“DEPRESSION AWARENESS”: THE IMPACT OF SECONDARY MOTION IN 2D ANIMATION

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JUDUL: "DEPRESSION AWARENESS": THE IMPACT OF SECONDARY MOTION IN 2D ANIMATION

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“DEPRESSION AWARENESS”: THE IMPACT OF SECONDARY MOTION IN 2D ANIMATION

AMNI SYAZANA BINTI NOR HISHAM

This report is submitted in partial fulfillment of the requirements for the Bachelor of Computer Science (Interactive Media) with Honours.

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2021

DECLARATION

I hereby declare that this project report entitled

"DEPRESSION AWARENESS": THE IMPACT OF SECONDARY MOTION IN 2D ANIMATION

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

STUDENT : _____ Date : 07/09/2021
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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 (Interactive Media) with Honours.

SUPERVISOR : _____ Date : 12/09/2021
(DR. MOHD ADILI BIN NORASIKIN)

DEDICATION

To my beloved parents and family, who have always encouraged and supported me through my educational journey. Also, to my supervisor Dr. Mohd Adili Bin Norasikin, and all my friends who have guided, inspired, and helped me complete my project.

ACKNOWLEDGEMENTS

I would like to thank Dr. Mohd Adili Bin Norasikin for giving assistant to complete this project successfully. Thank you for always giving guidance and advice until this project comes to an end.

I would also like to thank my beloved parents, who have supported and motivated me throughout my project. Thank you for always encouraging and believing in me to finish my project.

To my friends, thank you for always give encouragement and support for me to finish this project.

Lastly, to anyone that indirectly involved in this project, thank you for your help and cooperation.

ABSTRACT

This project is developed for Projek Sarjana Muda (PSM). It is a 2D Animation of Depression Awareness which gives some knowledge and encourages society aware of their mental state. This 2D animation will focus on implementing secondary motion in the development of the animation. The project aims to determine the significance of implementing the secondary action principle in 2D animation. Other than that, the audience can see how the secondary motion can affect the emotion or feel in animation. The target user of this project is students and public. This final year project is in the 2D animation domain. Animation principles were utilized in this development process.

ABSTRAK

Projek ini dibangunkan untuk Projek Sarjana Muda (PSM). Ini adalah Animasi 2D Kesedaran Depresi yang memberikan sedikit pengetahuan dan mendorong masyarakat menyedari keadaan mental mereka. Animasi 2D ini akan menumpukan pada pelaksanaan gerakan sekunder dalam penghasilan animasi. Tujuan projek ini adalah untuk menentukan kepentingan melaksanakan prinsip tindakan sekunder dalam animasi 2D. Selain itu, penonton dapat melihat bagaimana gerakan sekunder dapat mempengaruhi emosi atau perasaan yang berbeza dalam animasi. Pengguna sasaran projek ini adalah pelajar dan orang ramai. Projek tahun akhir ini berada dalam domain animasi 2D. Prinsip animasi digunakan dalam proses penghasilan ini.

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LIST OF ABBREVIATIONS

FYP	**-**	**Final Year Project**
PSM	**-**	**Projek Sarjana Muda**

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CHAPTER 1: INTRODUCTION

1.1 Introduction

A secondary action is a follow-up activity that occurs as a direct result of a primary action. It should never be a subordinate who dominates and takes over the principal action. A secondary action is present for support and brings the scene to life: it is the result of another movement. Interest is piqued when the main activity (independent motion) is combined with a secondary action (dependent motion). The significance of adding a secondary action to the primary action can give the sense of life by adding additional depth to the character's motion and making them appear more genuine and dramatic. It also lends the character's thoughts or actions more personality, making it easier to read. Secondary activities should never take precedence over the main topic of interest; otherwise, the viewer will be distracted from the most significant aspect of your shot. If the secondary action becomes essential than the primary, the action was most likely staged incorrectly for the scene or was never meant to be deemed a secondary action in the first place. They also create depth by emphasizing the character's actions. This principle comes in handy when you want to strengthen the notion or sensation you are trying to convey to your audience.

1.2 Problem Statement

Secondary action is one of the principles of animation. The major goal of these principles was to provide the impression that cartoon characters followed basic physics laws. Still, they also addressed more abstract topics like emotional timing and character appeal. Secondary action invigorates your shots and distinguishes you from a skilled animator to an appealing visual storyteller. While performance-driven animations are entertaining, they sometimes lack the expressiveness and complexity of hand-written results, which means without a secondary movement taken into consideration, the animation will still look stiff, unnatural, and robotic.

Secondary actions are designed to either complement and strengthen the main action or divert the spectator's attention to other activities, thus enhancing and solidifying the animation. Secondary motion is quite hard to implement because some excessive movement can take the attention from the main move. A character's facial expression is occasionally a secondary activity. When the main concept of action is communicated by body movement, the facial expression becomes secondary to the main concept. The concern is that it will never be noticed, rather than dominating the scene if this expression will animate or change. Before or after the move, the change must occur. A modification in the middle of a large motion will go unnoticed, resulting in the loss of value planned. It must also be staged in such a way that it is evident, though secondary.

1.3 Objectives

The following objectives guide this project:

1. To study the secondary motion in 2D animation.
2. To develop 2D animation by implementing the secondary motion in the project.
3. To evaluate the impact of secondary motion in 2D animation.

1.4 Project Scope

This project is to gives attention to the secondary action through 2D animation. The target user for this 2D animation project is student and public. The animation will be applied secondary motion to the character. This will determine the importance of secondary motion principles. The content of this animation is to convey detailed information about depression and signs of depression. This project provides an effective approach to the public to get the facts and accurate information to ensure that they know and are alert about depression.

1.5 Project significant

Through this animation, the audience also can determine the significance of the secondary action in animation. This project will provide an effective approach to the public to get accurate information to ensure that they know and are alert about depression. The public should be aware of their mental health state.

1.6 Conclusion

In conclusion, from this project, the audience can know the importance of secondary motion. This project will produce an interesting 2d animation to attract the audience to listen and understand every valuable knowledge. Besides, this project also will give awareness to society about depression awareness.

This chapter includes the introduction, project background, problem statement, objectives, research question, scope, and significance of the project. To build this 2D animation, we must know the scope, give measurable objectives, overcome the problem, and the most significant of this 2D animation. Moreover, chapter 2 will outline the methodology used for this research and conduct a literature review of related works.

CHAPTER 2: LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

This chapter explains the literature review and project process used to complete the development of this 2D animation. Previous studies and research from publishing materials such as case studies, technical documents, and an online library play a significant role in the literature review. The goal of a literature review is to look for, collect, analyze, and make conclusions from all the information that has been read and examined. The project methodology consists of five phases: literature review, requirement analysis, design, development, and testing.

2.2 Domain

2.2.1 Animation

By capturing sequential drawings, models, or even puppets, animation creates the illusion of movement in a sequence. In research from Maio (2021), our eyes can only retain an image for approximately 1/10 of a second. When numerous images emerge rapidly in succession, the brain combines them into a single moving image. On clear celluloid sheets, images are sketched or painted to be caught in traditional animation. While early cartoons exemplify this, most animated films today are created utilizing computer-generated graphics (CGI). The frame rate, or the number of consecutive images presented each second, is employed to create the illusion of smooth motion in these drawn, painted or computer-generated displays.

2.3 Literature Review

"Good secondary action energizes your shots and marks the difference between being a competent animator and an entertaining visual storyteller" (Koch, 2019). A secondary animation/motion is dependent on another, more active movement. When a character shakes their head, the primary motion is the head movement, while secondary motions include hair movement and a floppy hat movement. In the world of effects animation, there is a lot of secondary motion. According to (Plummer, 2021), By incorporating supplementary animations into your scene, you may enhance the visual experience of your main action/character. For instance, by incorporating impact particles, you can aid the audience in understanding the weight of an object. This is useful if you need to demonstrate that the mass of numerous items varies. The audience then applies their prior real-world experience to what you have presented.

In research from S Willett et al. (2017), secondary motion is important for all character animation styles. They focus specifically on 2D animation, where characters are composed of individual layers representing different parts such as head, limbs, and torso. To animate such characters, users may continually transform layers (e.g., via non-rigid warping) or swap out artwork for a given layer to significantly change its appearance (e.g., closed fist becomes an open hand). This style is used to create most motion graphics, popular modern cartoons, and all our examples. The research approach aims to improve the attraction of 2D animation by adding secondary motion.

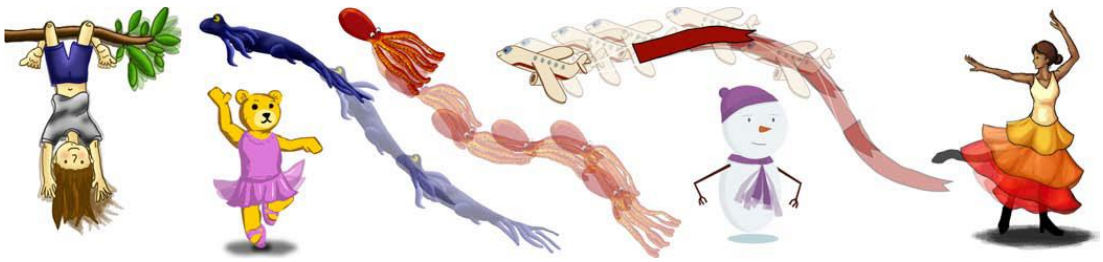


Figure 2.1 Characters exhibiting the secondary animation categories of swaying, jiggling, trailing motion, and respecting collisions. (S Willett et al., 2017)

In research from Jain et al. (2010), secondary motion refers to the movement of scene objects in reaction to the lead character's movement. It is frequently utilized to emphasize the character's emotion and personality through effects that appear to be driven by the motion. In real life, secondary acts are frequently taken for granted, but animators often overlook them. Some various guidelines and procedures should be fully considered to avoid disastrous effects when interfering with secondary actions. There are exemplary actions to carefully consider and plan while using facial emotions in a photo. When combined with a big movement, these small gestures may go unnoticed. As a result, rather than including this action throughout a larger movement, it is frequently preferable to include it at the start or finish so as not to detract from the principal action's dominance. In a more detailed explanation, there will be a circumstance in which the secondary action is the facial expression. The change in the expression must be staged so that it is visible to the audience, even if it is secondary. When the basis of action is told through body movement, the facial expression takes a back seat to the basis.

2.4 Project Methodology

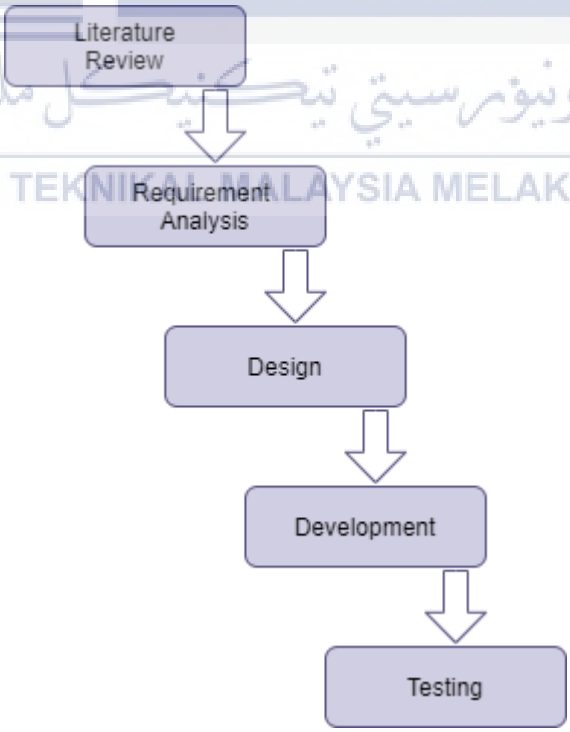


Figure 2.2 Project Methodology Phase

Figure 2.2 above shows the project methodology phase. This methodology will divide the 2D animation process into five phases, each of which will have several steps. The phases are as follows:

i. Literature Review

In this phase, it will describe the literature review on the secondary motion in 2D animation. An important role is played by previous studies and research from published materials such as case studies, technical documents, and an online library.

ii. Requirement Analysis

At this phase, the developer must determine the requirements, software, and hardware for the project. It necessitates a thorough examination of the components that must be included in the animation.

iii. Design

This section describes the storyboard, character design, and script, which are all important preliminary designs. The outputs from the analysis phase are used in the design phase to determine strategies for developing this 2D animation. The actions involved in the design phase are designing the animation's conceptual model and flowchart. The developer must create a conceptual model to determine how the animation's character or model will appear.

iv. Development

The development phase is the stage of project development during which all procedures are based on flow charts and storyboards to ensure a successful implementation. The designed criteria are based on the information gathered during the design phase. In this phase, the developer will proceed to the development of the creating character and animation.

v. Testing

In this phase, a formative evaluation will be carried out to see if the quality of the learning resources meets the standards outlined in the Design phase. The testing step is carried out to see if the animation met the project's objectives.

2.5 Project Requirement

Software and hardware are required to develop an animation project. Because they are intertwined, software and hardware requirements are important. A good, finished product will result from the combination of software and hardware.

2.5.1 Software Requirement

The software needed to develop this 2D animation project are as follows:

i. Adobe Illustrator
ii. Adobe Premiere Pro Cc
iii. Adobe After Effects CC
iv. Adobe Media Encore CC
v. Adobe Animate
vi. Microsoft Word

2.5.2 Hardware Requirement

The hardware needed to develop this 2D animation project are as follows:

i. Personal Laptop
ii. Mouse
iii. Drawing pad

2.6 Conclusion

This chapter contains the literature reviews and project methodology. The domain, the existing system, the methodology used, and the project requirement are all covered in this chapter. The relevant methodologies and project requirements are established to carry out the project's development. The project methodology consists of five phases: literature review, requirement analysis, design, development, and testing. The methodology is critical because it determines the project's progress flow. As a result, it is important to pick the best ones to complete the project according to the requirements specified previously.

CHAPTER 3: ANALYSIS

3.1 Introduction

This chapter will provide the requirement analysis to identify the need to produce an animation. The data gathered is based on testing with hardware such as a laptop to obtain some statistics. This project's software and hardware requirements will be listed to provide the best support during the development process.

3.2 Requirement Analysis

3.2.1 Project Requirement

This project's requirements and analysis phases focus on understanding the problem more, and the software and hardware requirements are also discussed. Audiences and topic experts are examples of requirements analysis that should be considered when developing this animation project. For project requirements, the system should be analyzed before it is developed. It requires analyzing the element that must-have in the storyboard, the character of the animation, and the storyline to be developed.

Requirement Gathering (2D Animation)

This 2D animation project was developed where each scene and environment create using Adobe Illustrator, Adobe After Effects, Adobe Animate, and Adobe Premiere Pro. To produce a good animation project, a prefix plan must have the characteristic to be developed. There are details about the 2D animation project:

i. **Title:** "Depression Awareness": The Impact of Secondary Motion in 2d Animation.
ii. **Languages:** English
iii. **Rough length:** 3 minutes
iv. **Target user:** Student and Society
v. **Aim:** Impact of Secondary Motion in 2D Animation
vi. **Frame rate:** 29.97 fps

3.2.2 Software Requirement

This project needs the software to develop the 2D animation, such as software in development and documentation.

i. Adobe Illustrator

A vector-based software that mainly focuses on the resolution-independent graphic. Creating a character and environment of animation using this software.

ii. Adobe Premiere Pro

A video editing software is used to edit the video, add the audio, and create an introduction scene.

iii. Adobe After Effects

A digital visual effect and compositing software that is used in the post-production process of animation making. It is used for adding special effects to the project.

iv. Adobe Media Encore

A video and audio converter that supports many formats is responsible for encoding video files to the proper format to ensure they can be played on a different device.

v. Adobe Animate

Adobe Animate is the main and the most important software to produce the animation. Most of the development of the animation is done in Adobe Animate. It is used to create animation by using keyframe and motion tween.

vi. Microsoft Word

Microsoft Word is a word processor software that able the user to create, edit. Save and deliverable format for worldwide. Microsoft Word is a good software that completes every need in documentation such as a table, table of content, figures, pages, etc.

3.2.3 Hardware Requirement

The hardware needed to develop this 2D animation project are as follows:

i. Personal Laptop

All the required software is installed on the personal computer. They are utilized to put the project into action on that laptop.

ii. Mouse

To do the work easier and faster than using touchpad personal computers.

iii. Drawing pad

A drawing pad is a computer input device that allows users to use a special pen-like stylus to hand-draw images, animations, and graphics. Other than the mouse, the drawing pas is used to the character in the Adobe Illustrator.

3.3 Project Schedule and Milestones

3.3.1 Project Schedule

Figure 3.1 below shows the Gantt chart for this animation project.

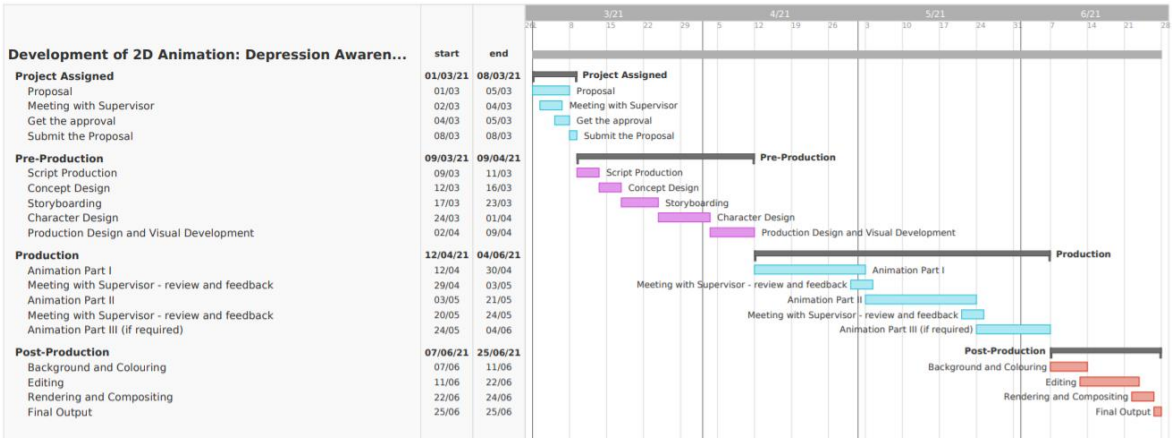


Figure 3.1 Gantt Chart

3.3.2 Milestones

Table 3.1 below shows milestones for this project to make sure the project progress is smooth and finished according to the dateline.

Table 3.1 Milestones

Milestones				
No.	**Task**	**Start Date**	**End Date**	**Duration (Days)**
1.	**Pre-Production**	**01/03/2021**	**09/04/2021**	**40**
	Proposal	01/03/2021	05/03/2021	4
	Meeting with Supervisor	02/03/2021	04/03/2021	2
	Get the approval	04/03/2021	05/03/2021	1
	Submit the Proposal	08/03/2021	08/03/2021	1
	Script Production	09/03/2021	11/03/2021	2
	Concept Design	12/03/2021	16/03/2021	4
	Storyboarding	17/03/2021	23/03/2021	6
	Character Design	24/03/2021	01/04/2021	8
	Production Design and Visual Development	02/04/2021	09/04/2021	7
2.	**Production**	**12/04/2021**	**04/06/2021**	**54**
	Animation Part I	12/04/2021	30/04/2021	18
	Meeting with supervisor - review and feedback	29/04/2021	03/05/2021	4
	Animation Part II	03/05/2021	21/05/2021	18
	Meeting with supervisor - review and feedback	20/05/2021	24/05/2021	4
	Animation Part III (if required)	24/05/2021	04/06/2021	11
3.	**Post-Production**	**07/06/2021**	**25/06/2021**	**19**
	Background and Colouring	07/06/2021	11/06/2021	4
	Editing	11/06/2021	22/06/2021	11
	Rendering and Compositing	22/06/2021	24/06/2021	2
	Final Output	25/06/2021	25/06/2021	1

3.4 Conclusion

Subsequently, before starting production on a project, it is important to conduct a requirement analysis. The project is developed using software, hardware, and user requirements. The most up-to-date software and hardware are used to keep up with technological advancements. The importance of a project schedule and milestones in producing a smooth and orderly animation project cannot be overstated. The milestones are used to display information about the animation project's schedule. In addition, requirement analysis, which includes needing analysis, user analysis, and requirement collection, is critical for identifying user needs. The project's design will be addressed in the following chapter.

CHAPTER 4: DESIGN

4.1 Introduction

This chapter including two parts, which are the scene sequence diagram and preliminary design. These scene sequences will be explained in detail, and a sequence diagram will be used to describe the scene layout by showing the linear sequence versus time. In preliminary design, there is three important design which is storyboard, character, and script.

4.2 Scene Sequence Diagram

In table 4.1 below shows the details about the scene sequence diagram that is already explained above. This contains a short description of the scene, a short description, and a duration for each scene.

Table 4.1 Scene Sequence Diagram

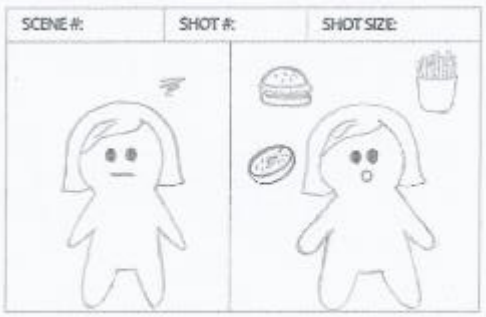
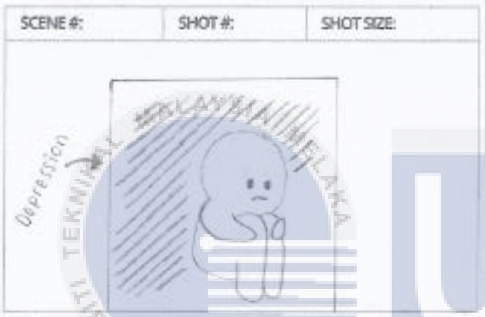
Segment	Short Description	Duration
Scene 1	Definition of depression	00:00:20s
Scene 2	How to recognize the sign of depression	00:00:50s
Scene 3	Sign of depression	00:00:01s
Scene 4	First Sign : “Anhedonia”	00:00:10s
Scene 5	Second Sign : Change in sleep pattern.	00:00:15s
Scene 6	Third Sign : Change in appetite.	00:00:12s
Scene 7	Forth Sign : Low self-esteem.	00:00:12s
Scene 8	Fifth Sign : Flat emotion.	00:00:12s
Scene 9	Sixth Sign : Decrease in hygiene.	00:00:14s
Scene 10	Closing	00:00:17s

4.3 Preliminary Design

4.3.1 Storyboard Design

Figure 4.1 below showed a series of illustrations or images in sequences for animation and motion graphics.

<table>
<tr><th colspan="2">STORYBOARD FOR “DEPRESSION AWARENESS”: THE IMPACT OF SECONDARY MOTION IN 2D ANIMATION</th></tr>
<tr><th>Scene1</th><th>Scene2</th></tr>
<tr><td> 
</td><td> 
</td></tr>
<tr><th>Scene3</th><th>Scene4</th></tr>
<tr><td> 
</td><td> 
</td></tr>
</table>

Scene5	Scene6
 Sign two : change in sleep pattern	 Sign three : change in appetite
Scene7	**Scene8**
 Sign four : low self - esteem	 Sign five : decrease in hygiene
	 Struggle to do self grooming habits.

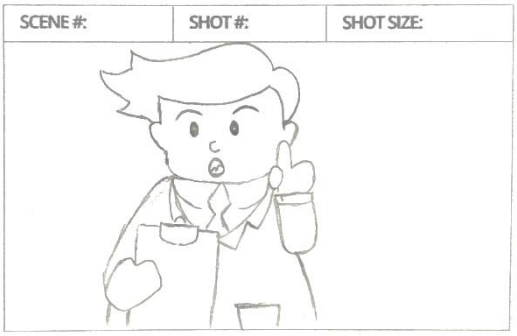
Scene9	Scene10
	

Figure 4.1 Storyboard

4.3.2 Character Profile

Character is important because this character will deliver the message from the animation. If the character failed to do so, the story would become dull and not effective. Figure 4.2 below shows the character in this animation project.

Character


Figure 4.2 Character

The secondary motion will be applied to the character through this animation project. Figure 4.3 below shows the image sequence of the animation. This character has the secondary motion in the movement. The primary action in character is the movement of the hands, and the movement of the character's eyes represents the secondary motion.

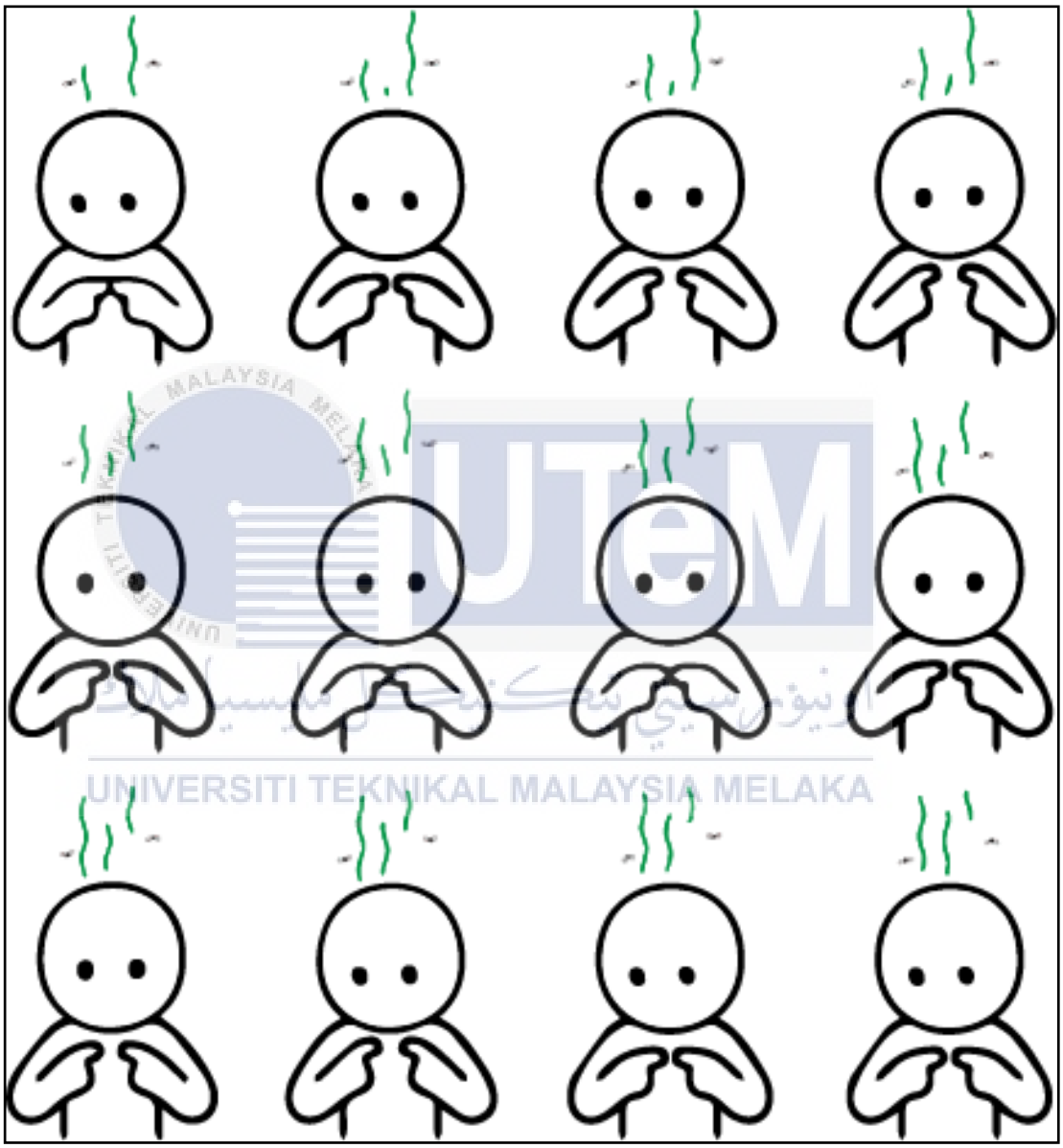
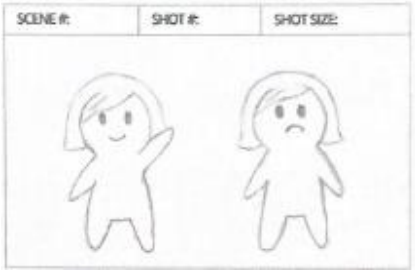
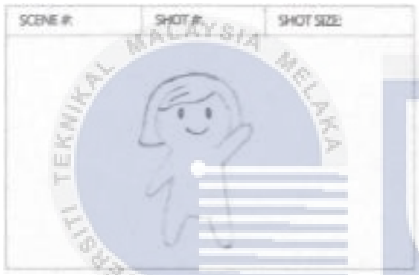
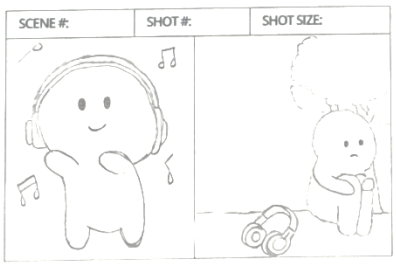
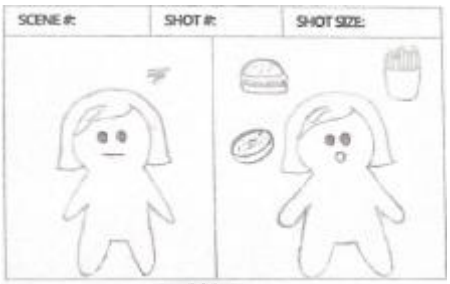
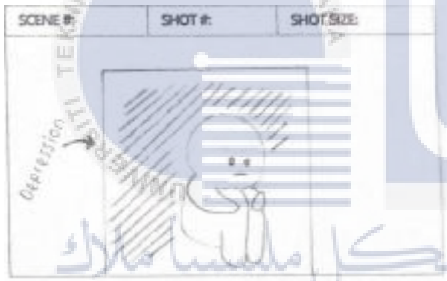
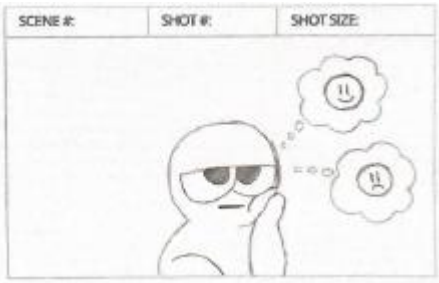


Figure 4.3 Image Sequence for Secondary Motion

4.3.3 Script

The script involves creating an outline of all the events taking place in animation. Figure 4.3 below shows the script for this animation project.

Scene#	**Script**
Scene1 	What Is Depression? Depression(major depressive disorder) is a mood disorder that makes you feel constant sadness or lack of interest in life. Most people feel sad or depressed at times. It is a normal reaction to the loss of life's challenges. But when intense sadness lasts for days to weeks. It may be something more than sadness.
Scene2 	According to the DSM-5, a manual doctor use to diagnose mental disorders, you have depression when you have five or more of these symptoms for at least two weeks. While these symptoms are common, not everyone with depression will have the same ones. Let's take a look at signs of depression!
Scene3 	Sign of depression.
Scene4 	First Sign: "Anhedonia" Anhedonia means the loss of pleasure from activities that would usually be fun. This leads to neglecting activities in people as they no longer give the person with depression any sense of pleasure or fun.

Scene5  	Second Sign: Change in sleep pattern. Our sleep patterns are extremely important for our mental wellbeing, and changes are one of the indicators that we are psychologically suffering. Depression can cause hypersomnia, sleeping too much, or insomnia, too little sleep.
Scene6  	Third Sign: Change in appetite. Our appetites are another factor that depression can affect. Some people with depression have an increased appetite and may turn to food for warmth, and some people with depression have a decreased appetite and feel unable to feed.
Scene7  	Forth Sign Low self-esteem. Depression may have a significant impact on someone's self-esteem. Depression will cause you to only see the negative aspects of yourself and minimize your accomplishments. This is a major depression symptom, and it can make people feel useless.
Scene8  	Fifth Sign: Flat emotion. "Flat Mood" is also another sign of depression. This is when someone's mood is gloomy. People often report feeling numb or as if they are unable to feel anything at all.

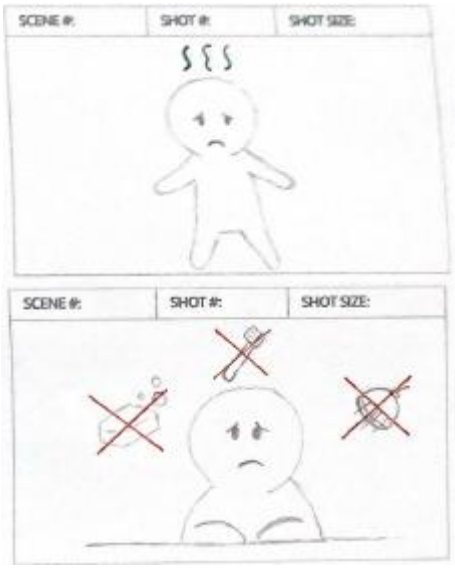
Scene9  	Sixth Sign: Decrease in hygiene. When someone has depression, it can cause a lack of energy. This can decrease someone's hygiene. It is because they feel like they have no energy to do anything like taking a bath or make self-grooming habits.
Scene10  	If you have had this emotion or strongly relate to the signs in this video, you should get professional help since you may be suffering from depression. The Doctor will talk to you about treatment choices like medication and therapy.

Figure 4.4 Script

4.4 Conclusion

To summarize, this chapter covers the design phase and the design information for each component that will be used in 2D animation. The storyboard design is also covered in this chapter. The storyboard is vital for animation because it will serve as a reference until the end of a production process. This stage is important for identifying all the project's required aspects. The implementation phase, which is required to complete the project, is the next chapter.

CHAPTER 5: IMPLEMENTATION

5.1 Introduction

This chapter will explain the project implementation for this 2D animation. This phase includes media creation, media integration, product configuration management, and implementation status. The goal of this product implementation is to provide the outline of techniques and elements that have been used for developing this 2D animation video. The types of elements productions used for developing this 2D animation, such as text, graphic, audio, and animation such as text, graphic audio, and animation, will be discussed.

5.2 Media Creation

This part of media creation will cover all the processes of media components is created and edited manually and separately before it will be integrated later in the media integration part. This process includes the production of texts, graphics, audio, and animation, respectively.

5.2.1 Text Production

For this 2D animation, Adobe After Effects and Adobe Animate are used in the text production process. Text is one of the important elements in animation because it gives information to the audience to understand the content. To make sure that the audience can see and read clearly, the text color must contrast with the background color. In producing a good text, the font type, size, and color also play an important role.

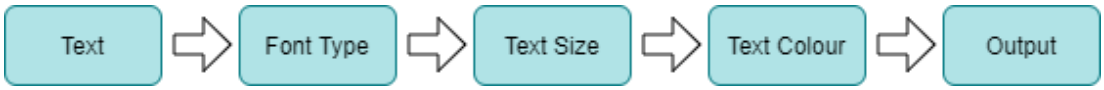


Figure 5.1 Text Production Process

Figure 5.1 above shows the text production in making the text in 2D animation. Table 5.1 below shows the text properties used in some scenes on 2D Animation: Depression Awareness.

Table 5.1 Text style used in "Depression Awareness": The Impact of Secondary Motion in 2d Animation.

Scene	Text	Font Type	Colour	Size
1	Definition of depression	Segoe Print	Black	96
2	How to recognize the sign of depression	Segoe Print	Black	69
3	Sign of depression	Segoe Print	Black	96
4	First Sign : "Anhedonia"	Segoe Print	Black	96
5	Second Sign : Change in sleep pattern.	Segoe Print	Black	96
6	Third Sign : Change in appetite.	Segoe Print	Black	96
7	Forth Sign : Low self-esteem.	Segoe Print	Black	96
8	Fifth Sign : Flat emotion.	Segoe Print	Black	96
9	Sixth Sign : Decrease in hygiene.	Segoe Print	Black	96
10	Closing	Segoe Print	Black	69
Credits	Credits	Trajan Pro	Black	60
Subtitles	Subtitles	Arial	White (Black background)	25

5.2.2 Graphic Production

In this animation, Adobe Illustrator is used in creating the bitmap image after the character is sketched in the storyboard. The character will be saved as an image used in the Adobe Animate and Adobe After Effects to produce a lively character and environment in 2D animation. Figure 5.2 below shows the graphic production process.

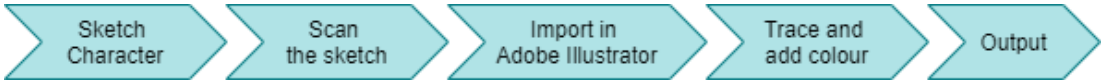


Figure 5.2 Graphic Production Process

5.2.3 Audio Production

To produce an interesting animation, audio is one of the important elements that can attract an audience. The audio file format for this project is in MP3 format. The audio for the background sound is taken from internet sources such as YouTube Studio. To generate the narrator voice for this animation, online software Voicemaker (https://voicemaker.in/#) is used. This software is AI-based Online Text to Speech Converter website.

This software can convert the text to speech and allow users to download in MP3 format. By using the Voicemaker, it creates a Text to Speech that provides many natural voices with a customizable audio style, volume, pitch, voice speed, pause, emphasis, audio format, and audio profile options. Figure 5.3 below shows the audio production for this animation.

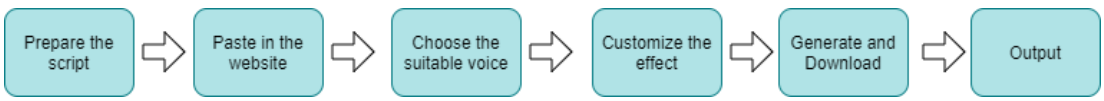


Figure 5.3 Audio Production Process

5.2.4 Animation Production

In this phase, the animation will be developed based on the storyboard. All the characters and environments will be draw and color in Adobe Illustrator and saved as a png format image. Then, the character and environment will be export to Adobe Animate to create scene by scene. The sequence image will be placed in the keyframe to create a smooth animation. Besides, classic motion tween also uses for the movement from the character more smoothly than using each frame with different position techniques. After each scene has been finished, the scene will be export in an mp4 file. All the scenes and the audio will be combined and edited in Adobe Premiere Pro. The final rendering and publishing are in file mp4.

5.3 Media integration

The media integration section explains how all the media components were linked together to develop this animation. This section will interface with the integration files for text, graphics, audio, and animation. This is accomplished with the help of Adobe After Effects, Adobe Premiere Pro, and Adobe Animate. Figure 5.4 below shows the media integration process.

Figure 5.4 Media Integration Process

5.4 Product Configuration Management

The configuration environment setup and version control technique will be discussed by product configuration management. The configuration environment setup and version control mechanism will be briefly detailed in this section. Before starting the task, the correct configuration setup also must be done with the software. It is important to make sure that the final output has been produced perfectly.

5.4.1 Configuration Environment Setup

- Adobe Illustrator

Adobe Illustrator is used to tracing, draw, and color the characters and the environment. Table 5.2 below shows the configuration setup for Adobe Illustrator. Figure 5.5 shows Adobe Illustrator properties.

Table 5.2 Configuration Setup for Adobe Illustrator

Software	Configuration
Adobe Illustrator	Stage Configuration: • Width: 1280 pixels • Height: 720 pixels • Colour Mode: RGB • Background: White

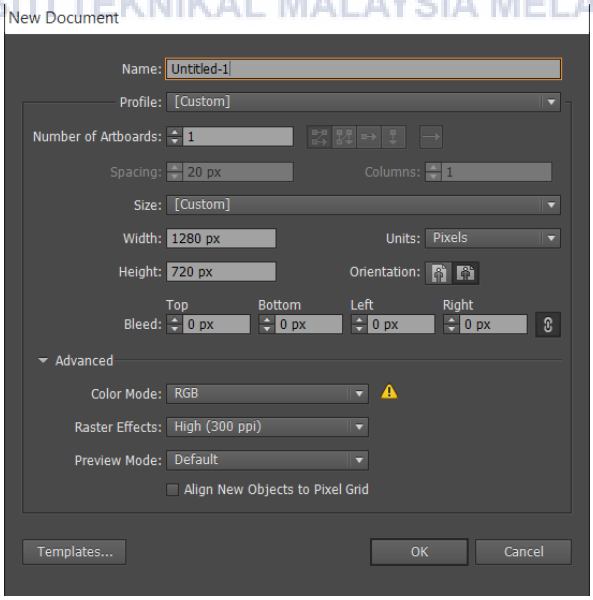


Figure 5.5 Adobe Illustrator Properties

- Voicemaker

Voicemaker is easy to use. Figure 5.6 below shows the voice setting for Voicemaker, and Figure 5.7 shows the audio setting for Voicemaker.

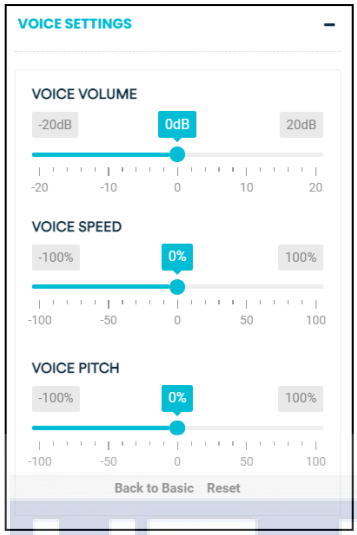


Figure 5.6 Voice Setting for Voicemaker

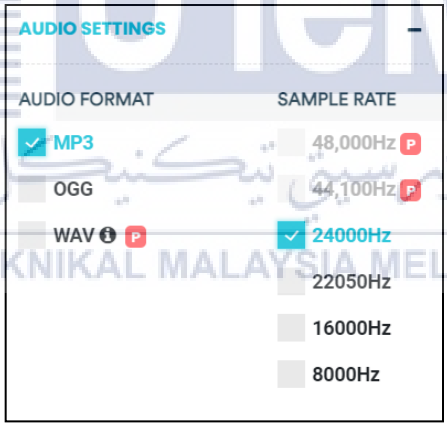


Figure 5.7 Audio Setting for Voicemaker

- Adobe After Effects

Adobe After Effect needs to set up the same as Adobe Animate and Adobe Premiere Pro to produce a good output when combined. Table 5.3 below shows the configuration setup for Adobe After Effect. Figure 5.8 shows the composition setting in Adobe After Effect.

Table 5.3 Configuration Setup for Adobe After Effect

Software	Configuration
Adobe After Effects	Stage Configuration: • Type: Composition • Size: 1920 x 1080 • Frame rate: 60 • Resolution: Full • Background: White

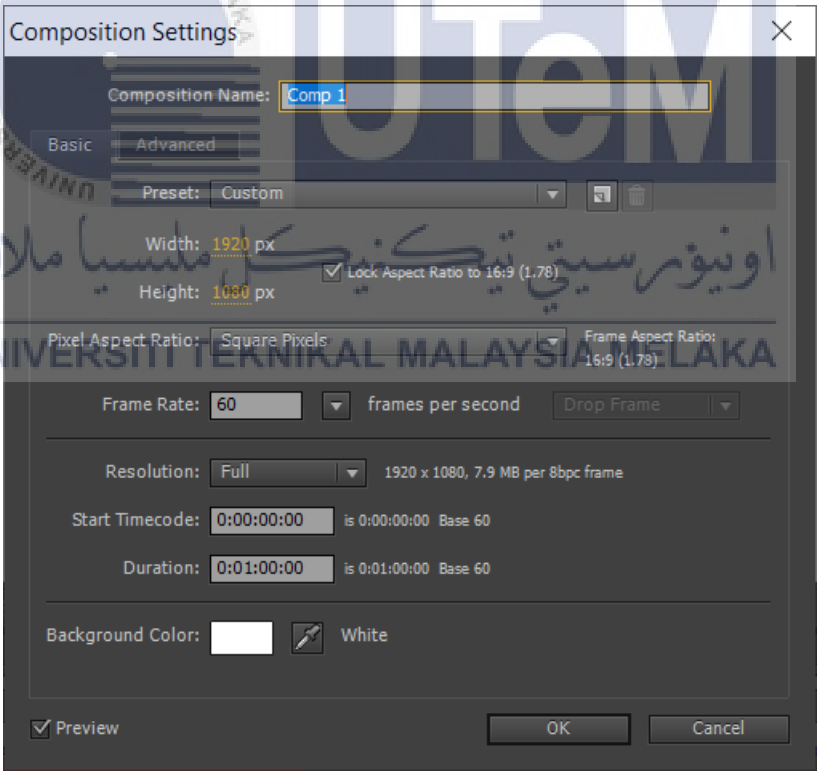


Figure 5.8 Composition Setting in Adobe After Effect

- Adobe Animate

Adobe Animate needs to be set up as shown to produce a good animation. Table 5.4 below shows the configuration setup for Adobe Animate. Figure 5.9 shows Adobe Animate properties.

Table 5.4 Configuration Setup for Adobe Animate

Software	Configuration
Adobe Animate	Stage Configuration: • Width: 1280 pixels • Height: 720 pixels • Frame Rate: 24 • Colour Mode: RGB • Background: White

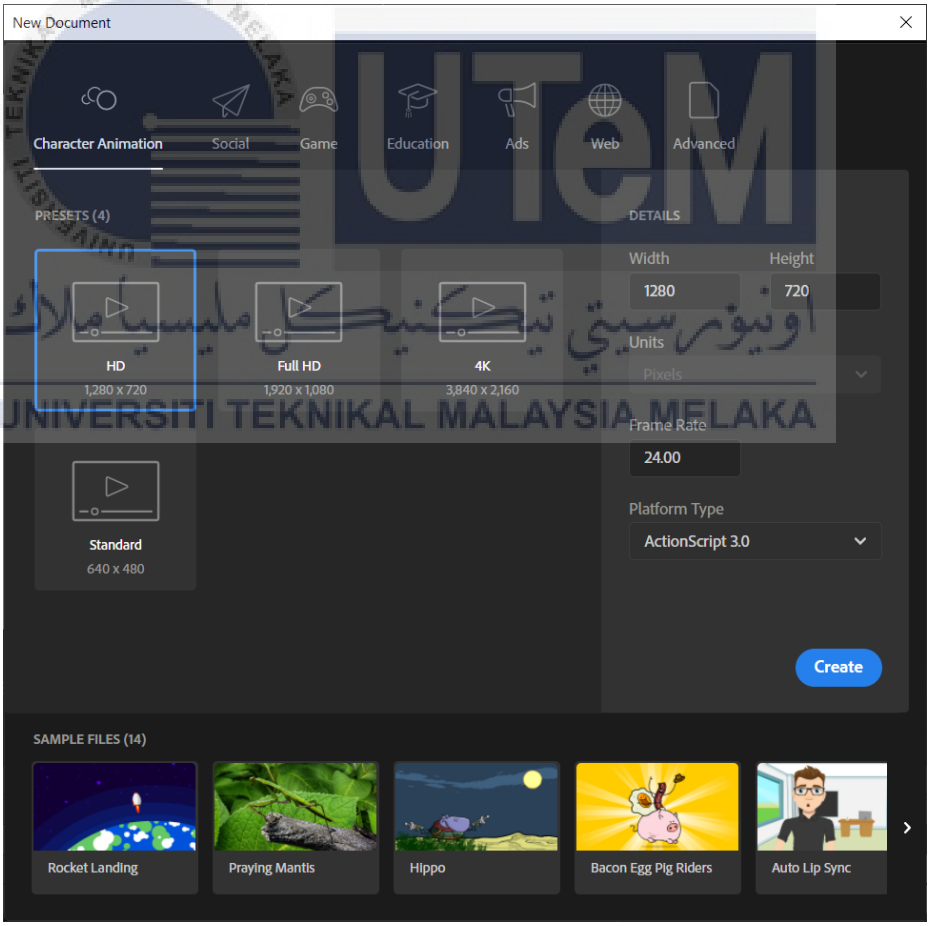


Figure 5.9 Adobe Animate Properties

- Adobe Premiere Pro

Adobe Premiere Pro needs to be set up as shown to produce a good video. Table 5.5 below shows the configuration setup for Adobe Premiere Pro. Figure 5.10 shows Adobe Premiere Pro properties.

Table 5.5 Configuration Setup for Adobe Premiere Pro

Software	Configuration
Adobe Premiere Pro	Stage Configuration: • Video display format: Timecode • Audio display format: Audio samples • Capture format: DV

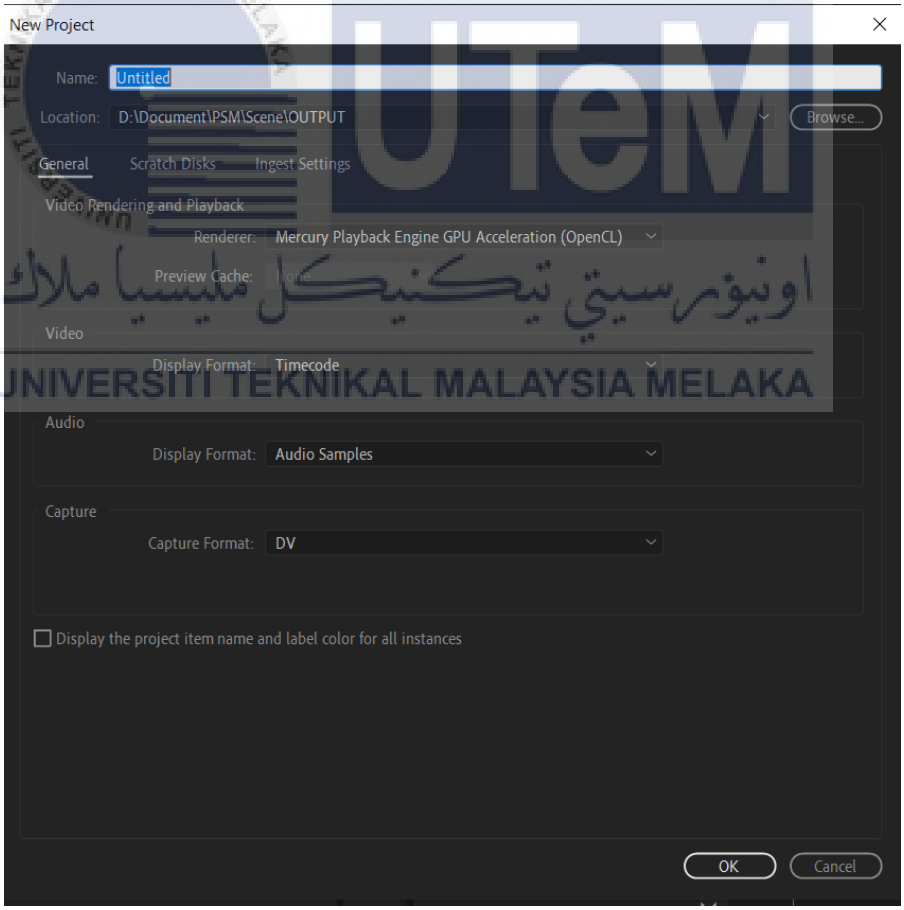


Figure 5.10 Adobe Premiere Pro Properties

5.4.2 Version Control Procedure

The version control product is the process of managing the version of the products. There are two types of versions which is Alpha and Beta version. The full version consists of many testing procedures in which the testers attempt to do several activities to discover and analyze the test's reaction and outcome.

- Alpha Version

  The alpha version stage is where a developer tests the product to verify it is error-free. Before the product is released to end consumers, the developer is accountable for correcting the issue.

- Beta version

  After the alpha testing is completed, the beta version is tested for the end-user. To ensure that the problem happened during the test, the user must be a target user. This beta version is distributed using a booth in a public location so that the developer can discover many users. The error will be repaired, and the golden master will be released.

- Golden Master Release

  This section will be the final and most important, in which the product will have been thoroughly tested and will be ready to be released or presented with all its features and capabilities. The product will be stable and smooth.

5.5 Implementation Status

Implementation status is to track the progress of the activities to complete this 2D animation project. Table 5.6 below shows the implementation status, consisting of the module name, description, duration to complete, date completed, and status.

Table 5.6 Implementation Status

Module name	Description	Duration	Date complete	Status
Planning and design	• Storyboarding • Illustrator of characters • Develop environment and related graphics. • Create scenes. • Generate the narrator's voice. • Find the sound effects.	4 weeks	09/04/2021	Complete
Animation	• Animated all the characters. • Animate the scenes and environment. • Putting text.	7 weeks	04/06/2021	Complete
Editing	• Edit the animation audio. • Put all the sound effects and narration voice. • Adding effects. • Finalize all components.	3 weeks	20/06/2021	Complete

5.6 Conclusion

Subsequently, this chapter has covered and explained the project's implementation phase. This provides a comprehensive overview of the development process, media creation, media integration, product configuration management, and implementation status. The next chapter will discuss the testing process of the project that includes the test plan and test implementation in detail.

CHAPTER 6: TESTING

6.1 Introduction

In this chapter, the testing phase will be tested, and this is the final phase of this 2D animation project. The testing phase for this animation has been conducted so that developers are aware of how well the end-user accepts this animation and whether the objectives are achieved. This chapter consists of a test plan which includes the test user, test environment, test schedule, and test strategy. For this project, testing will be tested on the target user, which is student and public. The testing phase will be discussed in this chapter.

6.2 Test Plan

6.2.1 Test User

Test user involved in this testing is profiling the tester, which is involved, 16 respondents. In research from Willett et al. (2017) conducted a user study with 16 participants. Table 6.1 below shows the details of the tester involved in this testing.

Table 6.1 Test Organization for Testing

Testing	**Questionnaire**
Profession	Students and public
General information	Age 12 – 24 years old (Students) 25 years old and above (Public)
Description	This testing is being held to evaluate the impact of the secondary motion in the 2D animation.
Total user	Students – 12 Public - 4

6.2.2 Test Environment

The test environment specifies the environment in which the testing will be conducted. It also specifies the hardware that will be used throughout the test. The testing environment is beneficial in ensuring that the testing procedure is completed without difficulties. Table 6.2 below shows the test environment details.

Table 6.2 Test Environment

Hardware and Software	**Description**
Smartphone / Laptop	To do the testing of this 2D animation
Operating system	Smartphone: Android/iOS Laptop: Microsoft Windows 10

Due to this Covid-19 pandemic, the test environment will be conducted online. This testing will be conducted by using the Google forms platform. The Google form consists of 4 sections. The respondent will take around 10 minutes to finish the test.

6.2.3 Test Schedule

The test schedule is an important part of the testing process since it ensures that the testing can be completed efficiently and within the time given. The test schedule is critical for ensuring that the plan is followed and the project is completed. The test schedule must include specifying the tasks to be accomplished and the number of test participants. Table 6.3 below shows the test schedule that will be conducted for the testing.

Table 6.3 Test Schedule

Process	Description
No of respondent	16 respondents
Testing date	15 – 16th August 2021
Testing duration	Depends on the respondent
Testing venue	Online

6.3 Test Strategy

In this project, the test strategy is the part that must be prepared to complete the study. This method is used as a research guide. The alpha and beta testing methods are used in this strategy.

i. Alpha testing

Alpha testing is conducted when the animation prototype is finished. This testing was performed to identify any problem before releasing the animation to the audience. The developer conducts this alpha testing. The animation will be reviewed and tested by the developer to ensure there are no problems and the animation runs smoothly.

ii. Beta testing

The end-user uses the animation to evaluate the problem. External testers would be able to test the final product and provide relevant recommendations. This assignment requires a small group of 16 respondents to conduct the testing. These are the actual audiences who did not know the animation production process.

A set of questionnaires is provided where it contains 4 sections in the Google form. The respondents will be provided two videos and a set of the question separately. The respondents need to give a score from 1 to 100 for each question regarding the attractiveness, smoothness, feel, and emotion of the 2D animation.

6.4 Test Implementation

6.4.1 Test Description

Test description will explain the test objectives and expected outcome from this test. The questionnaire will be given to the respondent during the evaluation session. The questionnaire contains 4 sections. In the first section, there will be a briefing session about secondary motion and an example of the secondary motion in the animation. After that, there will be general information such as gender and age. The last two sections are testing the secondary motion. For sections 3 and 4, there will be a video given and three questions. The respondents need to give a score from 1 to 100 for each question regarding the attractiveness, smoothness, feel, and emotion of the 2D animation. The questionnaire from the Google form is shown in Appendix A.

6.4.2 Test Data

The data will be collected once the evaluation session is finished. The result from the questionnaire is recorded for analysis. The questionnaire aims to decide whether this project achieves its specified goal in the first chapter.

6.5 Test Results and Analysis

This part will examine the data for test outcomes and test analysis. The test findings and analysis demonstrate that the test satisfies the project's goals. The outcome will be examined to determine the product's success. It may also analyze if the product is suitable for the target user. This section will evaluate the testing findings and interpretation once all testing processes have been finished.

The tester's response to the questionnaire allows for analysis and outcome. It's also for assessing the user and target audience. The tester responds positively to the user's results, and they are all satisfied with the outcome product. Table 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, and 6.11 below shows the result of the user testing.

Table 6.4 Result Section A General Information (Gender)

Gender	Frequency
Male	7
Female	9

Table 6.5 Result Section A General Information (Age)

Age	Frequency
12-17 years old	3
18-24 years old	9
25 years old and above	4

Table 6.6 Result Section B (Question 1)

Question: The attractiveness of this 2D Animation.	
Score	**Frequency**
60	2
70	1
80	3
87	2
90	5
92	1
96	1
98	1

Table 6.7 Result Section B (Question 2)

Question: The smoothness of this 2D Animation.	
Score	**Frequency**
60	1
70	2
85	2
86	1
89	1
90	6
95	2
96	1

Table 6.8 Result Section B (Question 3)

Question: The feel and emotion from this 2D Animation.	
Score	**Frequency**
50	1
60	1
70	1
85	2
90	5
92	1
93	1
95	1
97	2
100	1

Table 6.9 Result Section C (Question 1)

Question: The attractiveness of this 2D Animation.	
Score	**Frequency**
35	1
38	1
50	5
56	1
60	3
68	1
70	1
73	1
79	1
80	1

Table 6.10 Result Section C (Question 2)

Question: The smoothness of this 2D Animation.	
Score	**Frequency**
24	1
27	1
40	1
50	3
55	2
60	5
77	1
80	1
84	1

Table 6.11 Result Section C (Question 3)

Question: The feel and emotion from this 2D Animation.	
Score	**Frequency**
25	1
30	1
32	1
50	4
55	1
58	1
60	1
65	1
68	2
70	1
75	1
79	1

6.6 Analysis Testing

After all the testing and evaluation have been done with the tester, the results show that this 2D animation has achieved the target. According to new research, the impact can be evaluated through the questionnaire that has been tested by the user (M.M.T. Wickramasinghe, 2021). The set of questions is asked about the three aspects that give impact to the tester through the animation. The three aspects for the question are construct based on the research from Soo-Phing (2007). This research is also a study about the impact of animation courses. The three aspects that have been asked are attractiveness, smoothness, feel, and emotion.

The impact of the secondary motion in animation can be determined based on the data through the evaluation process. The data collected based on two videos are summarized and presented in the scatter with straight lines graph. The first video given is the animation that implements secondary motion, while the second video does not implement secondary motion in the animation. The actual data from the survey is shown in Appendix B.

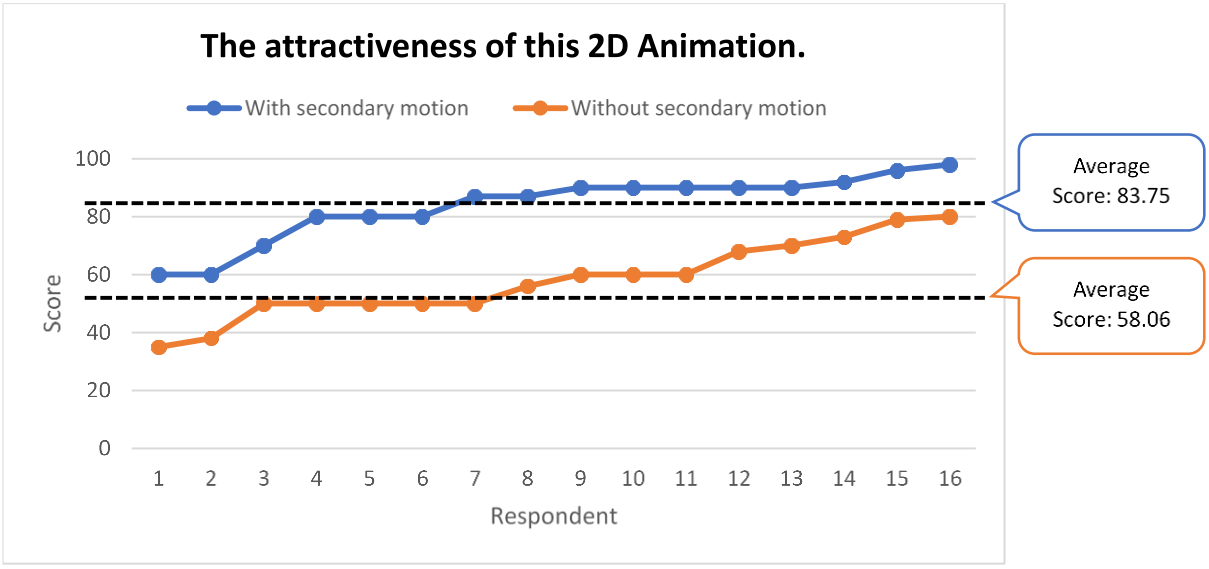


Figure 6.1 Graph for Attractiveness of the animation

Based on figure 6.1 above, the graph shows the result of the attractiveness of the animation. The graph above shows that the score for video with secondary motion is higher compared to video without secondary motion. For video with secondary motion, the audience gives a score from a range of 60 – 98, and the average score is 83.75. For video without secondary motion, the audience gives a score from range 35 – 80, and the average score is 58.06. Based on the average from these two videos, this concludes that secondary motion can impact the attractiveness of the animation.

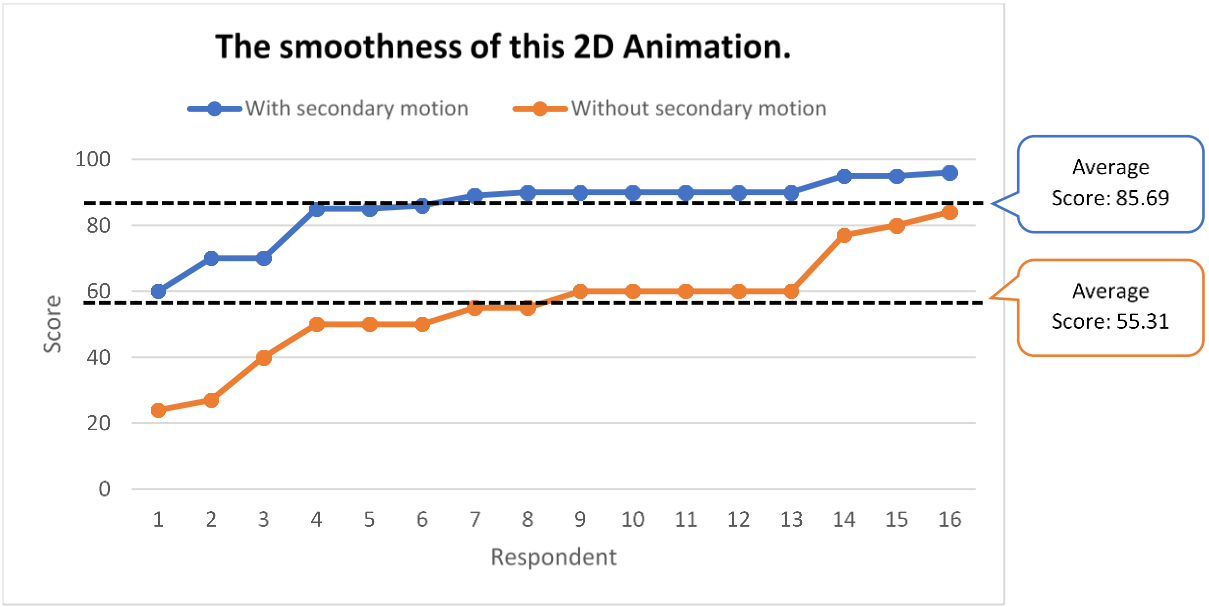


Figure 6.2 Graph for Smoothness of the animation

Based on figure 6.2 above, the graph shows the result of the smoothness of the animation. The graph above shows that the score for video with secondary motion is higher compared to video without secondary motion. For video with secondary motion, the audience gives a score from range 60 – 96, and the average score is 85.69. For video without secondary motion, the audience gives a score from range 25 – 79, and the average score is 55.31. Based on the average from these two videos, this concludes that secondary motion can impact the smoothness of the animation.

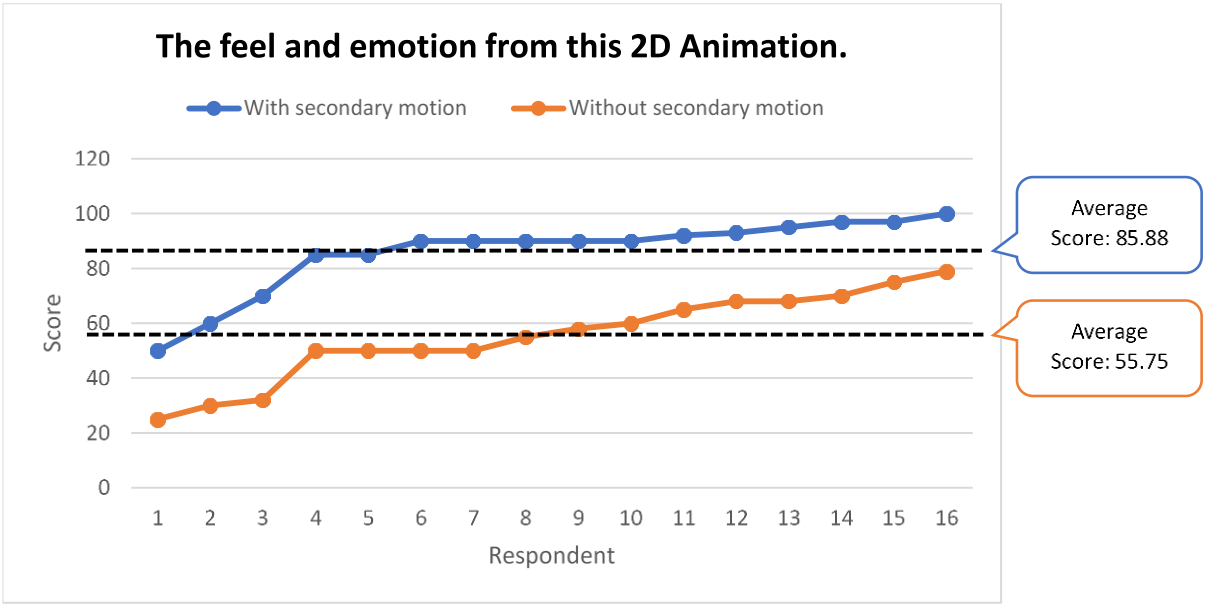


Figure 6.3 Graph for Feel and Emotion of the animation

Based on figure 6.3 above, the graph shows the result of the feel and emotion of the animation. The graph above shows that the score for video with secondary motion is higher compared to video without secondary motion. For video with secondary motion, the audience gives a score from a range of 50 – 100, and the average score is 85.88. For video without secondary motion, the audience gives a score from range 24 – 84, and the average score is 55.75. Based on the average from these two videos, this concludes that secondary motion can impact the feel and emotion of the animation.

To conclude, the result from the graph with the average score, the first video with the secondary motion, is higher than the second video for the three aspects, which are attractiveness, smoothness, feel, and emotion. As a result, the secondary motion can impact the animation in terms of attractiveness, smoothness, feel, and emotion.

6.7 Conclusion

In conclusion, the testing phase is significant in the development of this animation. The testing is completed, and the results of the testing are used to do the analysis. Based on the limitations of this project, there are a few enhancements that can be made in future work. The next chapter will go over the project's shortcomings, limitations, and suggestions for development.

CHAPTER 7: PROJECT CONCLUSION

7.1 Observation on Limitation

Several limitations have been discovered in this 2D animation during the testing and evaluation process. This chapter will be explaining the limitation that needs to be improved in the future.

Even though it was produced effectively, this animation project contains a certain limitation that can consider as a weakness. These limitations have been identified to ensure that the animation requirement will be fulfilled in the future.

- **Project Limitations.**

  i. Character illustration

  There is not much variety in the character illustration in this animation. For further attraction, the audience might desire to see more appealing illustrations.

  ii. Character motion

  The character motion appears to be the same and limited to a specific part of the character. The situation may appear less dramatic to the audience if the character makes fewer motions. However, for personal reasons, some of them may like the animation to have less motion.

iii. Camera view

In this animation, which is merely a front perspective, there is not much difference in camera angle. Therefore, this animation's story may be less compelling to the audience. They may also feel less immersed in the video and unable to attach their emotions to it.

iv. Time

2D animation takes more time to develop than 3D animation. 2D animation uses a combination of hand-drawn frame-by-frame animation. There are also some other things that cannot be changed for 2D animation in a short period of time. For example, changing a camera angle on a 2D scene is no small task compared to 3D animation, which can be done by changing the camera's position.

v. Less attractive

Nowadays, 3D animation is more in demand compared to 2D animation. Most people prefer to watch 3d animation movies as compared to 2d animation. It is because 3D animation can become more realistic and more appealing.

7.2 Propositions for Improvement

There are a few approaches to increase the skills and enhance the animation video. Proposition for improvement presents a suggestion on how the animation can be improved better.

i. Character improvement

Illustrate and design more appealing characters to attract the audience. Other than that, the character movement also needs to be improved to add the impact of the secondary motion.

ii. Content of the animation

Add more valuable content to the animation. Adding more content not only to get attention from the audience. It also can give more knowledge and information to the audience.

iii. Narrator's voice

The animation should have a professional voice actor. A good voice tone and intonation can deliver the message of the content effectively. Also, the recording needs to be recorded using a proper tool to get good audio quality.

iv. Content of the animation

As it relates to a person's mental health, the content conveyed in this animation should be more captivating and valuable for the audience. Because it is not targeted towards a certain audience, anyone can learn and gain knowledge from this animation video. It may also assist the audience in obtaining professional assistance or simply increasing their awareness.

7.3 Project Contribution

This animation project can contribute through the study and the content. Based on the study, this animation can help others to know and learn about secondary motion. It also can help the audience know the impact of the secondary motion if implement in the animation. Other than that, this animation project's content can help raise the awareness of depression among the audience. The content is about the definition, symptoms, causes, types, and treatment of depression. By knowing what depression and the symptom is, the audience can identify the existence of the disease in themselves or other people.

7.4 Conclusion

In conclusion, the objectives have been achieved by this animation after reviewing and analyzing the entire project. During the testing and evaluation phase, the video that getting the highest average score is the animation that implements the secondary motion. The score is given through the three aspects, which are attractiveness, smoothness, feel, and emotion. Based on this result, the animation that implements secondary motion can gives more impact compared to the animation that does not implement the secondary motion. As a result, the secondary motion can impact the animation in terms of attractiveness, smoothness, feel, and emotion. This project can help the readers to make an animation that implements secondary motion through this report. Other than that, the animation helps the audience know what secondary motion is and how it can impact the animation. This study's findings showed positive outcomes. But this project still needs some improvement in the future to be a better animation. The major improvement that can be improved is character movement. It is because the character movement is the main key for this animation to look more realistic and make the secondary motion easier to identify. Thus, the project is successfully developed and completed on time.

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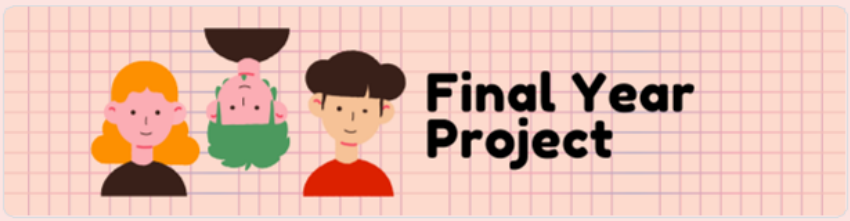
APPENDIX A QUESTIONNAIRE GOOGLE FORM



"DEPRESSION AWARENESS": THE IMPACT OF SECONDARY MOTION IN 2D ANIMATION QUESTIONNAIRE

syaminz0708@gmail.com (not shared) Switch account

* Required

Section A: General Information

Gender *

- Female
- Male

Age *

- 12-17 years old
- 18-24 years old
- 25 years old and above

Page 2 of 5

Back Next Clear form

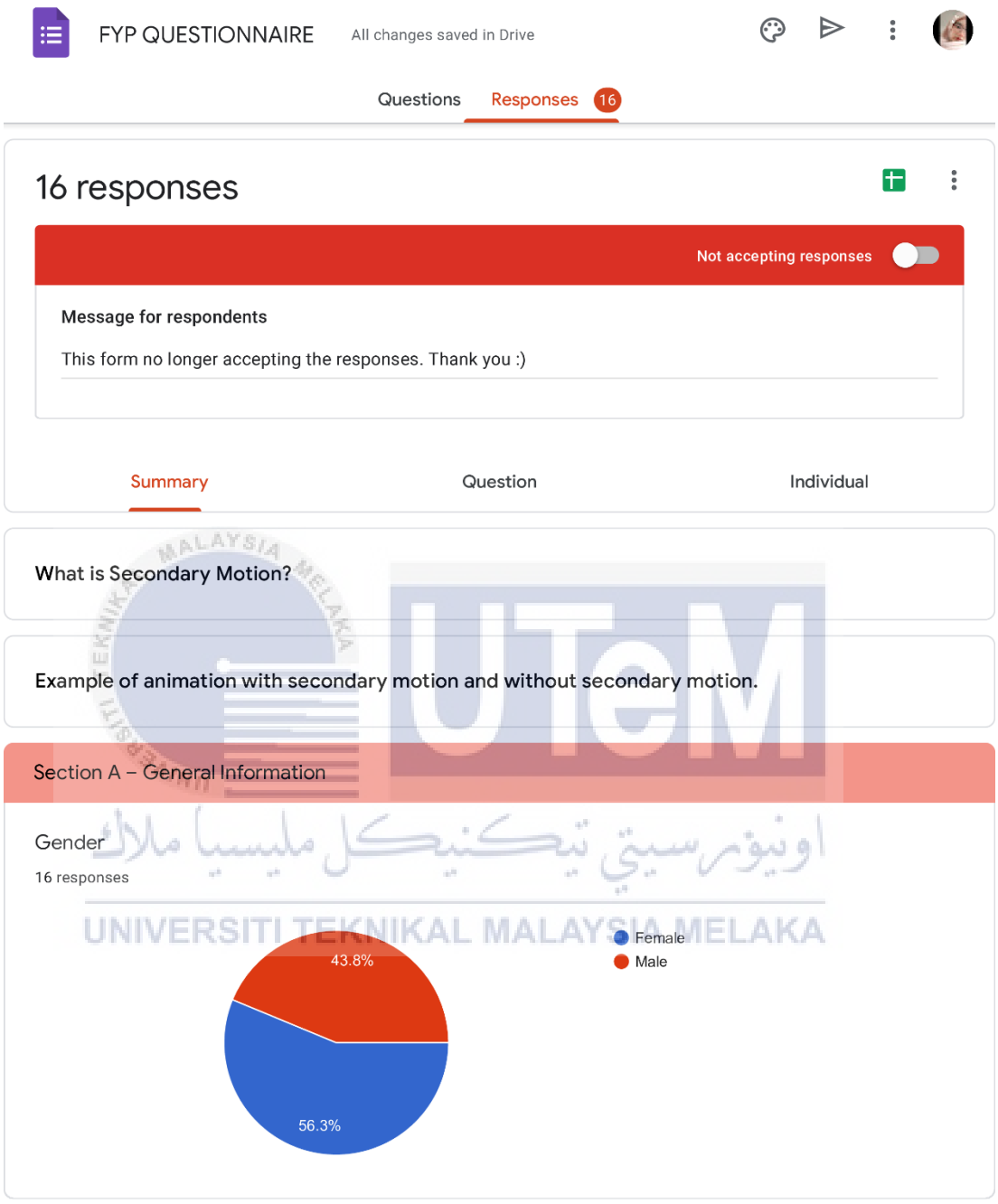
Never submit passwords through Google Forms.

"DEPRESSION AWARENESS": THE IMPACT OF SECONDARY MOTION IN 2D ANIMATION QUESTIONNAIRE

Thank you for your time. Have a good day! Stay safe :)

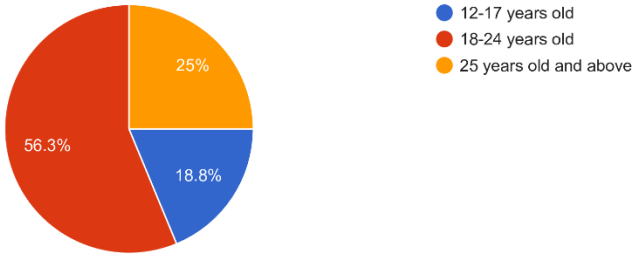
Submit another response

APPENDIX B DATA COLLECTION OF QUESTIONNAIRES



Age

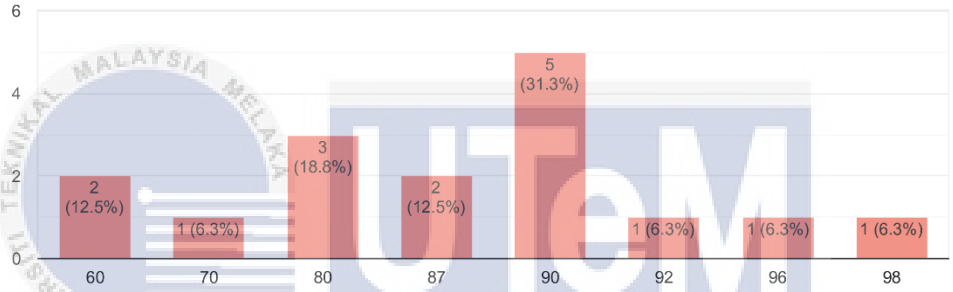
16 responses



Section B – Testing Video 1

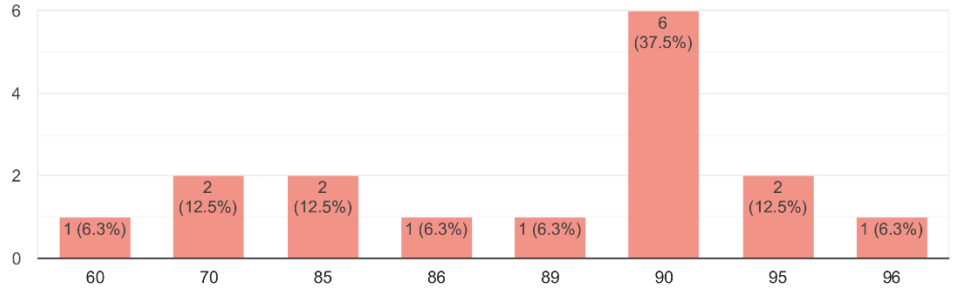
The attractiveness of this 2D Animation.

16 responses



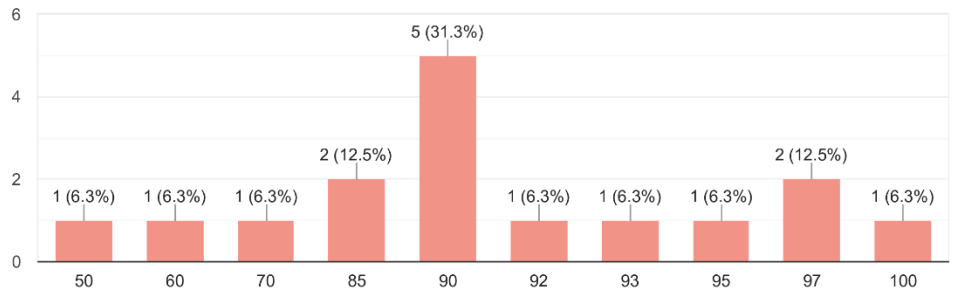
The smoothness of this 2D Animation.

16 responses



The feel and emotion from this 2D Animation.

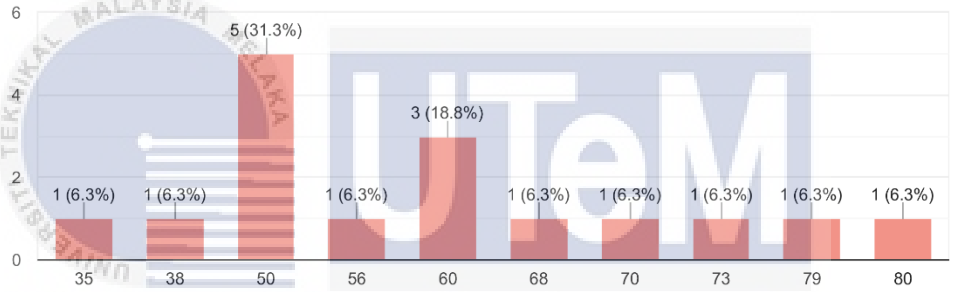
16 responses



Section C – Testing Video 2

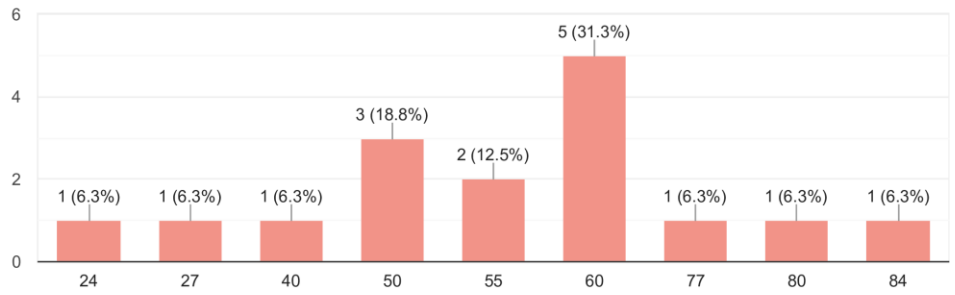
The attractiveness of this 2D Animation.

16 responses



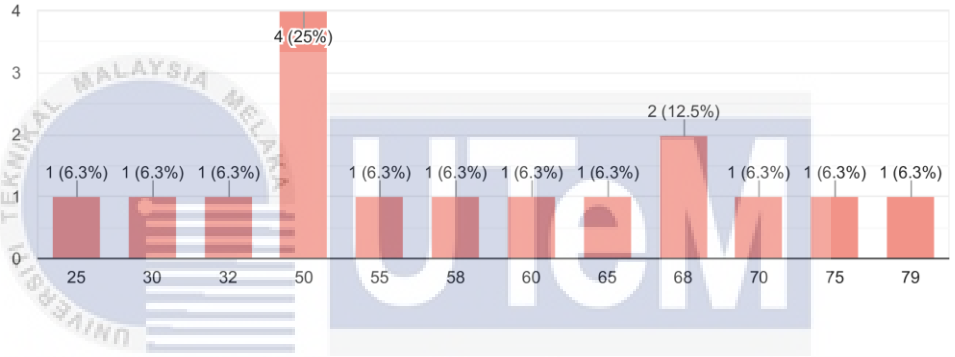
The smoothness of this 2D Animation.

16 responses



The feel and emotion from this 2D Animation.

16 responses



APPENDIX C TURNITIN REPORT