vector-based. The animations are produced to attract the interest of all groups not only for children, but everyone is very interested in animation regardless of genre. Not only that, animation can also be used as a medium to convey a message and touch the emotions of the audience. The analysis shows that there are several elements needed to produce an animation such as, script, storyline, characters, movement, background, sound effects, animation special effects and more. As such, this project was produced to convey a message of motherly sacrifice and love to anyone who watched.



ABSTRAK

Dalam perkembangan teknologi yang sungguh moden dan pesat ini, pelbagai teknologi dan teknik penghasilan animasi sudah beralih dari tradisional kepada kaedah moden. Iaitu dari kaedah lukisan tangan kepada lukisan digital atau pixels. Begitu juga pixels graphics beralih kepada vector graphics yang lebih jelas dan halus. Pada zaman kini, banyak animasi yang dihasilkan menggunakan vector-based. Animasi-animasi tersebut dihasilkan bagi menarik minat semua golongan bukan sahaja untuk kanak-kanak, malah semua orang sangat meminati animasi tidak kira apa jua genre. Bukan itu sahaja, animasi juga mampu dijadikan medium untuk menyampaikan mesej dan menyentuh emosi penonton. Analisis menunjukkan bahawa terdapat beberapa elemen yang diperlukan bagi menghasilkan sebuah animasi seperti, skrip, jalan cerita, karakter, pergerakan, latar belakang, kesan bunyi, kesan khas animasi dan banyak lagi. Dengan itu, projek ini dihasilkan bagi menyampaikan mesej mengenai pengorbanan dan kasih sayang ibu kepada kepada sesiapa sahaja yang menonton.

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LIST OF ABBREVIATIONS

FYP - **Final Year Project**



CHAPTER 1. INTRODUCTION

1.1 Introduction

Mother's Day is a celebration honoring the mother of the family, as well as motherhood, maternal bonds, and the influence of mothers in society. It is celebrated on various days in many parts of the world, most commonly in the months of March or May. Commercialisation of Mother's Day has definitely come to Malaysia. So you will see huge racks of Mother's Day cards for sale, gifts suggestions in the malls and shops, and numerous public festive events in major cities like Kuala Lumpur. But, the private side of the holiday also lives on, where families simply spend time together and let Mom know they appreciate her.

This 2D animation aims to give awareness of a mother's love for us. In addition, the animation can attract the audience to watch this short animation by all ages. Next, in Malaysia there has never been an animation company that delivers a message through a short 2D animation, so I would like to convey a message by producing a 2D animation that is able to impact the audience.

The expected outcome is that the audience will take lessons from the message conveyed from the 2D animation themed Mother's Day in addition to the delivery of the message through this 2D animation will enhance the story to be more captivating and beautifully grabs the emotions when presented to the audience.

1.2 Problem statements

The development of this 2D vector based animation aims to give awareness of a mother's love for us. In addition, the animation can attract the audience to watch this short animation by all ages. Next, in Malaysia there has never been an animation company that delivers a message through a short 2D vector based animation, so I would like to convey a message by producing a 2D vector based animation that is able to impact the audience.

1.3 Objectives

- i. To investigate 2D vector based animation technique in message delivery about mother's love and sacrifice.
- ii. To produce a 2D vector based animation in conjunction with Mother's Day.
- iii. To assess the effectiveness of vector based animation technique in message delivery mother's love and sacrifice.

1.4 Scope

This Mother's Day themed 2D animation gives a deep message to the viewers who watch this animation. Therefore, it will make the audience aware of the value of a mother's love and sacrifice in raising and educating her child to become an excellent human being in the future. Other than that, this 2D animation will grab the audience's attention and share the same feeling as what is presented in this 2D animation.

1.5 Project Significance

The parties that will benefit from this project are the sponsors to promote their products in this animation. The contribution from this project is that it gives awareness to young people, especially those who still have mothers, to appreciate mothers as long as they are alive.

1.6 Conclusion

The expected outcome is that the audience will take lessons from the message conveyed from the 2D animation themed Mother's Day in addition to the delivery of the message through this 2D animation will enhance the story to be more captivating and beautifully grabs the emotions when presented to the audience.



CHAPTER 2. LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

In this chapter, the researcher will review and explain about the effectiveness of animation in conveying the message and make the audience aware of the great sacrifice of a mother in caring for and raising children. Next to study whether the delivery of the message through animation can attract the attention and emotions of the audience as well as understand the content presented in an animation.

2.2 Domain

The domain I chose for this project was Mother's Day themed 2D Vector -Based Animation Development. What is 2D vector animation? 2D vector animation is the term often used when referring to traditional hand-drawn animation, but it can also refer to computer vector animations that adopts the techniques of traditional animation.

Vector-based animations, meaning computer generated 2D animations, uses the exact same techniques as traditional animation, but benefits from the lack of physical objects needed to make traditional 2D animations, as well as the ability to use computer interpolation to same time.

This 2D animation aims to give awareness of a mother's love for us. In addition, the animation can attract viewers to watch this short animation by all ages. Next, in Malaysia there

has never been an animation company that gives orders through short 2D animations, so I want to deliver orders by producing 2D animations that can make an impact on the audience.

2.3 Existing Animation

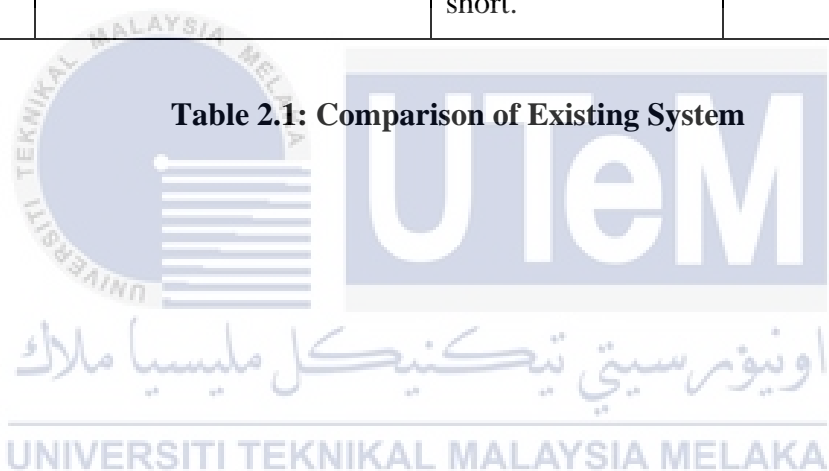
2.3.1 Comparison of Existing Animation

The purpose of the comparison between existing animation is to analyse the differentiation of those animation. The aspect that will be compared is in terms of animation style, animation quality, advantages and disadvantages

Title	A Day of a MOTHER - 2D Animated Short Film	2D Animation - Mother's Day	Mother's Day Short Animation
Channel	Dream2Animate	Sewaro Entertainment	Gilang arik
Source	YouTube	YouTube	YouTube
Target Audience	Everyone	Everyone	Everyone
Language	English	English	English
Duration	1:14 Minutes	0:36 Seconds	1:51 Minutes
Animation Style	Digital Drawing Based	Vector Based	Digital Drawing, Vector Based
Animation Quality	Medium	Low	High
Uploaded	15 May 2017	12 May 2021	21 December 2016
Likes	94 Likes (26 Jun 2021)	1 like (26 Jun 2021)	1.6K Likes (26 Jun 2021)
Dislikes	2 Dislikes (26 Jun 2021)	0 Dislikes (26 Jun 2021)	77 Dislikes (26 Jun 2021)
Views	4,782 Views (26 Jun 2021)	11 Views (26 Jun 2021)	116,374 Views (26 Jun 2021)

Subscribers	6.33K Subs (26 Jun 2021)	4 Subs (26 Jun 2021)	265 Subs (26 Jun 2021)
Comments	5 Comments (26 Jun 2021)	0 Comments (26 Jun 2021)	25 Comments (26 Jun 2021)
Advantages	Have message about mother's sacrifice, Have background music	Have background music, Use cloud dialog	Good animation, Have message about mother's sacrifice, Have background music
Disadvantages	Lack of dialog and voiceover	Lack of dialog and voiceover, Unclear message, Video too short.	No dialog and voiceover

Table 2.1: Comparison of Existing System



A Day of a MOTHER - 2D Animated Short Film



2D Animation - Mother's Day



Mother's Day Short Animation



2.4 Project Methodology

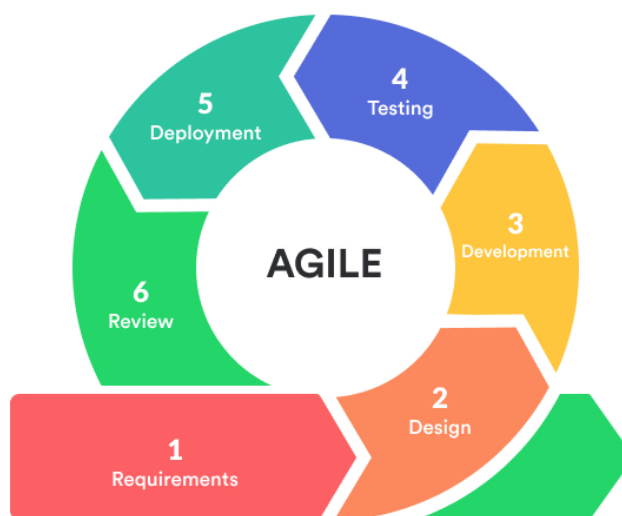


Figure 2.5: Waterfall Methodology

On this topic will be explained in detail about the methodology used to produce animation. The methodology used is Agile Methodology. Agile methodology is a project management methodology characterized by building products using the short work cycles required for rapid production and continuous review.

The first phase in the Agile Methodology is conditional, made to find information on Mother's Day and the history of Mother's Day in Malaysia. Check out animated videos on the YouTube website about 2D animation and Mother's Day themed 2D animation. Then some other requirements are required such as software requirements and hardware requirements. Various software is required to produce animations such as MS Powerpoint, Premiere Pro CC 2019, Audacity and so on. Tools such as laptops are also required for software.

The next phase is. This phase is made based on the needs that have been known for sure in the first phase. During this phase, writing the script and storyline are the initial steps to producing the animation. Next are the characters, models, scenery and backdrops that fit the storyline. The next step is to make a storyboard to get a clear picture and fit the Mother's Day themed storyline.

In the development phase, animations are generated based on the storyline and storyboards created in the previous phase. At this phase, all characters, scenes and backgrounds have been loaded with color effects, movements and solutions will be created. The finished scene will be compiled and exported as MPEG-4. The compilation will be by including background music, sound effects and subtitles.

The next phase is testing. The testing phase is done after all the development processes are done. This phase helps in detecting faults and shortcomings in animation production. This phase needs to be done to find out the edits that have been made before exporting according to the planned format. It also requires the end user for the final product once the last phase which is the maintenance phase can take place. The final phase is where modifications, or improvements are made to meet the objectives of the project.

2.5 Project Requirements

2.5.1 Software Requirement

- i. Microsoft Powerpoint
- ii. Wacom Software
- iii. Adobe Photoshop
- iv. Adobe Premiere Pro
- v. Audacity
- vi. Paint

2.5.2 Hardware Requirement

- i. Laptop
- ii. Wacom Drawing Pad + Wacom Drawing Pen
- iii. USB Mouse

2.6 Conclusion

In conclusion, to produce this animation, various processes need to be emphasized in order to successfully produce this animation. There are seven methods used to produce this animation, namely gathering info, concept & writing a script, voiceover recording, next is storyboarding, visual style, type of animation, lastly is music. To support the production of this animation, software and hardware are also used such as Adobe Animate CC, Powerpoint, Audacity, Photoshop. For the hardware used is a laptop, Wacom drawing pad and USB Mouse.



CHAPTER 3. ANALYSIS

3.1 Introduction

Analysis is an important chapter in existing strategies. At the time, the analysis required analysis in the investigative techniques used, as well as the objectives of the study, the nature, and intoxication of the presentation. This section will problem and prerequisite investigation of the task. For the production of an animation, the storyline must be clear so that the animation presented can be well understood. Not only that. The background, the appropriate sounds and the characters need to be in line with the theme. Hardware and software requirements play an important role in producing an animation. Without clearly identifying needs, the resulting animation will be problematic and not work well in the real world.

3.2 Current Scenario Analysis

The results of a search of selected Mother's Day -themed 2D animated videos found from the YouTube.com website showed many shortcomings in terms of presentation and storyline. With that, those shortcomings will be improved into the animation that will be produced.

3.3 Requirement analysis

Requirement analysis is a way to characterize the resulting desires depending on the needs of the effort to be made.

3.3.1 Project Requirement

The animations to be developed are checked in the project requirements. It will describe actions, procedures, or other conditions that must be met by the project. It will be evaluated based on the gathered requirements and the basic methodology of the project. The requirements of the project will include a clear understanding of the tasks that must be completed.

3.3.2 Requirement Gathering

Requirement gathering is often the most important action that needs to be taken in the presentation and compilation of data. There are two types of collecting requirements: qualitative and quantitative. Subjective assessments express risks, expenses, and affect the use of terms or relative properties. If there is not enough time, resources, or data to perform a quantitative assessment, a quality assessment is required. All project timelines, storylines, scripts, characters and raw data for the design will be discussed in the requirements collection. Specific techniques used while developing this project will also be analyzed. The results of the analysis will be donated to the development of animation.

3.3.3 The project specification

Project specification is a detailed description of the animation produced. The details found in this animation project are such as duration, frame rate, sound mix, color, language and aspect ratio.

3.3.4 Identify the proposed storyline that will be developed.

In a literary work, film, story or other narrative, a plot is a sequence of time in which each of which influences the next through the principle of cause and effect. Plot causal events can be thought of as a series of events connected by “and so on” connectors. Plots can vary from simple - as in traditional ballads - to form interconnected structures, with each section

sometimes referred to as a subplot or imbroglia. In general usage (“movie plot”), content, this can mean a summary of a story or a synopsis, not a specific sequence of causes.

For this animation, the storyline introduced is initiated with the introduction of the character by the background voice, then conflicts occur between the characters narrated by the narrative voice. Next is an explanation of the scene that takes place by the narrative voice. Finally, fast forward storytelling to the future and a beautiful ending.

3.3.5 Analyse the raw data/source for the design and development

The ideas and inspiration came from a search of the youtube.com website. Various examples of animated videos were played and observed so that ideas were obtained from the searches. Backgrounds are obtained from the freepik.com website which provides various vector graphics that can be downloaded for free and paid. The characters produced are inspired by Family Guy animations and various other animations. The characters produced are human characters who have round eyes, fair skin, dark hair and wear makeup and jewelry. The resulting characters have emotions and facial reactions such as grumpy, angry, happy, and calm.

3.3.6 Software Requirement

Software is an important aspect in the production of an animation

No	Software	Usage
1.	MS Powerpoint 2019	-Used to creating vector character, graphic and animation
2.	Adobe Premiere Pro CC 2019	-Used to editing video and adding voice and sound
3.	MS Word 2019	-Used to write report and documentation

4.	Paint	-Used to resizing and cropping graphics
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Table 3.1: Software Requirement and Usage

3.3.7 Hardware Requirement

Hardware plays an important role in application development. This will be in addition to the software. The software determines which hardware to use. It will be selected if the hardware can support the software requirements. Hardware is very important because it will serve as a platform for the project, and its function will determine how quickly it can be completed. The hardware, as well as its specifications and functions, are listed below.

No	Hardware	Usage
1.	Huawei Matebook D15	- (Operating System- Windows 10 Home Edition 64-bit) - (Processor- AMD Ryzen™ 5 3500U Mobile Processor) - (Graphic- Radeon™ Vega 8 Graphic) - (RAM- 8GB DDR4 2400MHz)
2.	Wacom tablet	- To editing or touch up image
3.	External Hard Disk	- To backup all project data

Table 3.2: Hardware Requirement and Usage

3.3.8 Others Requirement

Others Requirement is also an important aspect to support in the successful production of an animation

No	Other	Usage
1.	Storyboard sheets	- Used to sketching storyboard

2.	Notebooks	-Used to writing some useful information
3.	Drawing Pencil	-Used for sketching and drawing
4.	Mechanical Pencil	-Used for writing, sketching and drawing

Table 3.3: Other Requirement and Usage

3.4 Project Schedule and Milestones

This section will explain the timetable and achievements of the effort. Assignments are performed in one semester consisting of fifteen (15) weeks. Executing timelines and achievements are important and crucial and should be well-aimed to ensure the task can achieve its goals. The table below shows the project schedule and the achievements of this project.

No	Task	Week														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Brainstorming															
2	Proposal															
3	Project Preparation															
4	Analysis															
5	Testing															
6	Development															
7	testing															
8	Development															
9	Implementation															

10	Testing																									
11	Documentation																									
12	Final Preparation																									

Table 3.4: Project Gantt Chart

Activity Description	Duration (Working Days Only)	Start Date	End Date
1. Brainstorming	7 days	29/1/21	14/2/21
1.1 Select project title	4 days	29/1/21	1/2/21
1.2 Find the information related the title	3 days	2/1/21	4/2/21
2. Proposal	13 days	5/2/21	17/2/21
3. Project Preparation	13 days	18/2/21	2/3/21
3.1 Install the needed software	4 days	18/2/21	21/2/21
3.2 Learn how to use the software	9 days	22/2/21	2/3/21
3.1. Analysis	14 days	3/3/21	16/3/21
3.1.1 Describe project background	2 days	3/3/21	4/3/21
3.1.2 Identify target user	1 days	5/3/21	5/3/21
3.1.3 Identify project significance	1 days	6/3/21	6/3/21
3.1.4 Define literature review	5 days	7/3/21	11/3/21
3.1.5 Identify project methodology	2 days	12/3/21	13/3/21
4.1 Design 2D object	15 days	17/3/21	31/3/21
4.2 Modelling 2D object	15 days	1/4/21	15/4/21
4.3 Develop scene	15 days	16/4/21	30/4/21
4.4 Integrate object into Animate	16 days	1/5/21	16/5/21
4.5 Develop user interaction	16 days	17/5/21	1/6/21

5. Testing	7 days	2/6/21	8/6/21
6. Development	7 days	9/6/21	15/6/21
6.1 Edit scenes	4 days	9/6/21	12/6/21
6.2 Improve the interface	3 days	13/6/21	15/6/21
PSM 2			
7. Development	28 days	16/6/21	13/7/21
8. Implementation	7 days	14/7/21	20/7/21
9. Testing	7 days	21/7/21	28/7/21
9.1 Testing	4 days	29/7/21	3/8/21
9.2 Evaluate	4 days	25/8/21	29/8/21
9.3 Publish	1 days	25/8/21	25/8/21
10. Documentation	14 days	26/8/21	4/9/21
11. Final Preparation	21 days	9/8/21	29/8/21
11.1 Make correction of project report	34 days	28/7/21	1/8/21
11.2 Submit project report	1 days	3/9/21	3/9/21
11.3 Present final project	1 days	3/9/21	3/9/21
11.4 Finalize project report	1 days	3/9/21	3/9/21
11.5 Submit final project report	1 days	3/9/21	3/9/21

Table 3.5: Project Milestone

3.5 Conclusion

The conclusion of this chapter is that, in order to successfully produce an animation, various requirements are required to produce this animation. Among them are software and devices such as laptops, drawing pads, mice, microphones, editing software, animation software, voice recorders and many more. In addition, analysis also needs to be done to assist in the production of animation. Next, various initial steps are required before starting this project such as brainstorming, writing a proposal, making a storyboard, writing a script, analysis, development and so on to complete this animation.

CHAPTER 4. DESIGN

4.1 Introduction

This chapter describes the results of the study conducted in the previous chapter. The design phase encompasses a variety of advances in terms of learning objectives, assessment tools, preparation, and training. The animator will compose and arrange the scene during the animation phase. It is based on project concepts and ideas. Animators will get a basic layout of what to add to the storyboard by creating sketch, layout, and design ideas. This animation process will be described further in this chapter.

4.2 Scene Sequence Diagram (Video / Animation)

Scene sequence diagram is the arrangement of scenes in an animation production project. The arrangement is necessary to smooth the course of the story so that the story told can be understood clearly. Below is the arrangement of the resulting scene.



Figure 4.1: Animation Sequences

4.3 Preliminary Design

Preliminary design is the original design of the animation roughly in the production phase. The initial design includes such as storyboard, characters, script, and background. The initial design was produced through sketching using digital drawing pad device, pencil, art pen and paper.

4.3.1 Storyboard Design

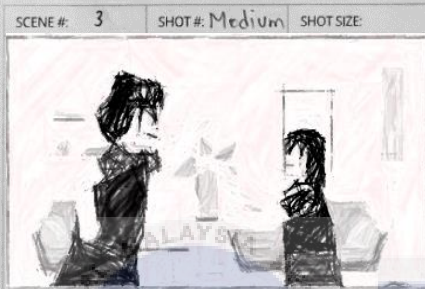
For animation or video required cinematography, type of shot, plan, script, running sheet and shot list. Down below is the sketch of storyboard together with number of scenes, shots and descriptions.



Character Introduction (Daughter)



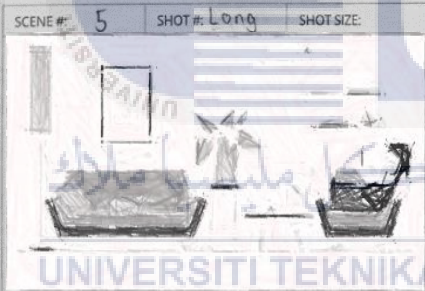
Character Introduction (Mother)



Daughter and Mother arguing



Mother working.

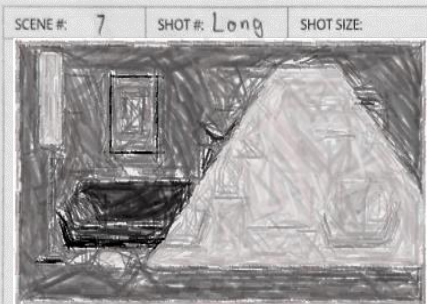


Daughter alone at home

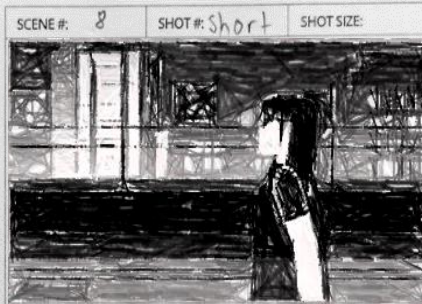


Daughter alone at home

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Shows nobody at home.



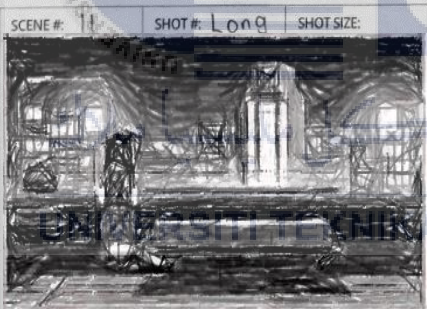
Daughter out for walking night.



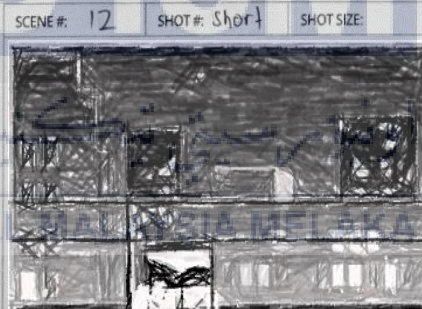
Mother scolding daughter



Daughter being scolded

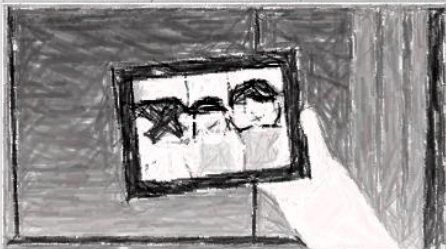


Daughter at the park.



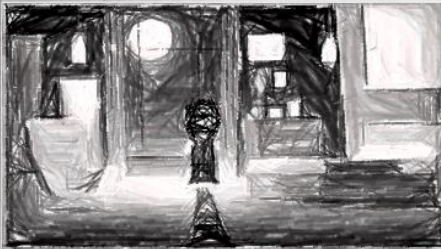
Daughter looking at phone.

SCENE #: 13 SHOT #: Short SHOT SIZE:



Mother looking at family picture

SCENE #: 14 SHOT #: Long SHOT SIZE:



Mother standing at the window in bedroom

SCENE #: 15 SHOT #: Medium SHOT SIZE:



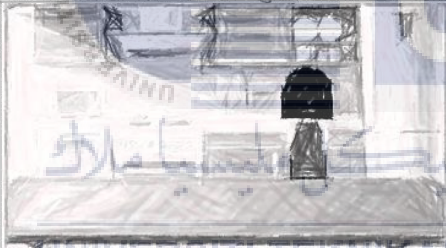
Daughter working

SCENE #: 16 SHOT #: Long SHOT SIZE:



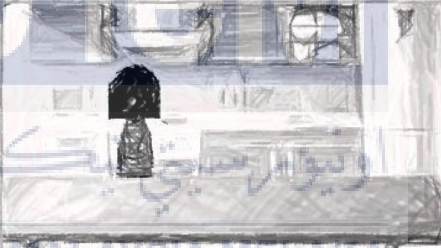
Daughter do walking to laundry room

SCENE #: 17 SHOT #: Long SHOT SIZE:



Daughter do the dishes

SCENE #: 18 SHOT #: Long SHOT SIZE:



Daughter cooking.

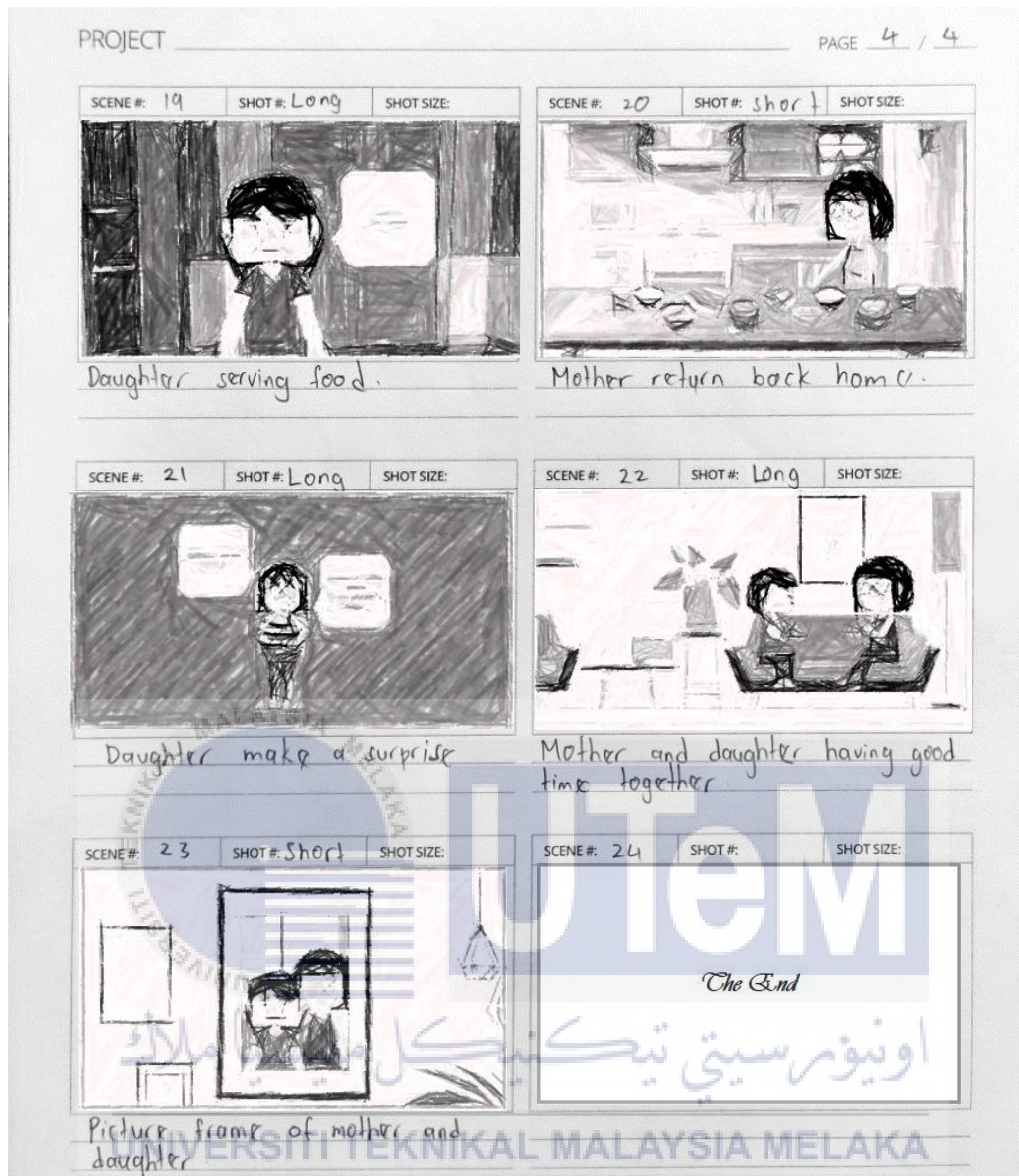




Figure 4.2: Storyboards

4.3.3 Characters Profile

Below is the characters profile that perform in this animation

	Name	Jasmine
	Age	17 Years Old
	Gender	Female
	Physical Attribute	Medium Height and Weight
	Characteristics	Emo Grumpy Need mom's love
	Name	Jasmine
	Age	26 Years Old
	Gender	Female
	Physical Attribute	Medium Height and Weight
	Characteristics	Change to good side
	Name	Sara
	Age	37 Years Old
	Gender	Female



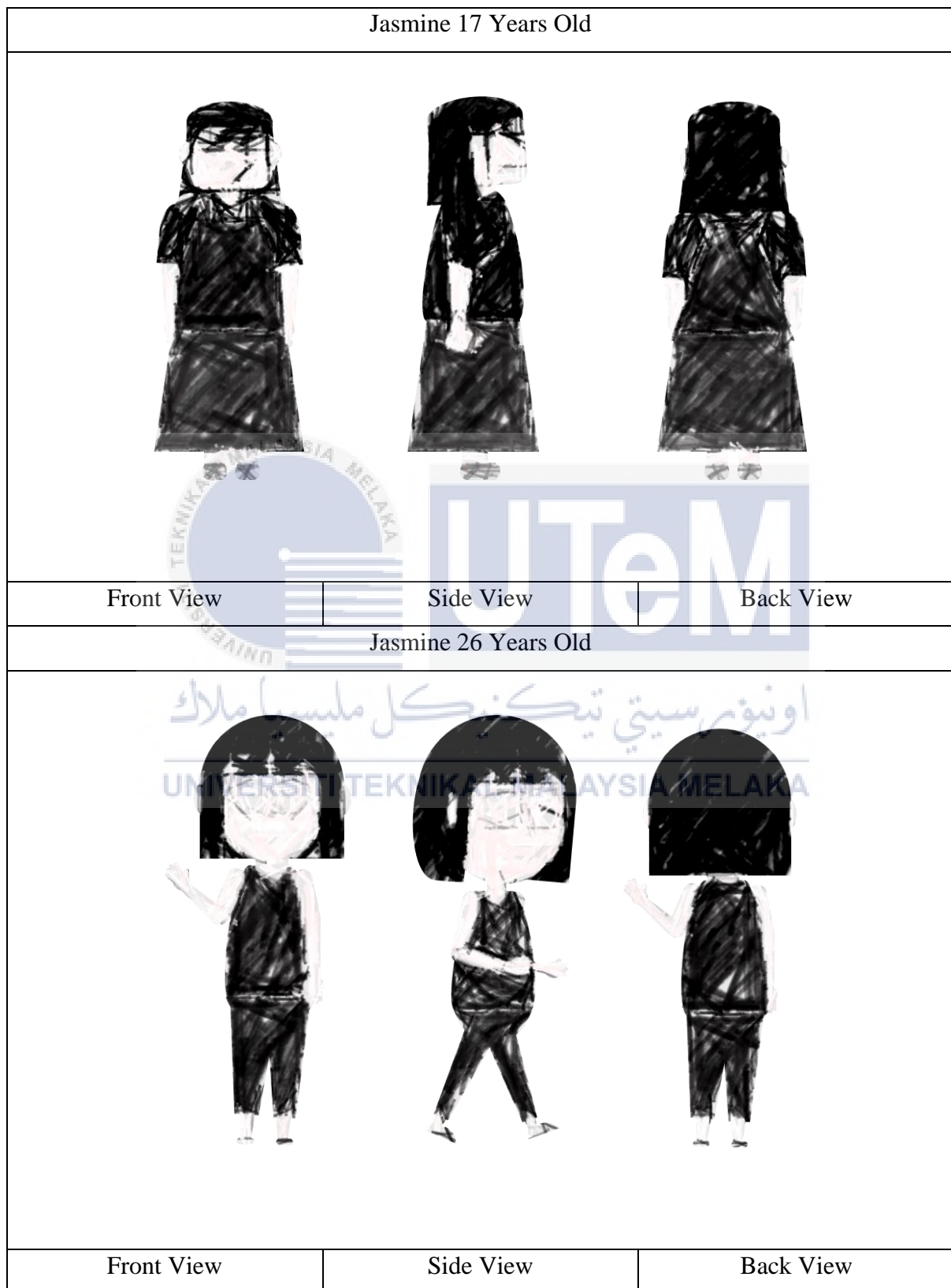
	Physical Attribute	Medium Height and Weight
	Characteristics	Jasmine's Mother Single Mother Hardworking Mother Love Her Daughter
	Name	Sara
	Age	46 Years Old
	Gender	Female
	Physical Attribute	Medium Height and Weight
	Characteristics	Jasmine's Mother Single Mother Retired Mother Love Her Daughter

Table 4.2: Characters Profile

4.3.4 Characters Sketch

Below is the sketch of characters front view, side view and back view.









Sara 37 Years Old		
		
Front View	Side View	Back View
Sara 46 Years Old		
		
Front View	Side View	Back View

Table 4.3: Characters Sketch

4.4 Conclusion

The conclusion of this chapter is that, to produce an animation, the script is an important factor in producing an animation. In addition, the arrangement of the scenes needs to be made to ensure that the animation is easy to understand. Next, the storyboard is also necessary in the production of an animation. To create a storyboard, characters need to be created and need to follow the suitability of the story. In the next chapter, we will describe the implementation process into the animation process.



CHAPTER 5. IMPLEMENTATION

5.1 Introduction

This chapter describes and uses the current phases of current development. This shows the results after analysis and requirements. This is where the ideas, layouts, sketches and final design phase take place.

5.2 Media Creation

Media creation is the part where content is created in a project. It explains more about the text, graphics, video, audio, and animation production involved. Since this project is about web comics, it mostly contains graphics and text. It will focus on two elements.

5.2.1 Production of Texts

Text plays an important role in conveying data so as to reach the reader's understanding. The use of appropriate fonts plays an important role. The use of incorrect fonts may make it difficult for the reader to read, interpret and understand the message being conveyed. Generating text follows a few steps.

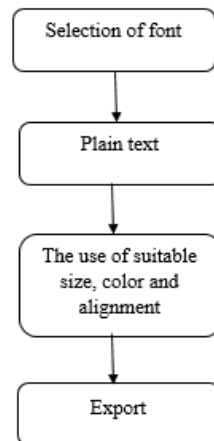


Figure 5.1: Production of Texts

5.2.2 Production of Graphics

Character generation using MS Powerpoint. While the background is downloaded from freepik.com. Animations are drawn using MS Powerpoint. All panels, layouts, coloring, speech balloons, and dialogues were also done using MS Powerpoint.

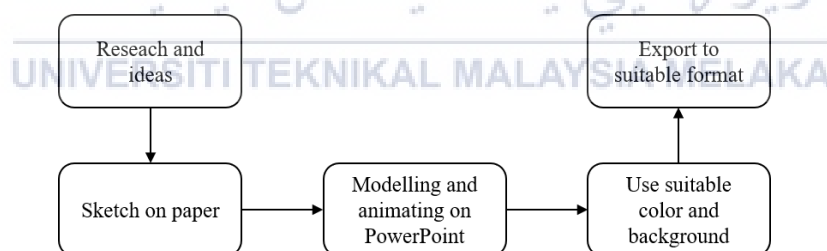


Figure 5.2: Production of Graphics

5.2.3 Production of Audio

The narrator's voice is recorded according to scripts using a voice recorder. Background sounds that have noise will be edited using Audacity software. Audio that is ready to be edited will be exported to mp3 format.

5.2.4 Production of Video

The finished animation will be saved as mpeg-4 or mp4 format. The prepared animation is then included background sound and background music using Adobe Premiere Pro CC 2019.

5.2.5 Production of Animation

Sketching is done on paper using a pencil. The modeling process is done entirely in MS Powerpoint. Limb movements using animation tools found in the animations menu in MS Powerpoint. Time and movement controls are made on the animation pane tool. The finished animation will be saved as mpeg-4 or mp4 format.

5.3 Media Integration

This section describes the process of integrating multimedia elements. Character generation using MS Powerpoint. While the background is downloaded from freepik.com. Animations are drawn using MS Powerpoint. All panels, layouts, coloring, speech balloons, and dialogues were also done using MS Powerpoint. The prepared animation is then included background sound and background music using Adobe Premiere Pro CC 2019. Background sounds that have noise will be edited using Audacity software.

5.4 Product Configuration Management

5.4.1 Configuration Environment Setup

Each project must be configured correctly so that there are no errors. For this project, it is important to set the correct exported video format and size settings so that the resulting animated video meets the criteria.

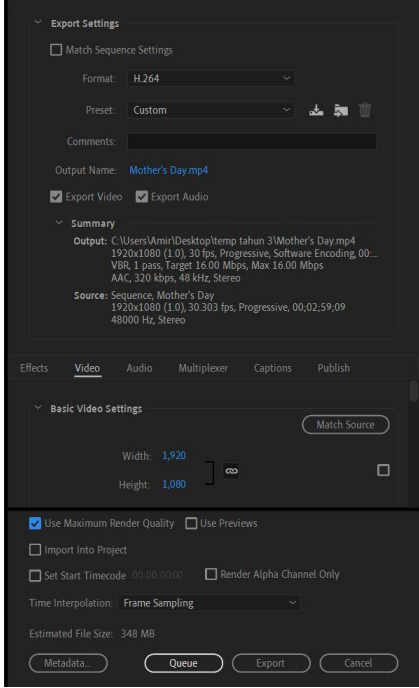
	
Format	H.264
Video Format	MP4
Video Resolution	1920x1080p
Render	Maximum Render Quality

Table 5.1: Video Rendering and Formating

5.4.2 Version Control Procedure

Any update or changes will result on a new version. This is also important as for a backup recovery from the previous version.

Version	Description
Ver1.0	Sketch and design using pencil and paper
Ver1.1	Modeling using MS Powerpoint
Ver1.2	Add color to model in every scene

Ver1.3	Add background in every scene
Ver1.4	Add animation to every scene
Ver1.5	Add dialog
Ver1.6	Save and export
Ver1.7	Import and compile animation and audio to Premeire Pro CC 2019
Ver1.8	Upload to YouTube or to be published

Table 5.2: Version Control Procedure

5.5 Implementation Status

The progress of each process is recorded in the implementation status.

Module	Description	Status
Research and Analysis	The process of gathering data, doing research and analysis on the requirement to develop 2D vector animation	Completed
Idea and Designing	Gathering ideas on how characters should be made,	Completed

	storyline, sketching take place	
Development	Writing script	Completed
	Sketching model	Completed
	Sketching storyboard	Completed
	Adding color	Completed
	Adding background	Completed
	Animating	Completed
	Adding narrator voice	Completed
	Adding subtitles	Completed
	Compiling	Completed
Final Output	Compiled 2D Vector-based Animation	Completed

Table 5.3: Implementation Status

5.6 Conclusion

In conclusion, this chapter describes the entire project design and implementation process. The status of the implementation is also available here. This is to show the progress that has been achieved in this project. The next chapter will discuss testing and evaluation.

CHAPTER 6. TESTING

6.1 Introduction

Testing is another stage that must be done after the previous stage is completed. The testing stage will describe how the testing and evaluation of the output of this project completes all the cycles and processes that are being made. It is very important to conduct this testing and evaluation that genuine information is measurable and differentiated from assurance and can target the targets contained in chapter 1. Before an endeavor fits all functions of this endeavor must be tested with a purpose that can run easily true to form. The purpose of the testing phase is to find out whether the project objectives are achieved or not. This chapter will also discuss user exams, time trials, and exam strategies for collecting real data and analyzing the results as well. This to determine the success of the project depends on the objectives of the project.

6.2 Testing Plan

6.2.1 Test User

In this project, the main target user is public audiences and viewers who are university students and working adults. These target viewers will watch the animation and they will answer a questionnaire related to this 2D animation project. This test will target at least 20 audiences, 3 multimedia and subject experts which is previous workshop supervisor and also UTeM lecturer.

Profession	Audience	Multimedia And Subject Expert
General Information	Public audiences and viewers who are university students and working adults	UTeM Lecturer who is a senior lecturer in the Department of Media Interactive Information Technology
Number of Respondents	20 Respondents	3 Respondent

Table 6.1: Test User

6.2.2 Test Environment

Due to the pandemics that hit the country and students were instructed to sit at home, thus the agreed environment to test the effectiveness of this 2D animation was in their respective homes. The audience was also told how to answer this questionnaire. Audiences can also express their comments and suggestions on this 2D animation through the Google Form questionnaire. The hardware and software use to watch this 2D animation will be explained in Table 6.2 below.

Hardware/Software	Purpose
PC/Laptop	-Device required to watch the 2D animation
Smartphone	-Device required to create and answer the Google Form questionnaire
Internet connection	-Required to upload the 2D animation
YouTube application	-Required to watch the 2D animation -Required to create the Google Form questionnaire - Required by users to give any feedback about the system in the Google Form

Table 6.2: Hardware and Software Configuration

Prior to the testing phase, students were told about the objectives of the project and what they could expect from the 2D animation and what they should do for the post -test. For that, a Google Form questionnaire was created for users to answer after watching the 2D animation.

6.2.3 Test Schedule

Table 6.3 below will show the schedule for testing phase.

Task Name	Duration	Start	Finish
Test Planning	4 days	29/7/2021	3/8/2021
-Test Plan and Schedule Preparation	4 days	26/7/2021	29/7/2021
-Test Environment and Questionnaire Preparation	3 days	26/7/2021	28/7/2021

Table 6.3: Test Schedule

6.3 Test Strategy

In this project, the researcher will use Beta testing only for the test strategy. This testing can help increase confidence in publishing these 2D animations. The effectiveness of this project depends on the audience and the feedback of the audience as well as the subject matter expert. For Beta testing, testing is carried out by the actual audience. Beta testing will collect feedback from the audience during testing. Due to the pandemic that advised the public to stay at home, therefore testing was conducted through questionnaires to reach the audience perspective on the product produced.

6.4 Test Implementation

6.4.1 Test Description and Test Data

6.4.1.1 Beta Testing

In Beta testing will contain 2 types of questionnaires for 3 different professions. For the audience's questionnaire, they will be asked about the audience's relationship with their mother. In addition, they will also be asked about their opinions and also the effectiveness of this 2D animation in conveying the message to them. For multimedia experts and subject matter experts, they will be asked specifically about multimedia elements in this project such as color and character design, narrator voice, background music, writing type, user experience, and animation technique. Their comments and suggestions are also needed for the improvement of this project.

Audiences Questionnaire

Age:

Gender:

How often you call or talk with your mother ?

Have you ever expressed a word of love to your mother when you were a teenager and an adult?

Question
1. How often you call or talk with your mother ? 2. Have you ever expressed a word of love to your mother when you were a teenager and an adult?
PART A - Respondent Overview On 2D Animation
1. Do you love to watch 2D animation ? 2. How often you watch animation the previous 3 or 6 months ? 3. What kind of animation you watch ? 4. Do you think 2D animation can deliver messages effectively ?
PART B - Animation Element
1. Do you understand the dialogue and subtitles ? 2. What is your opinion about color and character design ? 3. Do you understand the storyline of the animation ?

PART C - User Experience
<ol style="list-style-type: none"> 1. Do you enjoy watching this animation ? 2. What are the messages of this animation ? 3. What are the emotion do you have while watching this animation ?
PART D - Self Reflection
<ol style="list-style-type: none"> 1. How is this animation affect the relationship between you and your mother ? Write your answer.
PART E - Suggestions
<ol style="list-style-type: none"> 1. Do you will share this animation to others ? 2. State any comment and suggestion for overall animation

Multimedia and Subject Expert Questionnaire

Name:

Position:

Question
PART A -Animation Elements
<ol style="list-style-type: none"> 1. Do you think vector based animation applied is suitable with the title and objectives ? 2. Do you think subtitles and texts is easy to read and understand ? 3. Do you think the background music used is in accordance with the scene of the animation ? 4. Do you think the sound effect used is in accordance with the scene of the animation ? 5. Do you think the narrator voice is clear and not over shadowed by the background music and sound effect ? 6. Are the transitions used in this animation appropriate to the scene? 7. Are the movements of each character appropriate and not excessive?
PART B - Message Deliverable
<ol style="list-style-type: none"> 1. Does the message conveyed fit the theme? 2. Do you think this animation can increase the interest of the audience ? 3. What message should the audience get?
PART C - Suggestions
<ol style="list-style-type: none"> 1. State any comment and suggestion for overall animation

6.5 Test Result and Analysis

6.5.1 Beta Testing

Audiences

Count of How often you call or talk with your mother ?

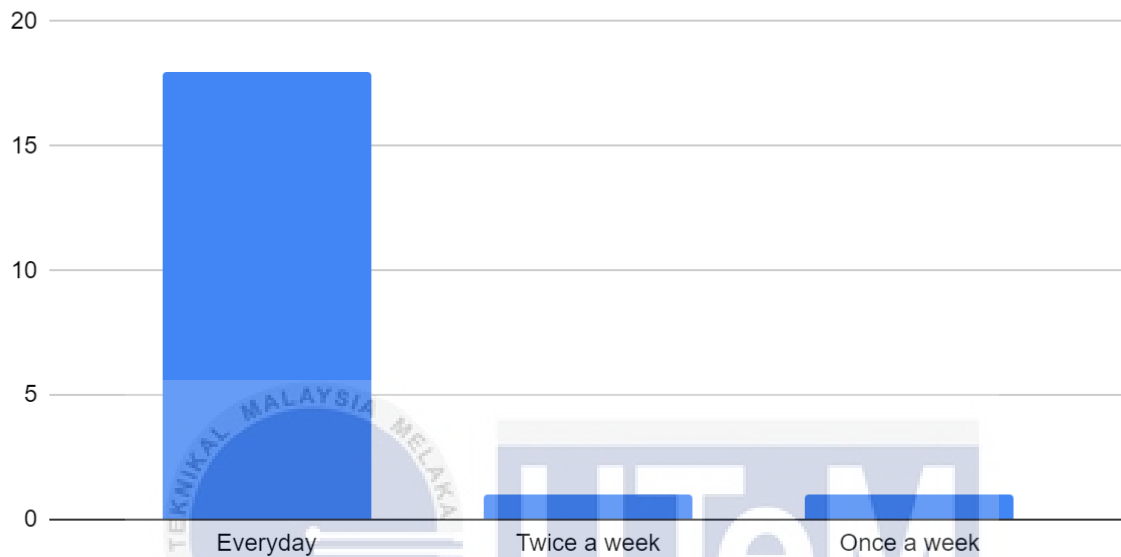


Figure 6.1

Based on figure 6.1, most of the audiences call or talk with their mother everyday

Count of Have you ever expressed a word of love to your mother when you were a teenager and an adult?

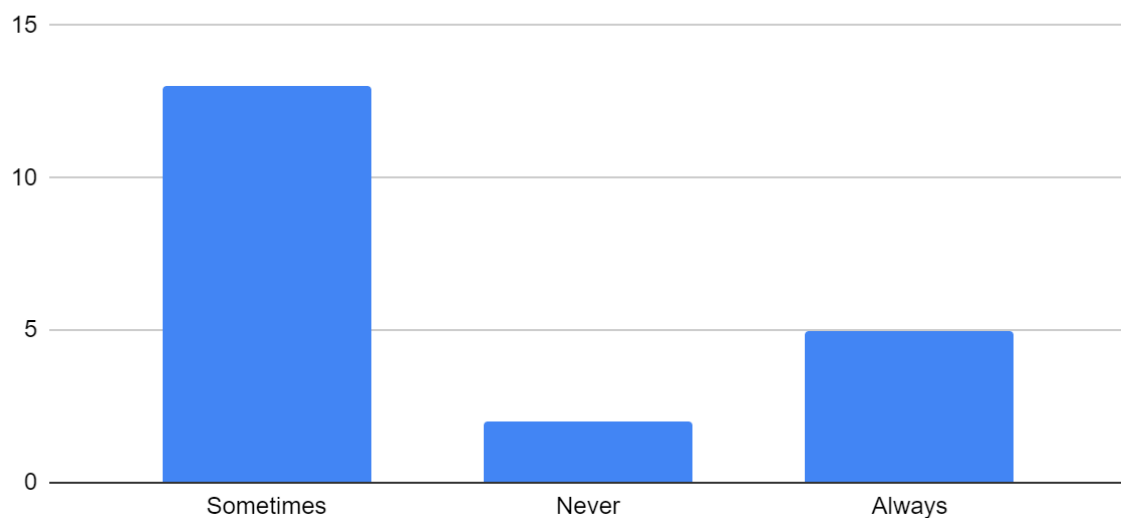


Figure 6.2

Based on figure 6.2, 65% of the audiences sometimes expressed their word of love to their mother, 25% audiences always expressed their word of love to their mother, and 10% audiences never expressed their word of love to their mother.

Count of Do you love to watch 2D animation ?

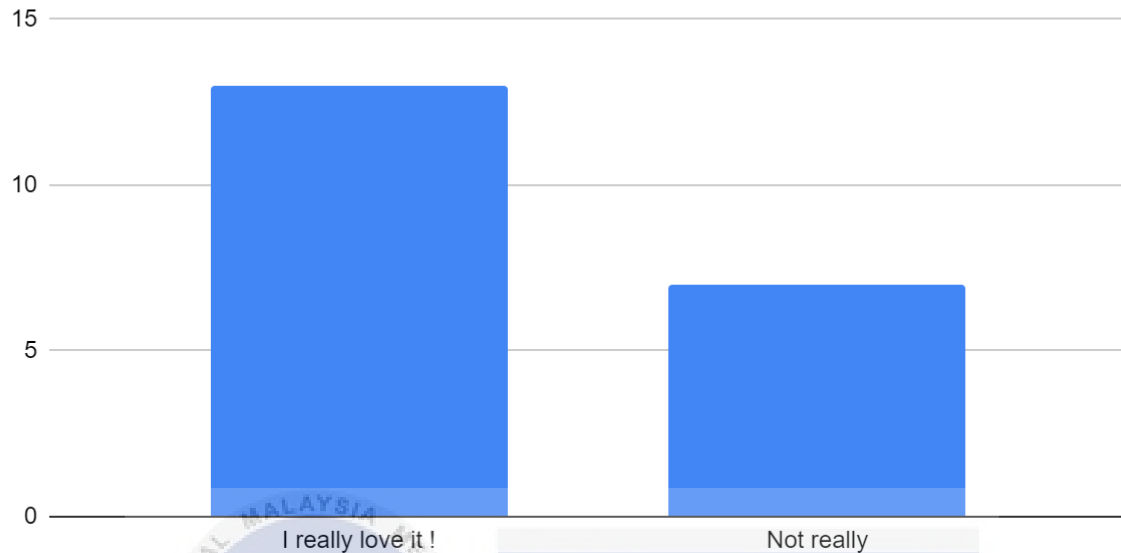


Figure 6.3

Based on figure 6.3, 65% audiences really love watching 2D animation, and the rest is not really love watching 2D animation

Count of How often you watch animation the previous 3 or 6 months ?



Figure 6.4

Based on Figure 6.4, 70% of the audiences watch animation whenever they find a good one, 25% of audiences watch animation when they have time and 5% of audiences watch animation everyday.

Count of What kind of animation you watch ?

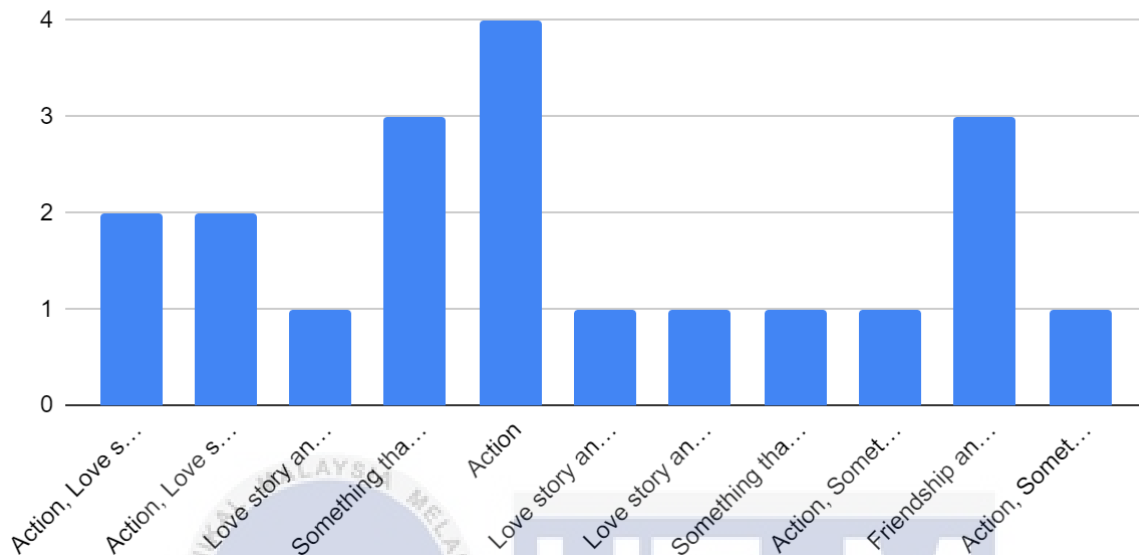


Figure 6.5

Based on figure 6.5, 50% of audiences watch action animation, 45% of audiences watch love friendship and comedy animation, 35% of audiences watch love story and drama and something that blows their mind.

Count of Do you think 2D animation can deliver messages effectively ?

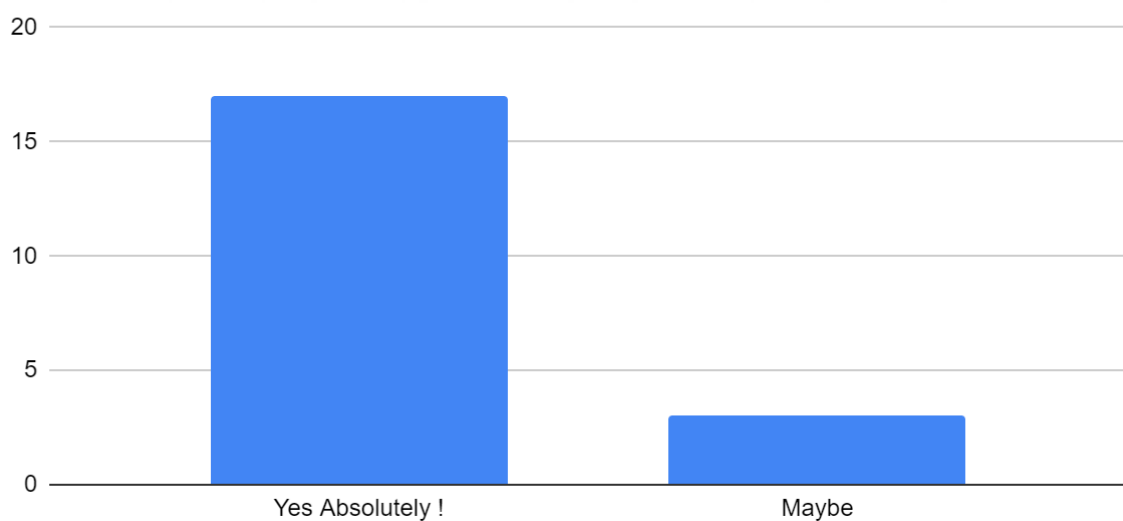


Figure 6.6

Based on figure 6.6, most of the audiences agree that 2D animation can deliver messages effectively, the rest of the audiences not sure that animation can deliver messages effectively.

Count of Do you understand the dialogue and subtitles ?

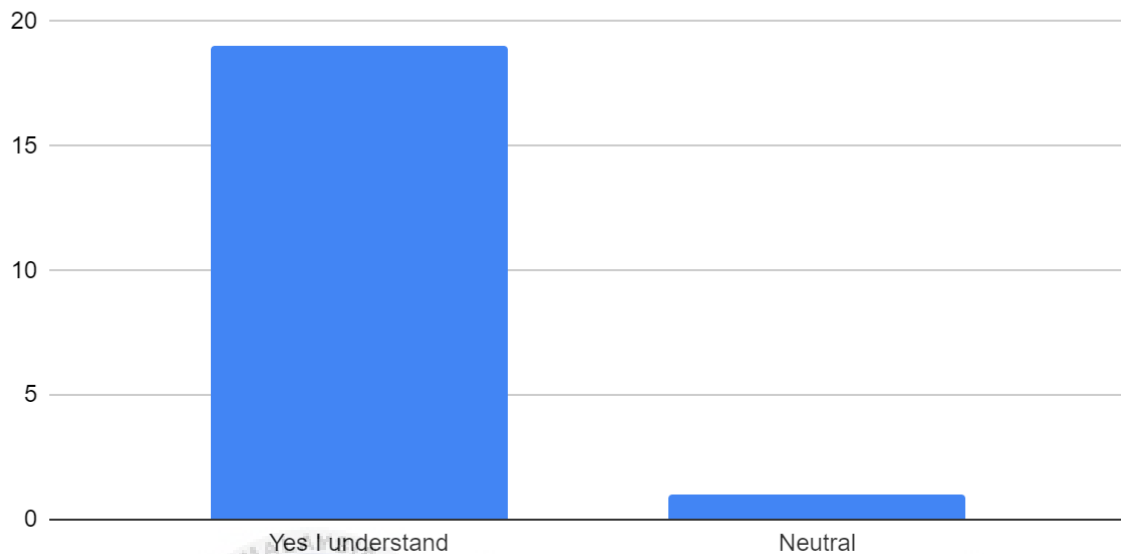
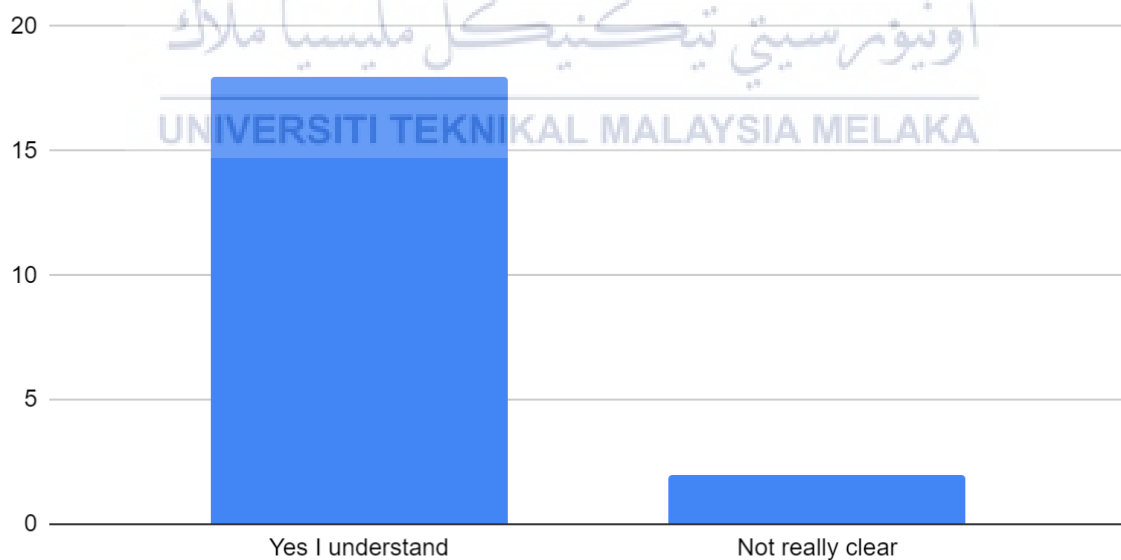


Figure 6.7

Based on figure 6.7, 100% audiences understand the dialogue and subtitles.

Count of Do you understand the storyline of the animation ?

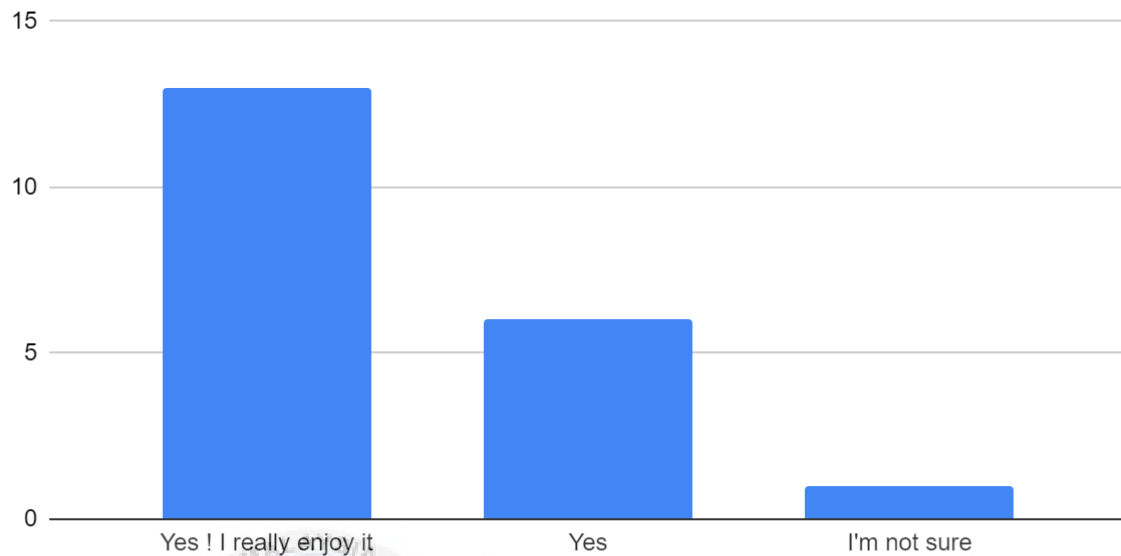


Count of Do you understand the storyline of the animation ?

Figure 6.8

Based on figure 6.8, 90% of the audiences understand the storyline of the animation.

Count of Do you enjoy watching this animation ?



Count of Do you enjoy watching this animation ?

Figure 6.9

Based on figure 6.9, 65% of the audiences really enjoy watching this animation, 30% of the audiences enjoy watching this animation, and the rest is not sure.

Count of What are the messages of this animation ?

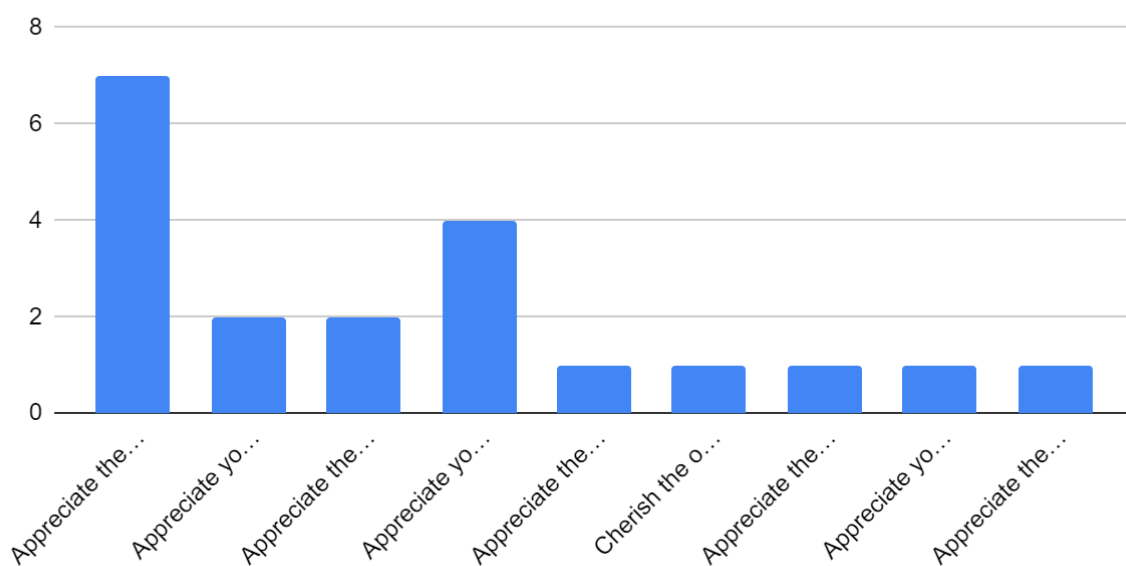


Figure 6.10

Based on figure 6.10, most of the audiences chose appreciate mother's love as the message of the animation, 60% of audiences chose appreciate the mother's sacrifice and also respect and love mother, 45% of the audiences chose repaying mother's kindness and also help ease the burden of the mother. On the other hand, 5% of the audiences give the own opinion which is appreciate love while it last and cherish the one that love us unconditionally.

Count of What are the emotion do you have while watching this animation ?

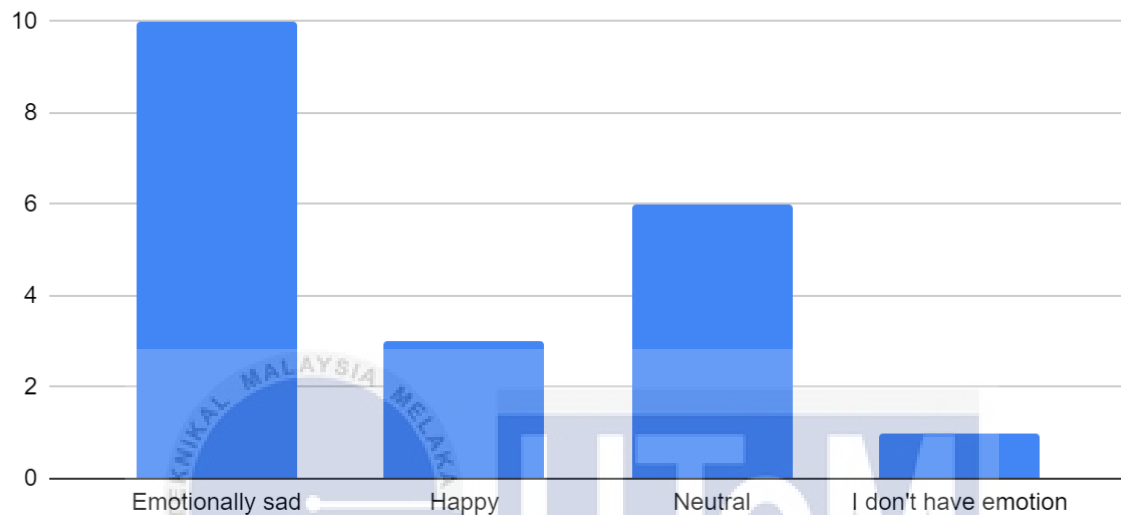


Figure 6.11

Based on figure 6.11, 50% of the audiences emotionally sad while watching this animation, 15% of them happy while watching this animation and 30% of the audiences are neutral emotion.

How is this animation affect the relationship between you and your mother ? Write your answer.

This animation made me realize that a mother's sacrifice is unmatched and made me love my mother more

It helps to remind how I should be grateful to still having my mother to take care of me until now.

It makes me want to appreciate my mom better.

It make me want to appologize to my mom

You need to respect your mother and help to reduce their burden before you regret one day.

It made me realize how precious a mother is. Once they're gone, there's no one could replace someone like them.

makes me want to love my mother more

I would say, if i could give my mom's the world, then i will

I wish i can spend time with her, but this pandemic don't allow me to visit her back at hometown

Strongly

Mother's love

I will appreciate my mother more

I have learnt that to appreciate every second I have living with my mother.

My relationship is okay
Appreciate mother more
I wanna be kind to my mom

Figure 6.12

Based on figure 6.12, most of the audiences gave positive feedback on the is this animation affect the relationship between you and your mother

Count of Do you will share this animation to others ?

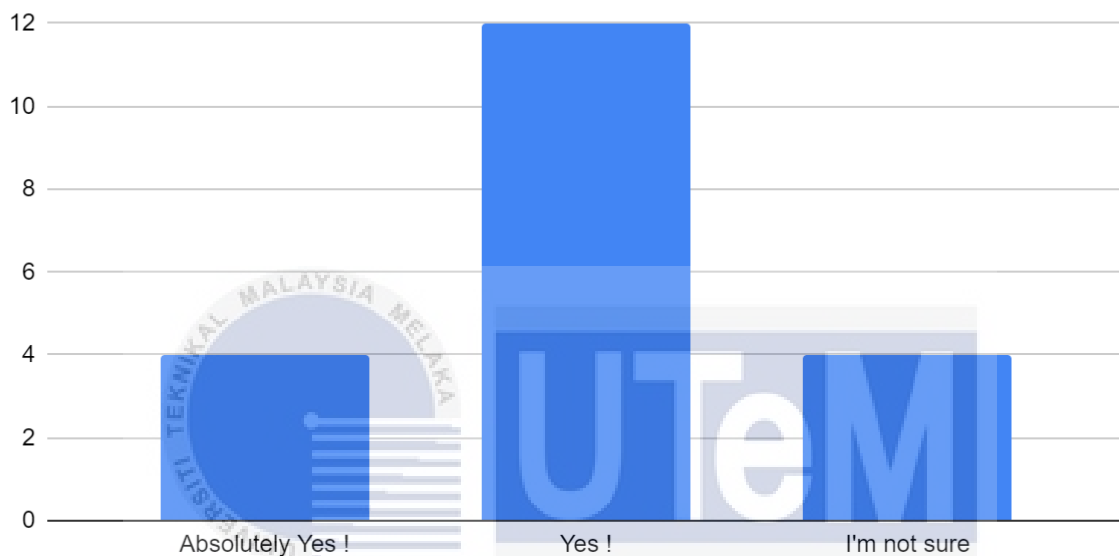


Figure 6.13

Based on figure 6.13, most of the audiences are willing to share this animation to others, 20% of the audiences strongly willing to share this animation to others.

State any comment and suggestion for overall animation

Great animation. You have the talent to be a good animator
--

It's a simple short animation with good message. The voice acting would need a bit improvement.

Nicely done

You can add the climax

So far very good. So touchy story and need to explain the side of mother struggle so the daughter can understand and then she start changes their behaviour

Maybe you could show your narrator the animation first, so she could narrate the story flow better.

The timing for the voice is quite off and not really smooth. It didn't sync perfectly with the frame.

The animation was good and the message was successfully delivered.
--

overall is nice!

Maybe for some part where the melody of kalimba is playing, can slightly lowered the background sounds so the voice of the character will be much clear.
--

Still have rooms for improvement, keep trying!
--

So far so good

Some part the music are much louder than dialogue.
--

Great animation. You have the talent to be a good animator
--

There are some grammatical error. Fortunately i got the messages! Animation is nice! Great job!

The storyline and the animation is nice. animation style can be further improved as well as on sound editing

Figure 6.14

Based on figure 6.14, most of the audiences gave a positive feedback and constructive suggestions to this animation.

Multimedia And Subject Expert

There are two multimedia expert that participated in this testing. One of them is a former animator at an animation company, Les' Copaque Production Sdn Bhd and is also a short movie project supervisor. Another is a senior lecturer in the Media Interactive department.

Count of Do you think vector based animation applied is suitable with the title and objectives ?



Figure 6.15

Count of Do you think subtitles and texts is easy to read and understand ?

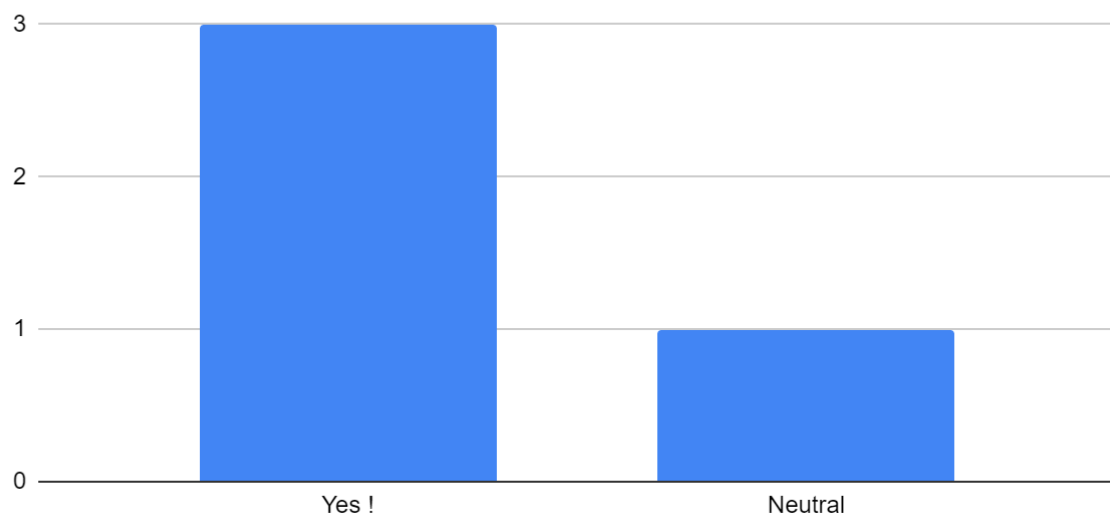


Figure 6.16

Count of Do you think the background music used is in accordance with the scene of the animation ?

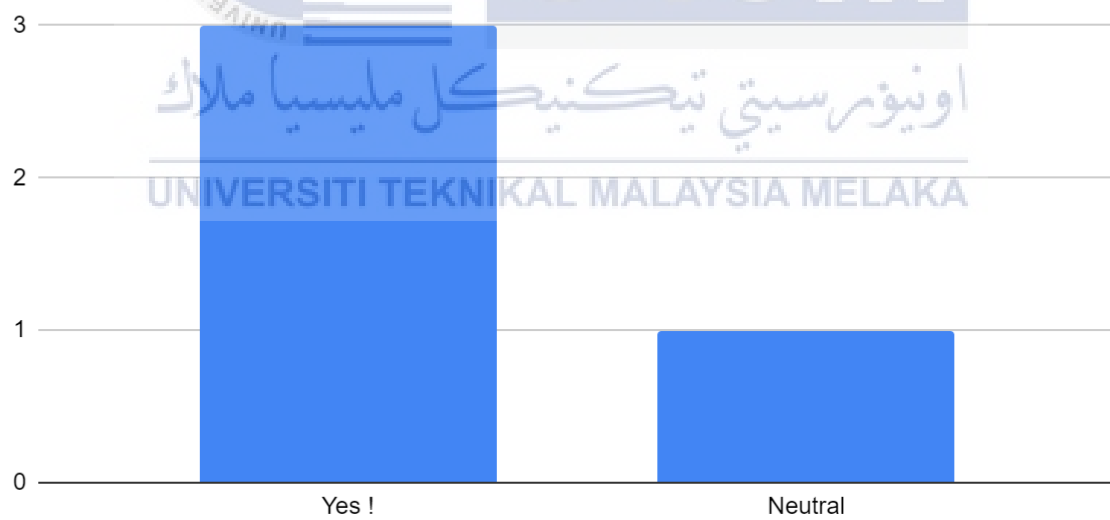


Figure 6.17

Count of Do you think the sound effect used is in accordance with the scene of the animation ?

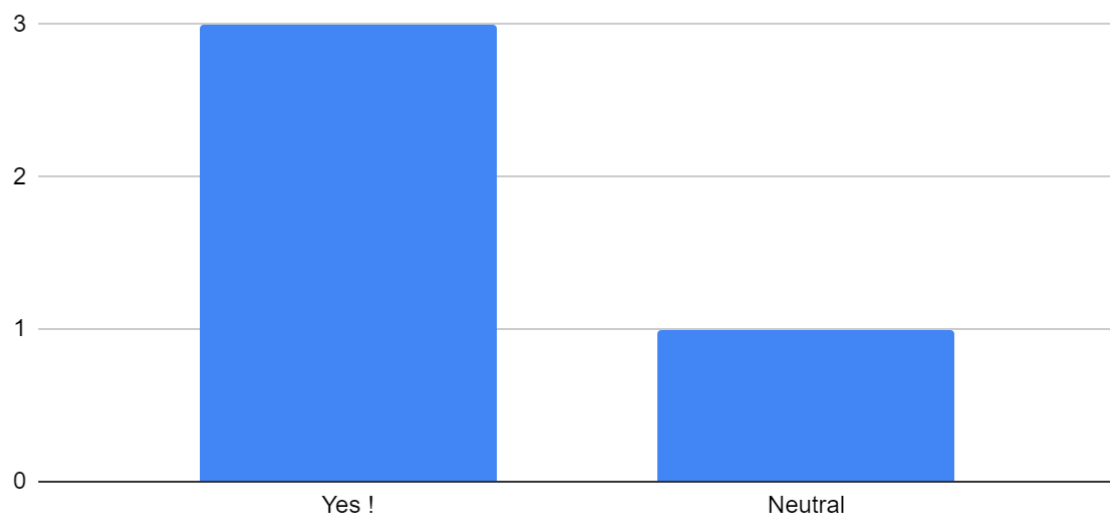


Figure 6.18

Count of Do you think the narrator voice is clear and not over shadowed by the background music and sound effect ?



Figure 6.19

Count of Are the transitions used in this animation appropriate to the scene?

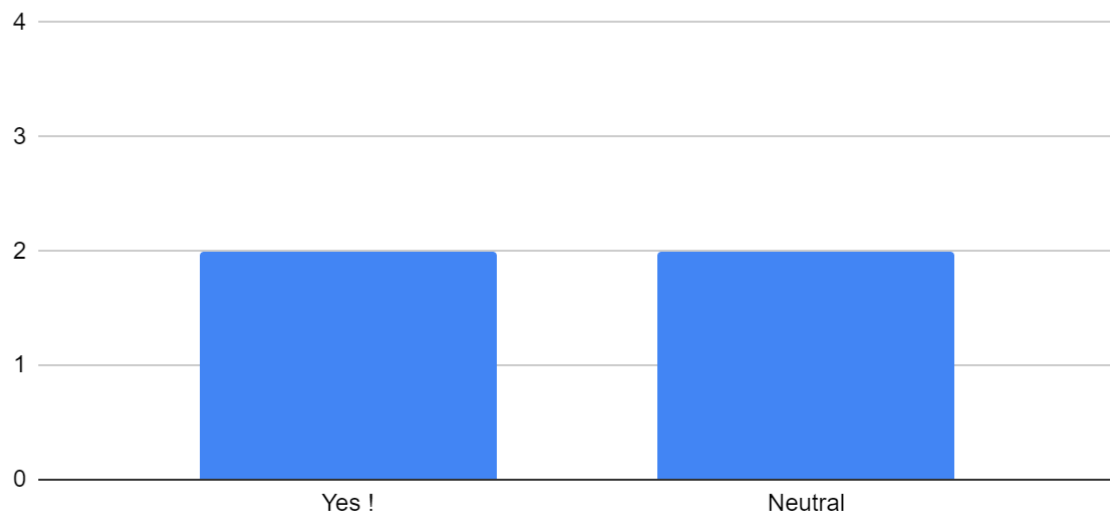


Figure 6.20

Count of Are the movements of each character appropriate and not excessive?

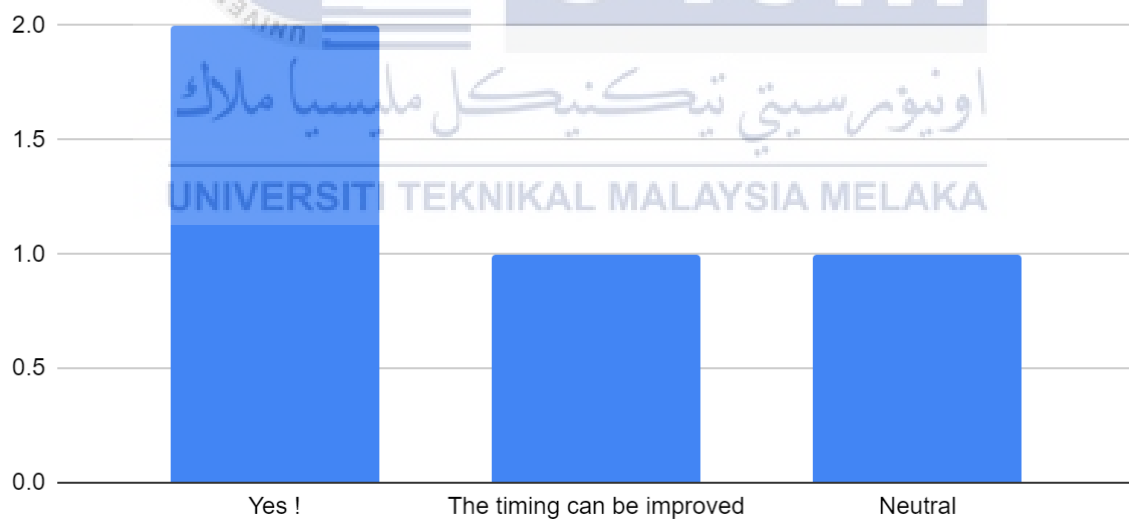


Figure 6.21

Count of Does the message conveyed fit the theme?

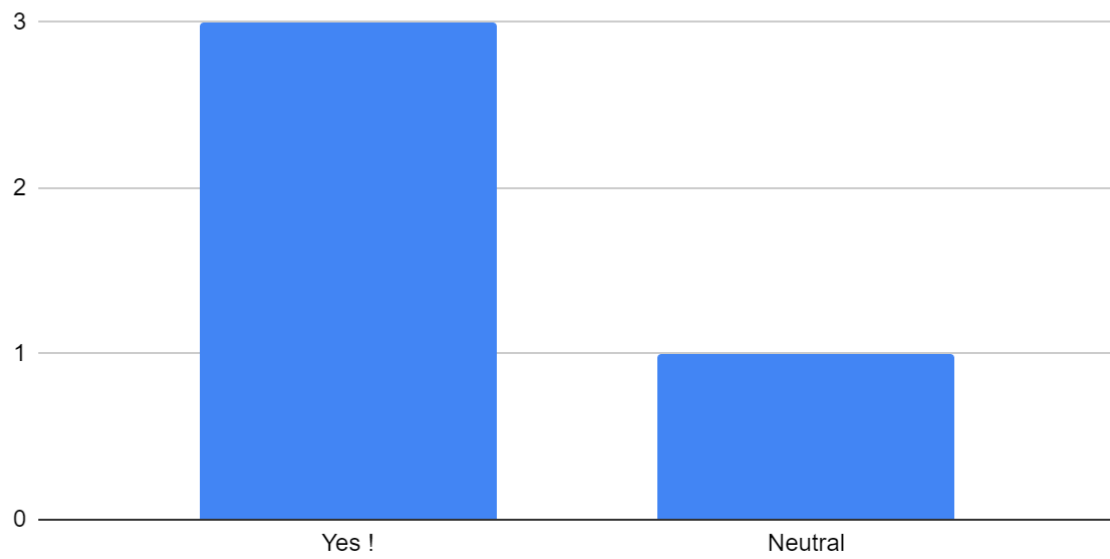


Figure 6.22

Count of Do you think this animation can increase the interest of the audience ?



Figure 6.23

Count of What message should the audience get?

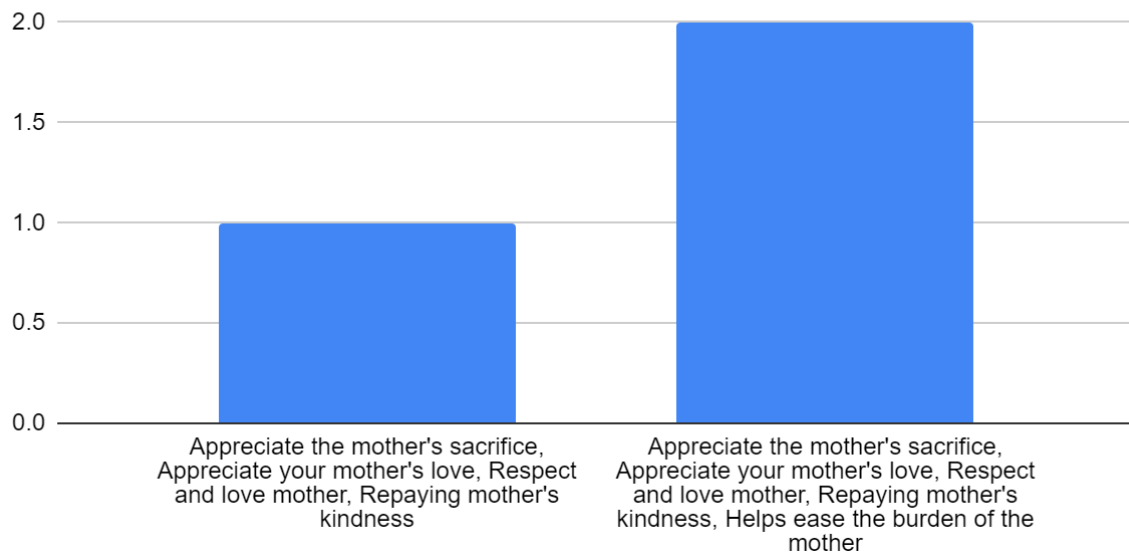


Figure 6.24

State any comment and suggestion for overall animation
Can improve the animation for move real including the voice over is not clear. Luckily the is subtitles
Should improve on movement of the characters
Overall the design is ok, however the artist/animator should work more on the principles of animation.

Figure 6.25

6.6 Analysis Testing

For audience acceptance, a large number of audiences were satisfied with this animation. All comments and suggestions are taken into account for the improvement of animation quality. Most of the audiences agree that 2D animation is capable of conveying a message to the audience.

Count of Audiences Satisfaction

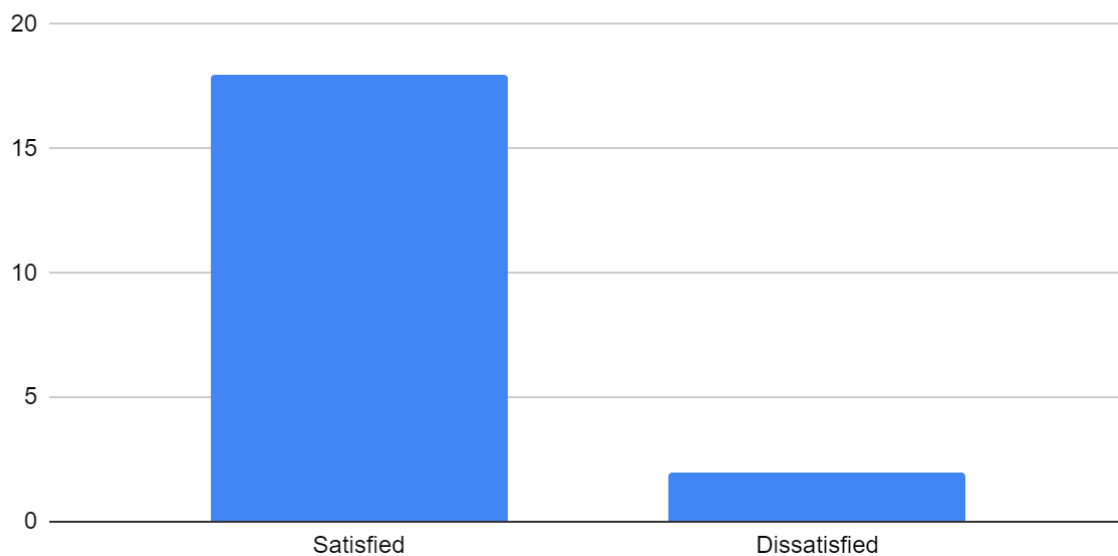


Figure 6.26 Audiences Satisfaction Chart

For multimedia and subject experts, there are remarks given such as character movement style, principles of animation and voice editing to improve this animation for the audience to watch. They were satisfied with the whole of this 2D animation in terms of the storytelling and the message conveyed.

6.7 Conclusion

In conclusion, the testing phase is important because it is able to improve the animation produced. With this testing phase, it is also possible to improve the quality in the making of an animation so that the work can be presented and be able to give an impact to the audience. In the next chapter, we will discuss the observation on weaknesses and strengths as well as propositions of improvement and project contribution for this 2D animation.

CHAPTER 7. PROJECT CONCLUSION

7.1 Observation on Weaknesses and Strengths

To produce an animation project, various aspects need to be taken into account so that the animator can satisfy the audience. Thus, identifying strengths is very important, as well as identifying weaknesses that are also important to improve an animation. The carefully planned testing phase is very useful in identifying the strengths and weaknesses in a project by questioning the audience watching this 2D animation as well as the results of the analysis. These strengths and weaknesses are gathered from the results of the questionnaire that make this 2D animation project different from others. Understanding the strengths and weaknesses is able to provide opportunities in the improvement of this 2D animation. Table 7.1 shows the strengths and weaknesses in this 2D animation project.

Strength	Weakness
<ul style="list-style-type: none"> • Animation is simple and attractive • Attractive character design and color combinations • Subtitles and text are easy to understand • Able to convey a message to the audience • The storyline is easy to understand • Use of appropriate transitions • Use of appropriate background music and sound effects 	<ul style="list-style-type: none"> • Unnatural character movements • There are parts where there is louder background music than the narrator's voice • Less use of the element of surprise in the storyline. • The storyline is less diverse. • The voiceover need to be improve

Table 7.1 Strength and Weakness of The Animation

7.2 Propositions for Improvement

From the weaknesses that have been noted from this testing, it can be shown that a large number of audiences are satisfied with the whole of this 2D animation but there is still room for improvement. Suggestions for such improvements will be accompanied by the quality and effectiveness of the animation.

The downside to this 2D animation is in terms of storyline diversity. The storytelling should have ups and downs in addition to a climax that is able to attract the emotions of the audience. In additions, there are suggestions where it is necessary to improve voiceover. Next there are reprimands in terms of sound and scenes not syncing properly.

The animation also has issues in terms of the character movement that is not smooth and there are also parts where the background music is louder than the narrator's voice. There are also grammatical errors in the text or dialogue that need to be corrected.

7.3 Project Contribution

This 2D animation project aims to convey a message to the audience. This is an out-of-the-ordinary experiment of using vector-based 2D animation technology and style. Animation is also capable of conveying a story in addition to attracting the emotions and interest of the audience. Special effects such as transitions are also able to make this 2D animation more interesting. Not only that, the combination of the narrator's voice, dialogue and sound effects is able to give the audience an understanding of the story to be told.

7.4 Conclusion

In conclusion, the objective of this 2D animation project has been achieved despite some issues. This 2D animation can be presented successfully to the audience. Most of the animation process done during the development phase works well during beta testing. During the analysis phase, several animations were compared and the elements needed were identified in order to produce better 2D animations. The effectiveness of the element is tested properly and it is successful after the testing phase. Testing was carried out using beta testing and many were interested in the animations presented and the message conveyed was also clear. At the same time, this animation can still be improved in order to have an impact on the audience. Improvements will be made in the future so that it can be broadcast on media stations in conjunction with Mother's Day. In short, this 2D animation helps in conveying the message of motherly love to the audience.



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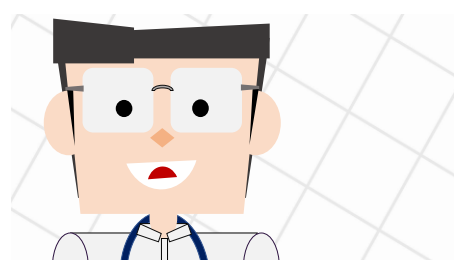
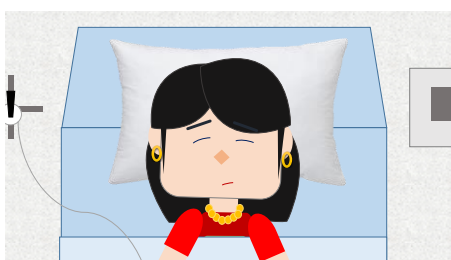
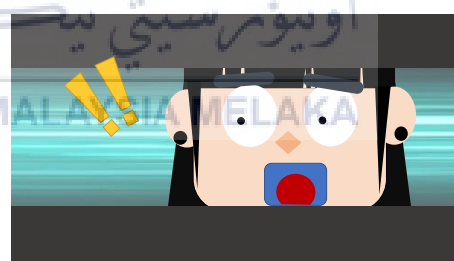
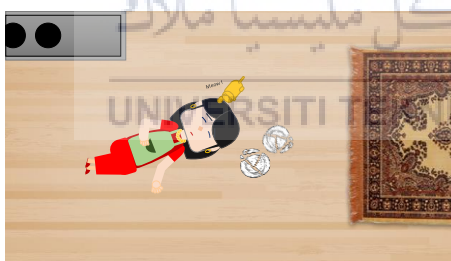
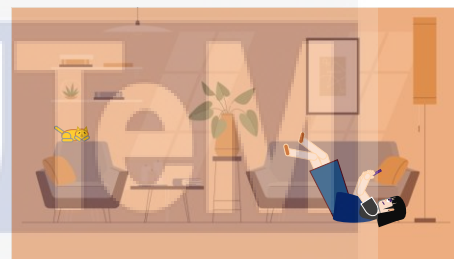
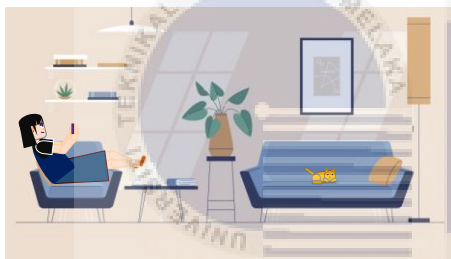
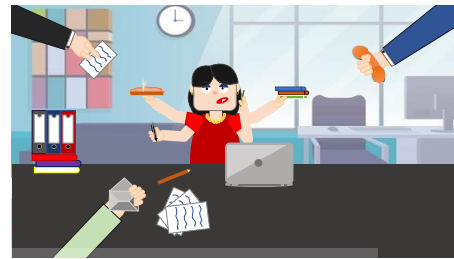
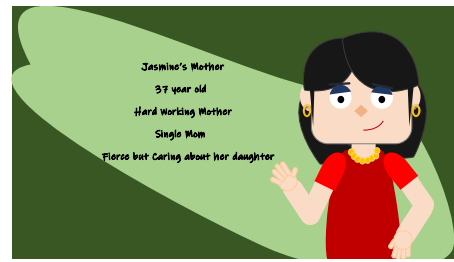
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APPENDIX A: ANIMATION SCENES



APPENDIX B: TESTING PHASE

A. Screenshot of Audiences Questionnaire

Section 1 of 6

Audience Evaluation -The Development of 2D Vector Based Animation Themed Mother's Day.

Assalamualaikum and hi.
My name is Ahmad Amir bin Othman. I am a 3rd year student of Bachelor in Computer Science (Interactive Media) at Universiti Teknikal Malaysia Melaka (UTeM). Currently, I am conducting a survey for my Final Year Project.

The objective of this survey is to evaluate the effectiveness of my Final Year Project. This project is entitled 'The Development of 2D Vector Based Animation Themed Mother's Day'.

You may have to answer Part A before watching the Mother's Day Short Animation. If you have the YouTube application in your phone, you can simply click on the link below:

<https://youtu.be/dsyxmoCdnlg>

Every response is completely confidential and used for analysis. Thank you so much for your contribution :D

Please watch the 'Mother's Day Short Animation' on YouTube by Ahmad Amir before answering Part B to Part E

<https://youtu.be/dsyxmoCdnlg>

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Age

17 or younger

18-20

21-29

30-39

40 or older

Gender *

Male

Female

How often you call or talk with your mother ?

- Everyday
- Sometimes
- Once a week
- Twice a week

Have you ever expressed a word of love to your mother when you were a teenager and an adult?

- Always
- Sometimes
- Never
- I don't have a mother



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Section 2 of 6

PART A - Respondent Overview On 2D Animation

*Must answer PART A before watching the Mother's Day Short Animation

Do you love to watch 2D animation ? *

I really love it !

Not really

I don't like it

How often you watch animation the previous 3 or 6 months ? *

Everyday

Whenever I have time

Weekend

Whenever I find a good one

Never

Anime ? What is that ?!

What kind of animation you watch ? *

Action

Love story and drama

Friendship and comedy

Something that has magic and supernatural stuff

Something that blows mind off with lots of thrills and a chaotic story line

Do you think 2D animation can deliver messages effectively ? *

Yes Absolutely !

Maybe

Probably Not

Section 3 of 6

PART B - Animation Element

Must watch the Mother's Day Short Animation Before Answering The Question
link: <https://youtu.be/dsyxmoCdnlg>

Do you understand the dialogue and subtitles ? *

Yes I understand

Not really clear

I don't understand at all

What is your opinion about color and character design ? *

Great Design and color combination !

Moderate

Need more research and study

Do you understand the storyline of the animation ? *

Yes I understand

Not really clear

I don't understand at all

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Section 4 of 6

PART C - User Experience

Description (optional)

Do you enjoy watching this animation ? *

Yes ! I really enjoy it

Yes

I'm not sure

I don't enjoy it

What are the messages of this animation ? *

Appreciate the mother's sacrifice

Appreciate your mother's love

Respect and love mother

Repaying mother's kindness

Helps ease the burden of the mother

Other...

What are the emotion do you have while watching this animation ? *


Emotionally sad

Angry

Happy

Neutral

I don't have emotion



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Section 5 of 6

PART D - Self Reflection



Description (optional)

How is this animation affect the relationship between you and your mother ? Write your answer. *

Long answer text

Section 6 of 6

PART E - Suggestions



Description (optional)

Do you will share this animation to others ? *

- Absolutely Yes !
- Yes !
- I'm not sure
- No !



State any comment and suggestion for overall animation

Long answer text

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B. Screenshot of Multimedia and Subject Expert Questionnaire

Section 1 of 4

Multimedia & Subject Expert Questionnaire

Assalamualaikum and hi.

Name Short answer

Short answer text

Position Short answer text

Required



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Section 2 of 4

PART A -Animation Elements

Description (optional)

Do you think vector based animation applied is suitable with the title and objectives ? *

Absolutely Yes !

Probably No

Hmm.. Maybe

Do you think subtitles and texts is easy to read and understand ? *

Absolutely Yes !

Probably No

Hmm.. Maybe

Do you think the background music used is in accordance with the scene of the animation ? *

Absolutely Yes !

Probably No

Hmm.. Maybe

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Do you think the sound effect used is in accordance with the scene of the animation ? *

- Absolutely Yes !
- Probably No
- Hmm.. Maybe

Do you think the narrator voice is clear and not over shadowed by the background music and sound effect ? *

- Absolutely Yes !
- Probably No
- Hmm.. Maybe

Are the transitions used in this animation appropriate to the scene? *

- Absolutely Yes !
- Probably No
- Hmm.. Maybe
- Other..

Are the movements of each character appropriate and not excessive? *

- Absolutely Yes !
- Probably No
- Hmm.. Maybe
- Other..

Section 3 of 4

PART B - Message Deliverable



Description (optional)

Does the message conveyed fit the theme? *

- Absolutely Yes !
- Probably No
- Hmm.. Maybe

Do you think this animation can increase the interest of the audience ? *

- Absolutely Yes !
- Probably No
- Hmm.. Maybe

What message should the audience get? *

- Appreciate the mother's sacrifice
- Appreciate your mother's love
- Respect and love mother
- Repaying mother's kindness
- Helps ease the burden of the mother
- Other...



Section 4 of 4

PART C - Suggestions



Description (optional)

State any comment and suggestion for overall animation *

Long answer text

.....

APPENDIX C: TURNITIN REPORT

Match Overview		
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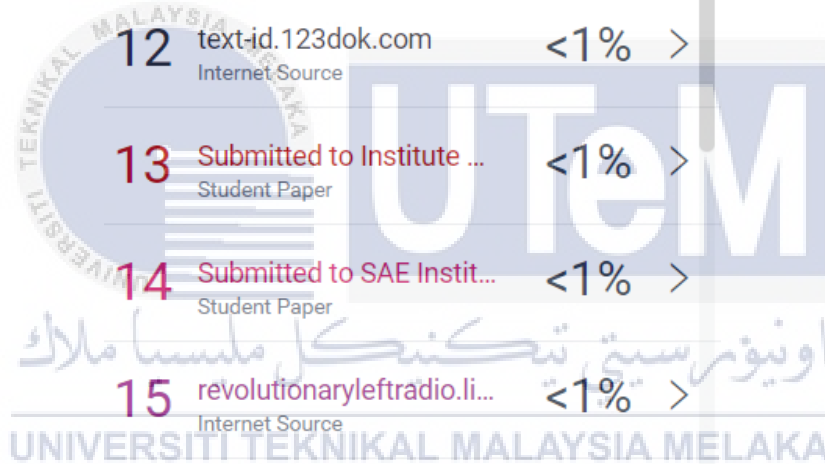
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