Implementation of 2D hybrid animation techniques in short animation for toddlers

FARAH NABILA BINTI MD MUJAIT

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

BORANG PENGESAHAN STATUS TESIS

JUDUL: IMPLEMENTATION OF 2D HYBRID TECHNIQUES IN SHORT ANIMATION FOR TODLLERS

SESI PENGAJIAN: 2016/2017

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Alamat tetap: POS 103-1 LOT 603, BATU 4, TANJUNG GADING, 84000, TANGKAK, JOHOR

Tarikh: 29/08/2017

Nama Penyelia: SYARIFFANOR BINTI HISHAM

Tarikh: 29/08/2017

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Implementation of 2D hybrid animation techniques in short animation for toddlers

FARAH NABILA BINTI MD MUJAIT

This report is submitted in partial fulfilment of the requirements for the Bachelor of Computer Science (Media Interactive)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2017

DECLARATION

I hereby declare that this project report entitled

IMPLEMENTATION OF 2D HYBRID TECHNIQUES IN SHORT ANIMATION FOR TODLLERS

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

STUDENT : _____ Date: 31/08/2017

(FARAH NABILA BINTI MD MUJAIT)

I hereby declare that I have read this project report and found this report is sufficient in term of the scope and quality for the award of Bachelor of Computer Science (Media Interactive) With Honours

SUPERVISOR : _____ Date: 31/08/2017

(SYARIFFANOR BINTI HISHAM)

DEDICATION

First of all, this dedication is dedicated to my family members especially my beloved parents. They are my backbone in completing this project and give encouragement so that the project is progressing well. Thank you for your endless supports when I need the most, give me a lot of advices and always pray the best for me.

To my supervisor, Miss. Syariffanor binti Hisham, thank you for your guidance supports and encouragement during project implementation. Thank you for giving me a chance to prove and improved myself.

To my evaluator, Dr. Hamzah Asyrani bin Sulaiman you for providing advices and feedback during presentation and evaluating my Final Year Project.

Last but not least, thank you to all my beloved friends who help me and always give me support directly or indirectly from the beginning of this project.

ACKNOWLEDGEMENTS

Bismillahirrahmanirrahim.

Firstly, I would like to give all the praise to Allah S.W.T for giving me the strength and patience for the whole process of completing this project. Without Him, I cannot complete this project according to what have been planned.

This Final Year Project is the end of my journey in pursuing my degree at Universiti Teknikal Malaysia Melaka. This project has been completed on time with the support of numerous people including my supervisor, my family and my friends. At the end of my Final year Project, I would like to take this opportunity to say thank you for all those who are willing to lend their hands for me. Without them, this project would not be finished on time.

First, I would like to express my deepest gratitude to my supervisor, Miss Syariffannor binti Hisham, who has support, guide and give constant supervision towards me throughout the progress of my Final Year Project with patient. Without her, this project would not be completed in time. Thank you for helping correct the defects and weaknesses that found in this project and giving assistant to complete this project successfully.

Next, high appreciation to my beloved family who has always supported and encouraged me throughout this project. Without their support, I would not have the motivation to continue it.

Last but not least, I would like to thank my friends and all those who involved directly or indirectly to the successful of this project because without them help during the project carried out, this project likely could not be completed. Thank you listening, offering me advice and supporting.

ABSTRACT

Back then, the usage of storybook among the toddlers is widely popular because of the interesting illustration. As the technology grows, the concept art and the storyline is implemented in animation. Animation is a great platform to be spread message to people. This is because animation makes the characters more alive and also, in animation, the storyline has already simplified in an interactive way. Besides that, toddlers are attracted to visuals and audio so, by combining the visual that is suitable with toddlers and a perfect audio, will attract the toddlers to watch. Thus, at the same time they will learn something from the animation and can be apply in their life. This project is developed by combining the techniques used in a 2D animation. The techniques used in the animation are vector style of illustration and anthropomorphic animals. The message that wanted to be deliver in the animation is about bully. This 2D animation is about the main character that got verbally and physically bullied by the students in his school but he was rescued by someone. In the end, they became best friends with each other. Through this project, a simple 2D animation is created by combining the techniques used and also to spread the message among toddlers and people who are related. Thus, hope this project will be effective and understood by the toddlers. At the same time, the message is clearly deliver.

ABSTRAK

Sebelum ini, penggunaan buku cerita di kalangan kanak-kanak adalah amat terkenal kerana mempunyai ilustrasi yang menarik. Dengan perkembangan teknologi pada masa kini, seni konsep dan jalan cerita yang telah digunakan di dalam buku cerita telah dilaksanakan dalam animasi. Animasi adalah satu platform yang baik untuk menyebarkan mesej kepada orang ramai. Ini kerana, animasi menjadikan watak-watak lebih hidup dan dalam animasi, jalan cerita telah dipermudahkan dengan cara yang interaktif. Selain itu, kanak-kanak tertarik kepada visual dan audio. Dengan itu, menggabungkan visual dan audio yang sesuai, ia akan menarik perhatian kanak-kanak untuk menonton. Pada masa yang sama, mereka akan belajar sesuatu dari animasi tersebut dan boleh diamalkan dalam kehidupan mereka. Projek ini dibangunkan dengan menggabungkan teknik yang digunakan dalam animasi 2D. Teknik-teknik yang digunakan dalam animasi adalah ilustrasi vektor dan haiwan antropomorfik. Mesej yang ingin disampaikan dalam animasi adalah tentang buli. Animasi 2D ini mengisahkan tentang watak utama yang dibuli secara lisan dan fizikal oleh pelajar-pelajar di sekolahnya tetapi dia telah diselamatkan oleh seseorang. Akhirnya, mereka menjadi kawan baik dengan satu sama lain. Melalui projek ini, animasi 2D ini dicipta dengan menggabungkan teknik yang digunakan dan juga untuk menyebarkan mesej di kalangan kanak-kanak dan orang-orang yang berkaitan. Oleh itu, berharap projek ini akan memberi kesan positif dan difahami oleh kanak-kanak. Pada masa yang sama, mesej dapat disampaikan dengan jelas.

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CHAPTER I

INTRODUCTION

1.0 Introduction

Animations are film sequences or videos containing moving, drawn or modelled images. They are constructed by running together thousands of separate photographed images, to convey an impression of movement. Animation also offers a medium of storytelling and visual entertainment which can bring pleasure and information to people of all ages. Besides that, using animation to engage the viewers can help explaining things in a more simple and engaging way.

Concept art is one of the main roles in creating a successful whether animation, games or illustrated books. This is where all the sketches and design are being produced before putting it into a real production and each of it is varies with different age. This is because, in every age stage, they have different taste and their own unique preference on the illustrations and usage of colours. Without knowing in depth what kind of illustration and usage of colours is favourable within in each of every age, it does not give any great impression towards the viewers. In addition,

toddlers are more visually attract to something they are familiar with. For example are animals. Thus, anthropomorphic animals is applied in characters of the animation. Anthropomorphism is the attribution of human characteristics or behavior is implement towards animal or object.

1.1 Problem Statement

The problem statement for this project is the less understanding on static image in the story or picture books for toddler. This is because some of the toddlers found that the picture books are less attractive and not easy to understand. Meanwhile, animation makes the character look alive and the movement of character attracts the toddler. In addition, we can give awareness through animation because the toddlers will understand more in animation. So, the visual story of concept art from storybooks should be applied in 2D animation to enhance the toddlers understanding.

Mostly, in toddlers' storybook they use anthropomorphic animals as the characters in their story. This is because toddlers are visually attracted with things that they are familiar with like animals. Moreover, every each animal have their own unique characteristics that makes them different from the other animals. Thus, anthropomorphic characters and vector style drawing will be implemented in the animation.

1.2 Objectives

i. To study type of animation for toddlers.

ii. To produce 2D animation for toddlers using combined techniques which is vector style and anthropomorphism.

iii. To evaluate the acceptance of combined techniques; vector style and anthropomorphism in a 2D animation to toddlers.

1.3 Scope

The main audience of the animation is targeted to toddlers on regarding whether the choice of the concept art is favourable among them. This also can be targeted to the parents who have children due to the message of the animation.

1.4 Project Significant

The output of this project is an animation that implements the concept art for toddlers. This is where whether the usage of such as colours or illustration is suitable and favourable among the toddlers.

1.5 Conclusion

In conclusion, a visually attractive short animation is created. The concept art; illustrations and usage of colours that are suitable with toddlers will be implemented in the 2D animation. Also, in this short animation, the viewers shall grasp the hidden message without hassle. In this chapter, the explanation of this project has been

covered and all the objectives have been stated and explained. For the next chapter, all the activity will be cover in literature review and project methodology and providing more explanation of this project.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.0 Introduction

This chapter will be discussing about the literature review and project methodology in creating the animation. The important role to develop this project is literature review. This review will discuss about the implementation of concept art for toddlers in 2D animation. Animation is the development of making the illusion of motion and the illusion of changes by means of the rapid display of a sequence of images that minimally contrast from each other. It is divided in two types of animation which is two dimensional (2D) animation and three dimensional (3D) animation. 2D animation knows as traditional animation which is the process of creating motion in a two-dimensional space. Besides that, animation is a great platform to spread any messages to people in an interactive way because some people get bored with only text and static image especially toddlers. They tend to focus more on the illustration rather than text. According to Mary Ann Evans and

Jean Saint-Aubin (2005), time spent on text was uniformly low and that the children spent much more time looking at the illustrations.

According to Abu Kalam Shamsuddin, Md. Baharul Islam, Dr. Md. Kabirul Islam (2013), concept art is an appearance of illustration where the main purpose is to express a visual demonstration of a design, thought, or mood for applying in video games, films, animation or comic books before it is put into the ultimate creation. It means there will be a multiple designs and sketches of the characters and backgrounds before it turns into animation. Before starting with the sketches, the target audience need to be identify first which is in this case is toddlers. Different age has different kinds of art and colors they prefer. According to Taunton (1983), young children tend to respond most positively to bright and contrasting colors, familiar objects, simple composition and unambiguous spatial relations. In this animation, anthropomorphism is apply to the characters. Definition of anthropomorphism is the attribution of human characteristics or behavior is implement towards animal or object. The reason of using animal or anthropomorphism character is because they are interesting and easily can grab children's attention. Based on Dominic Ali (2014), children find animals interesting and that content is portray using animals may be more entertaining for young children. Also, according to Nikki Atkinson (2008), animals create great empathy in humans, this empathy can be combined with a simplified narrative to provoke genuine feeling from audiences.

2.1 Domain

The storyline of this animation is about bullying. Why using animation as a platform to spread the awareness? According to Vitally Shter (2015), we are evolutionarily adapted to quickly respond to the combination of image,

sound, and motion. About 90 percent of the information our brains pick up is visual, and we process visuals 60,000 times faster than we can process text. Therefore, video allows us to eliminate visual complexities out of our communication and explain complex ideas to any number of people anywhere. Other than that, when watching a video, it create an empathetic connection with the screen. It is also much easier to become emotionally attached to something we watch in a video than something we read in an article.

2.2 Existing System

Below is the list of existing system that is related with the project.

2.2.1 Rock, Paper and Scissor

This animation was created by Android. This animation is created to give awareness about bullying and also concepts do not judge a book by its cover is applied in here. They use anthropomorphism concept in the animation for their characters which is the paper, scissors and rock. In the animation is about each different characters got bullied by their own mankind. They thought the other character was their enemy but turns out they are the ones who help during they got bullied.

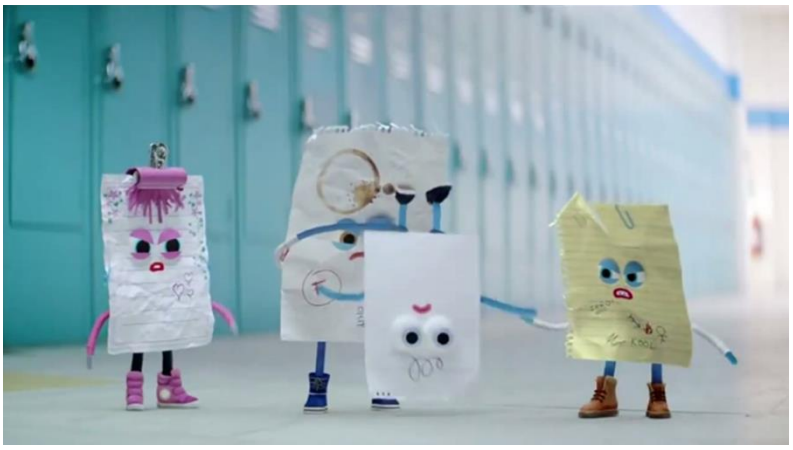


Figure 2.1: Example scene of Rock, Paper and Scissor

2.2.2 Bully

This animation was created by Metamorphosis. This animation is created to give awareness and effect of cyber bullying. They did not use anthropomorphism concept in this animation. In the animation is about a smart boy who excels in studies but got cyber bullying by his own classmates due to his jealousy but then, his friend was caught by the principal and got punished.

Figure 2.2: Example scene of Bully

2.2.3 #IAmAWitness

This animation was created by Ad Council. This animation is created to give awareness on bullying and how to help people who have been bullied. They use anthropomorphism concept in the animation for their characters. In the animation is about a normal student got bullied by his own schoolmate but his cyber friends give an encouragement to him.

Figure 2.3: Example scene of #IAmAWitnes

2.3 Comparison of Existing System

In getting know more detail about each of the existing system, the comparison has been done. The comparison of existing system is divided into a few categories. Table 2.1 below shows each comparison of existing system.

Table 2.1: Comparison of Existing System

Title of the Animation	**Rock, Paper & Scissor**	**Bully**	**#IAmAWitness**
Type of Animation	• 3D animation	• 2D animation	• 2D animation
Time length	• 2 minutes	• 4 minutes	• 30 seconds
Technique used	• Anthropomorphism concept	• Vector style • Normal human concept	• Vector style • Anthropomorphism concept
Content	• The message is clearly shown at the beginning. • The graphics are interesting and can attract the children	• The beginning is boring because too long introduction. • It takes time to understand the message that they want to deliver.	• The message is clearly shown at the beginning. • The graphics are interesting

	• There is no voice for the characters.	• The background music does not interest the children; quite dull. • There is no voice for the characters.	and can attract the children. • There is a bit voice for the characters but not much.

2.4 Project Methodology

This project used pre-production, production and post-production model for the project methodology. This model is always been used during video making or film making so, it is also suitable to be use in animation. Each stage has their responsibility and role such as:

2.4.1 Pre-production

The production will focus on the project description, content of th project planning, moral values and objectives. Based on the goals and objectives, the three components of the study which are hardware, software and user participation are defined. The activities are as follow:

i. Plan the project thoroughly in order to achieve the objective project.
ii. Scripting.

iii. Sketch storyboard and make schedules.

iv. Software acquisition and installation

2.4.2 Production

Once all the preproduction activities have been completed, the project enters the second stages. This is where the production will starts. In this process, the 2D characters and scenes will be design using Adobe Illustration. Once the characters and the scenes are completed, the characters will be animated based from the storyboard and followed by rendering.

2.4.3 Post-production

The final part of the process is called post-production. In this process, the scenes are edited and corrective actions are taken where it is necessary. The audio aspect which is the background music and sound effect will be inserted into the animation. This is to enhance and give more emotion to the animation. Then, the scenes are joined together before final rendering is done to form the final product.

2.5 Project Requirement

This project requirement will be discuss about the usage and list of software and hardware that has been use to develop this 2D animation. Software refers to the any programs that need to develop this project. While hardware is the devices are used to develop this project.

2.5.1 Software Requirement

Software requirement are divided into two categories which are development tool and documentation tool. All the tools are used to develop this project.

2.5.1.1 Development Tool

i. **Adobe Photoshop CS6**

This is used to edit some image and draw backgrounds for this project.

ii. **Adobe Illustrator CS6**

This is used for drawing the character and background.

iii. **Adobe After Effect CS6**

This is used to animate each character and some of the background.

2.5.1.2 Documentation Tool

i. Microsoft Office Word 2010

This is used to draw the flow chart and progress report of the project.

ii. Microsoft Office Power Point 2010

This is used to prepare for the presentation slide to make a presentation.

2.5.2 Hardware Requirement

i. Laptop

This is medium for to install the software that requires creating the animation. It is also used to make the report for this project.

ii. Wacom drawing tablet

This is used to draw the characters and background.

iii. Printer

This is used to print the proposal and full report of this project.

2.6 Conclusion

In a conclusion, this chapter discussed about the development of creating the animation which is including literature review and methodology for this project. Besides that, it discuss about the requirement used to develop this project such as hardware and software to complete the task. Other than that is the usage of pre-production, production and post-production model also has been discussed in this chapter. Next chapter will be discuss about analysis of this project includes user requirement, functional requirement, non-functional requirement and system architecture of this project.

CHAPTER III

ANALYSIS

3.1 Current Scenario Analysis

Previous years, the technology was less advances among people so, the usage of story book is very popular among toddlers. The animation was not very popular and used during that years but as time passes, the technology slowly become more advance. Same goes to the animation industry. Currently, animation is widely used to spread message among people because it is more interactive way to deliver message and it does not took a long time. Besides that, most of the characters in toddlers' storybook consist of anthropomorphic animals. This is because toddlers are visually attracted with things that they familiar. By implementing the concept art from the story book and anthropomorphic animals with a vector style illustration to a

2D animation, will increase the chances to attract more toddlers and also, better in understanding.

3.2 Requirement Analysis

For every system development, requirements are one of the most crucial things to have. Every system needs to have all of the requirements to complete the product. For this chapter, the project requirement, software, hardware, and other requirement are discussed.

3.2.1 Project Requirement

i. Duration

The total duration for this project is estimate around within 2 minutes. A normal animation cannot be too lengthy because the viewers will feel boring. So, total 2 minutes is enough to convey the message inside the story.

ii. Frame Rate

Frame rate is known as frames per second or fps. It is the frequency or speed at which continuing images called frames are displayed in an animated

display. A slower frame rate will cause the animation motion looks uneven, but faster frame rate will blur the motion of the animation.

iii. Images

Most of the animation production will use some colourful and interesting sequences of images. Using the correct selection of colour scheme, it will grab the viewers' attention and also enhance the mood. Moreover, another way to send the message towards the viewers is by using the images. It is more interesting rather than some text presentation or books.

iv. Audio/ background music/ sound effect

By adding some background effect, it will add some mood on the animation and enhance the storyline. Moreover, adding some suitable sound effect to the character gives it more alive feel which can create an empathy with the viewers. All of these audio combine with the animation, it will produce a great output and make it more interesting towards the viewer.

v. Storyline

The proposed story of this animation is about a happy turtle who is excited to go to school but on his way, there are certain animals are gossiping about his appearance. At the same time, one of the three rabbits throws a crumple paper to his head while giving a smirk to him. Due to that, it made the turtle feel sad and he continue walking to his locker. By the time he reached his locker, the three

rabbits came back and start bullied the turtle. One of the rabbit played with his bag and the turtle feel hopeless and cried. Suddenly, someone grab the turtle's bag from the rabbit's hand and causes all of them to be in silence. As they turned their head, it turns out the elephant who grab the bag. The elephant was angry and make the rabbit ran away. At first, the turtle got scared with the elephant due to his body size but as the elephant lend his hand to help, he does not feel scared anymore and grab the elephant's hand. The elephant's friend; the cat and the dog approached to them and wanted to be friends with the turtle. So, in the end the four of them become very close friend.

3.2.2 Sample of Scene

Every each scene in the animation shows the viewer where the situation happened. Each of the background is drawn by using Adobe Illustrator CS6. Figure 3.1 to 3.3 shows the background and scenery of the animation.

i. Background

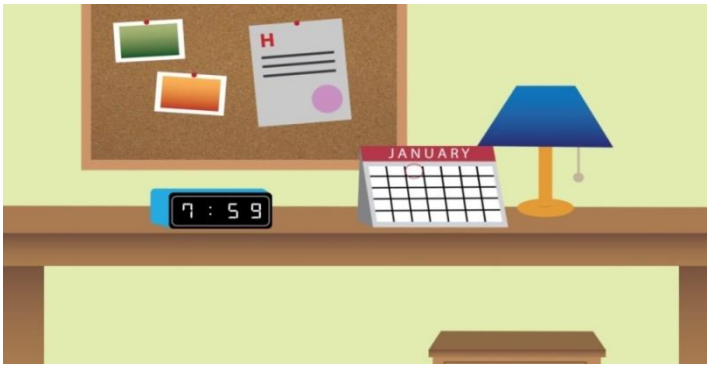


Figure 3.1: Scene inside of the room

Figure 3.1 shows one of the scenes inside the turtle's bedroom. This scene only appeared the beginning of the animation and to tell the viewers about the time and the date of what is happening.

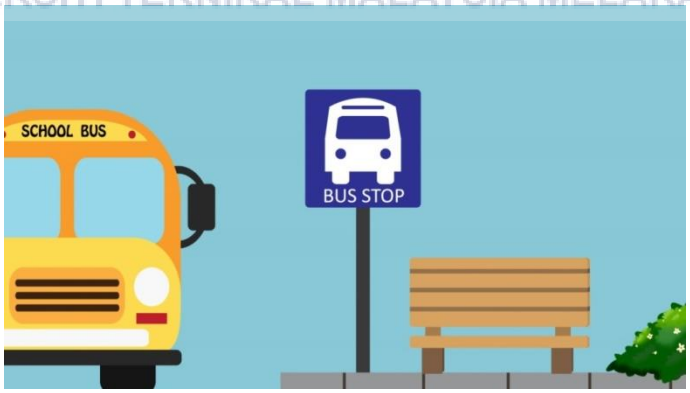


Figure 3.2: Scene of the bus stop

Figure 3.2 shows one of the scenes of the bus stop. This scene also appeared the beginning of the animation and this is where the turtle get inside the bus.

Figure 3.3: Scene the school

Figure 3.3 shows one of the scenes of the school. This scene appeared in the middle of the animation and this is to tell the viewer about the turtle's school. Also, this is the scene where the turtle got bully.

3.2.3 Character Details

Every character has their own unique characteristics and design. In figure 3.4 until 3.7 all of the characters details are list out. As for the characteristics each character is list out in the table 4.2.

i. Type of Eyes

Eyes play main role to show the reaction of the characters. Type of eyes is listed out in the table 3.4.

Table 3.4: Type of Eyes

Type	Example
Normal	
Smiley	
Sad	
Angry	
Smug	
Sad Closed	
Squint	

ii. Type of mouth

Mouths emphasize more the emotion of the characters. Type of mouth is listed out in the table 3.5.

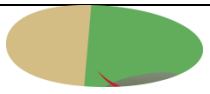
Table 3.5: Type of Mouth

Type	Example
Main character's normal smile	
Main character's happy smile	
Main character's shock	
Main character's sad	
Main character's disappointed	
Male's smile	
Female's smile	
Side character smile	

iii. Type of hands

Every hand gesture plays as the action of the characters in the animation. Type of hands is listed out in the table 3.6.

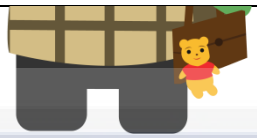
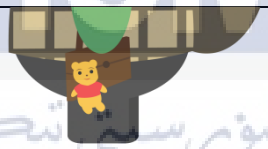
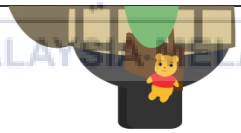
Table 3.6: Types of Hands

Type	Example
Normal	
Injured	
Grab	

iv. Type of legs

The function of legs can indicates the body position of the characters. Type of legs is listed out in the table 3.7.

Table 3.7: Type of Legs

Type	Example
Front	
Back	
Left-side	
Right-side	

3.2.4 Design Analysis

To meet the requirement, design analysis need to be specified as below.

i. Squash and Stretch

This action gives the illusion of weight and volume to a character as it moves. Also squash and stretch is useful in animating dialogue and doing facial expressions. It is used in all forms of character animation from a bouncing ball to the body weight of a person walking. This is the most important element during the animation process. Picture below is an example where squash and stretch is applied. It is applied during walking.

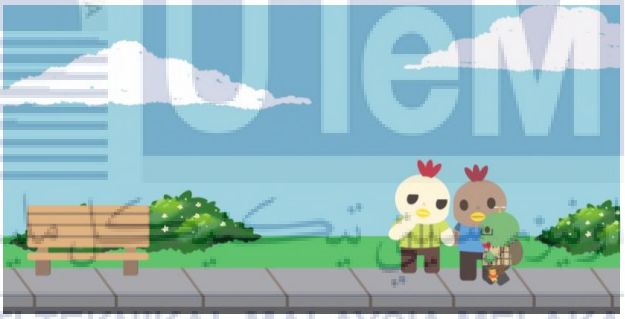


Figure 3.4: Example of squash and stretch

ii. Anticipation

The next movement that prepares the viewers for a major action the character is about to perform, such as, starting to run, jump or change expression.

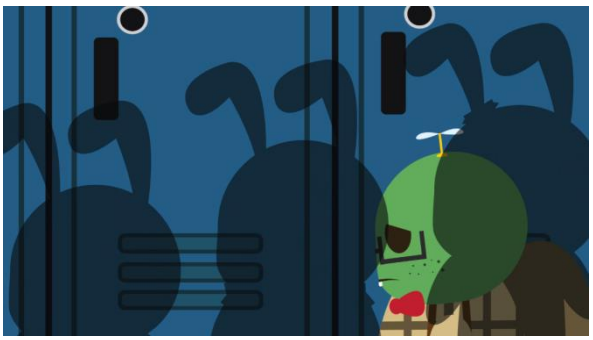


Figure 3.5: Example of anticipation

iii. Staging

A pose or action that communicates to the viewers about the attitude, mood, reaction or idea of the character as it relates to the story and continuity of the story line. Long, medium, or close up shots, as well as camera angles is affectively apply in here and also helps in telling the story. One action is used to clearly stated and to get the idea across. Staging directs the audience's attention to the story or idea being told. Background and animation should work together as a pictorial unit in a scene.

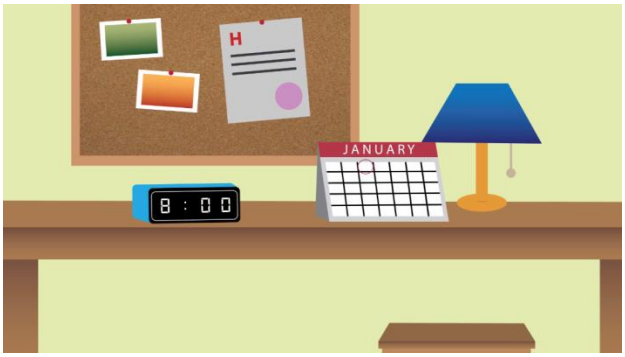


Figure 3.6: Example of staging

iv. Straight Ahead and Pose-to-pose Animation

Straight ahead animation starts at the first drawing and works drawing to drawing to the end of a scene. Lose size, volume, and proportions can be happened when applying with this method, but it does have spontaneity and freshness. Pose-to-Pose is more planned out and charted with key drawings done at intervals throughout the scene. The size, volumes, and proportions are controlled better this way.

Figure 3.7: Example Straight ahead and pose-to-pose animation

v. Follow through Overlapping Action

Follow through is when the main body of the character stops all other parts continue to catch up to the main weight of the character, such as arms, long hair, clothing or a dress, floppy ears or a long tail. Nothing stops all at once. Overlapping action is when the character changes direction while his clothes or hair continues to move. Timing is crucial to the effectiveness of drag and the overlapping action.

Figure 3.8: Example of follow through overlapping action

vi. Slow-in and Slow-out

As action starts, we have more drawings near the starting pose, one or two in the middle, and more drawings near the next pose. The lesser the drawing, the faster the action looks. Same goes to the opposite of it. Slow-ins and slow-outs soften the action, making it more life-like.

Figure 3.9: Example of slow-in and slow-out

vii. Arcs

All actions, with few exceptions, follow an arc or slightly circular path. This is especially true of the human figure and the action of animals. The action of animation looks more natural and better flow when arc is applied. All arm movement, head turns and even eye movements are example of on an arc.

Figure 3.10: Example of Arcs

viii. Secondary Action

This action adds and enriches the main action. It also adds more dimension to the character animation, supplementing or re-enforcing the main action. For example; think of the walk as the primary action and arm swings, head bounce or any other actions of the body as secondary action.

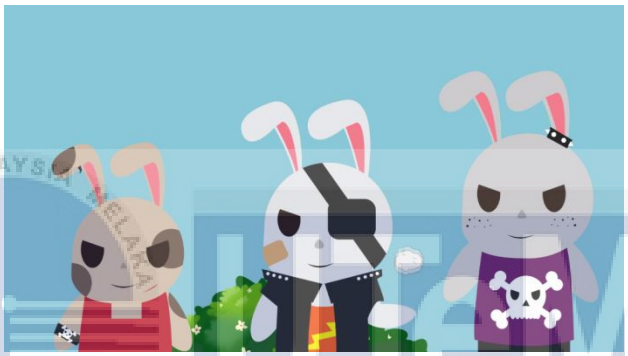


Figure 3.11: Example of secondary action

ix. Timing

Character's movement looks more interesting when the timing is varied in each of the scene. The lesser the drawing, the faster the action looks. Same goes to the opposite. Also, timing in the animation of a character can establish mood, emotion, and reaction to another character or to a situation.

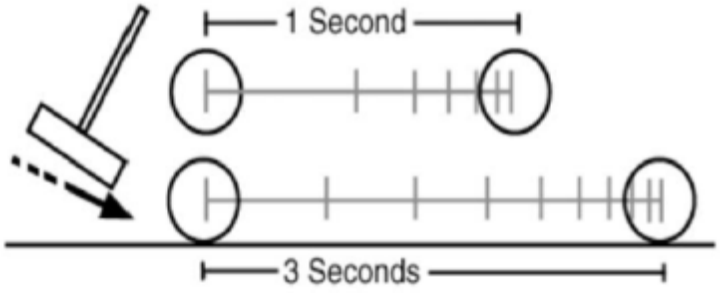


Figure 3.12: Example of timing

x. Exaggeration

Exaggeration is a cartoony facial feature, expressions, poses, attitudes and actions added to the characters. Exaggeration in a walk or an eye movement or even a head turn will give your film more appeal. A good taste and common sense is important to keep the animation from becoming too theatrical and excessively animated.

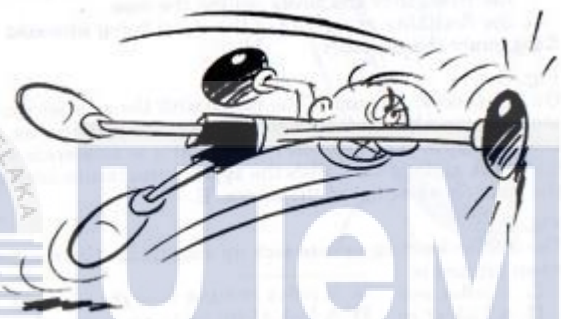


Figure 3.13: Example of exaggeration

xi. Appeal

Every animated character has their own unique appeal. All characters have to have appeal whether they are heroic, villainous, comic or cute. The use of appeal for the viewers is to capture their interest when watching the animation. Like all forms of storytelling, the feature has to appeal to the mind as well as to the eye.

Figure 3.14: Example of appeal

3.2.5 Software Requirement

There are some preparation has to be done to fulfil the software and hardware requirements of the project, to start the development. Table 3.8 show the software used in this project.

Table 3.8: List of Software Requirements

Software	Description
Audacity 2.0.5	Audacity is used for editing the sound effects and background music.
Sony Vegas 11	Sony Vegas is used to combine all the footages of the animation and then, added the background music and sound effects.
Adobe After Effects CS6	Adobe after effects is used to animate all the characters pose by pose for the animation.
Adobe Illustrator CS6	Adobe Illustrator is used to draw the vector image of the character, background and objects for the animation.

3.2.6 Hardware Requirement

A hardware component is also important part to make the project success. Table 3.9 show the hardware used in this project.

Table 3.9: List of Hardware Requirements

Hardware	**Minimum Specification**	**Function**
Laptop	- Intel Core i5 @ 1.70Ghz - 2.40Ghz Processor - 12GB RAM - 64-bit Operating System - Windows 10	Support the software to be used to develop 2D animation video.
Mouse	Any mouse	Point and select the appropriate tools in
Graphic Tablet and Tablet Pen	Wacom Intuos	Digitally create and draw the entire vector image that needed to develop the 2D animation.
Printer	Any printer	Print out the report

		and documentation in this project.

3.3 Project Schedule and Milestones Gantt chart of project activities

The table 3.9 is the Gantt chart of project activities, showing the task to be carried out by weeks. The table 3.10 is the milestones by date of start and date of end.

Table 3.10: Gantt Chart of the Project

No	Task	Week														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Discussion & submission proposal															
2	Proposal correction & verification															
3	Development of Chapter 1															
4	Development of Chapter 2															
5	Development of Chapter 3															
6	Progress report 1 submission															
7	Development of Chapter 4															
8	Demonstration of project															

9	Progress report 2 submission														
10	PSM1 report														
11	Final Presentation														

Table 3.11: Milestone of the Project

Activity	**Start Date**	**End Date**
Idea Generalization	19 Dec 2016	3 February 2017
Script writing	13 February 2017	20 February 2017
Storyboarding	20 February 2017	6 Mar 2017
Designing the characters and backgrounds	6 March 2017	20 March 2017
Animate every characters and objects	20 Mar 2017	1 April 2017
Compositing	1 April 2017	15 April 2017
Musical Score & Audio Syncing	1 April 2017	15 April 2017
Final Touches & fixes	1 April 2017	15 April 2017
Progress Presentation		9 May 2017
Presenting the full product	22 May 2017	26 May 2017
Submission of completed product	27 May 2017	31 May 2017

3.4 Conclusion

As the conclusion, this chapter explain the current scenario analysis that related with this project. Besides that, the explanation about project requirement included software and hardware requirement to develop this project have been explain with detailed to develop and produce a high quality 2D animation video.

In next chapter, the design phase about this project will be discuss. This will included all of the creation for this project.

CHAPTER IV

DESIGN

4.1 Introduction

Design is a plan or drawing produced to show the look and function or workings of an object before it is built or made which in this case is the design of the characters and the background. Before creating and designing the characters, the target viewers need to be identified because different age has different kind of illustration they prefer.

This chapter describes the storyline and sequence figure to show linear sequence product for visualize scene arrangement, preliminary design which consist storyboard design and the conclusion of this chapter.

4.2 Scene Sequence Diagram

Figure 4.1 explains about the scene sequence of this project.

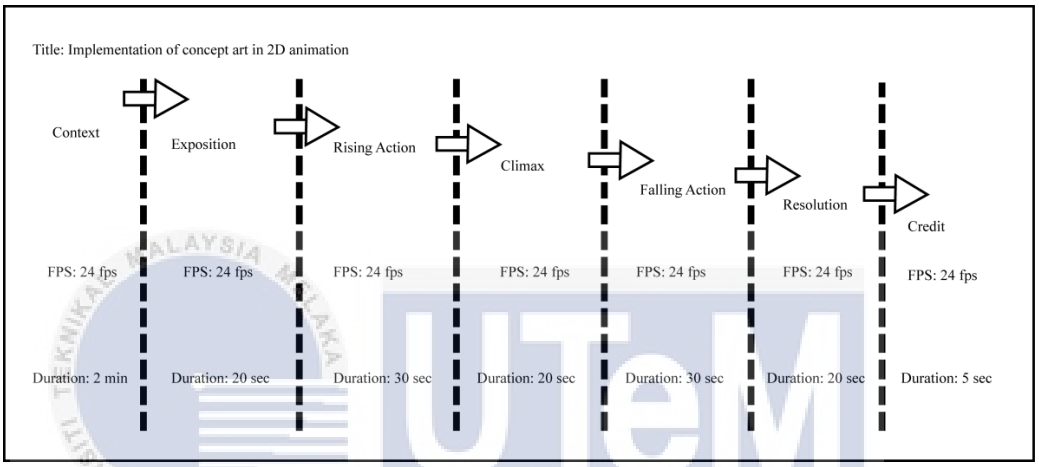


Figure 4.1: Scene sequence of 2D animation

4.3 Preliminary Design

The preliminary design phase may also be known as conceptual design or architectural design. During this phase, the high-level design concept is created which will be implemented. The objective of the design phase (preliminary are detailed) is to create a design that will correctly and completely the requirements.

4.3.1 Storyboard

Before creating the 2D animation, visualize it in a less time-consuming medium is needed. Storyboards provide an efficient way to move the ideas and

words of your story into a visual format. They act as a concept of idea planning aid that outlines the events and actions. The detail, to which a storyboard is drawn, depends on the action, the length and the audience it is aimed at. Each drawing in the storyboard should illustrate a clear element of the film which is the camera movement, an action, a camera cut and character dialogue. There are two versions of storyboard design: the initial and the final storyboard. Figure 4.2 to 4.8 shows the first version of storyboard design. Figure 4.9 to 4.14 shows the final storyboard design.

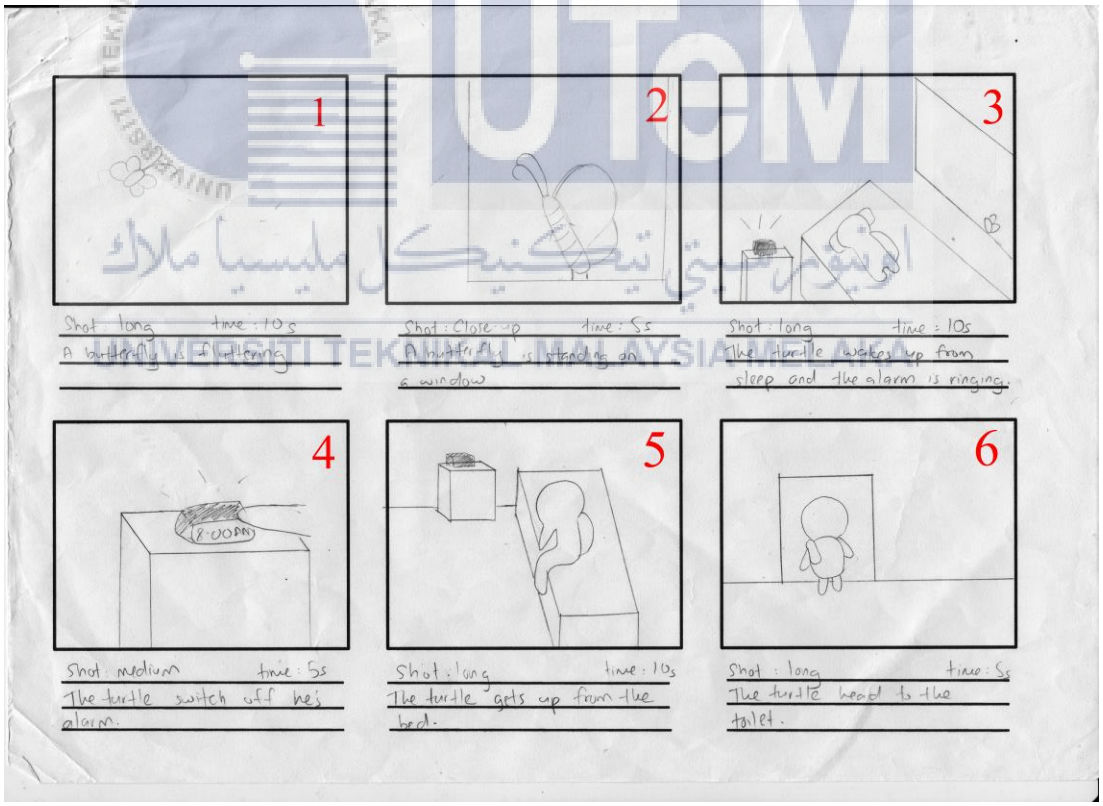


Figure 4.2: Page 1 of initial storyboard

Figure 4.2 show the page one of the initial storyboard. Grid 1: shows the butterfly is flying. Grid 2: shows the butterfly land on a window. Grid 3: A long shoot view of

the turtle is sleeping. Grid 4: shows the turtle is closing his alarm. Grid 5: A long shoot of the turtle wake up from his bed. Grid 6: The turtle is heading to the toilet.

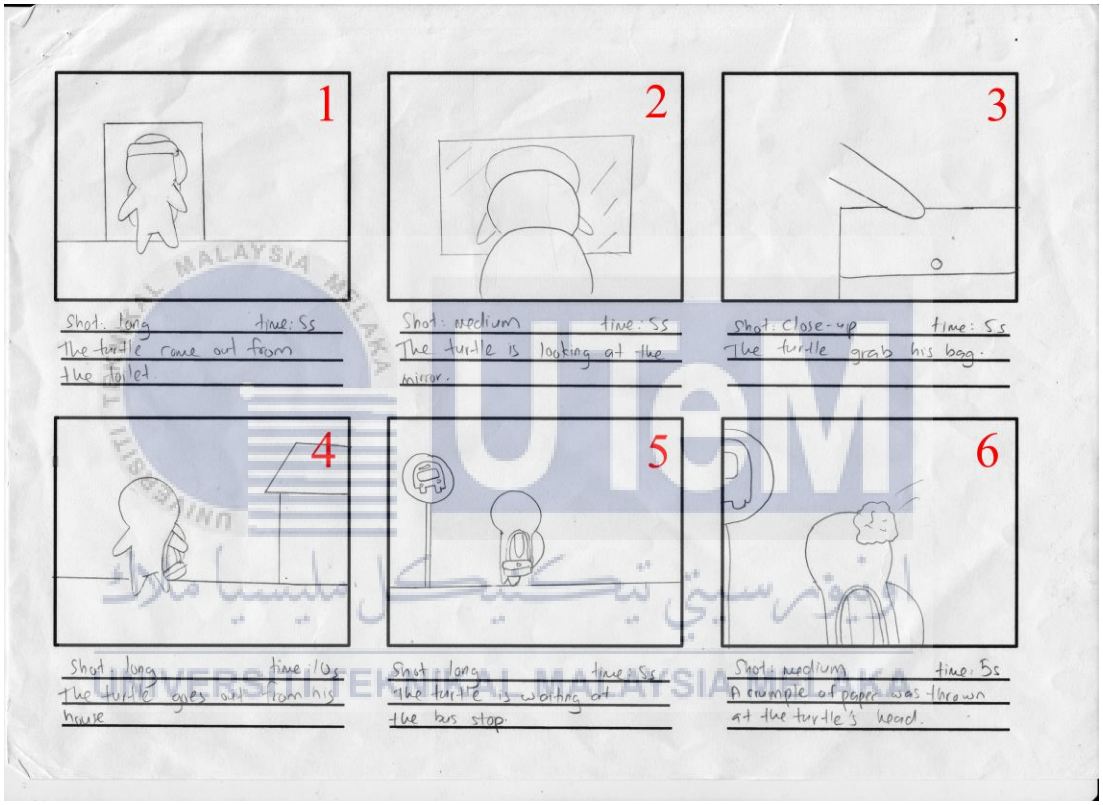


Figure 4.3: Page 2 of initial storyboard

Figure 4.3 show the second page of the initial storyboard. Grid 1: The turtle finish taking it shower. Grid 2: The turtle is looking himself at mirror. Grid 3: A close-up of the turtle takes his bag. Grid 4: shows the turtle is walking. Grid 5: A long shoot of the turtle is waiting at the bus stop. Grid 6: A crumple of paper is thrown at the turtle's head.

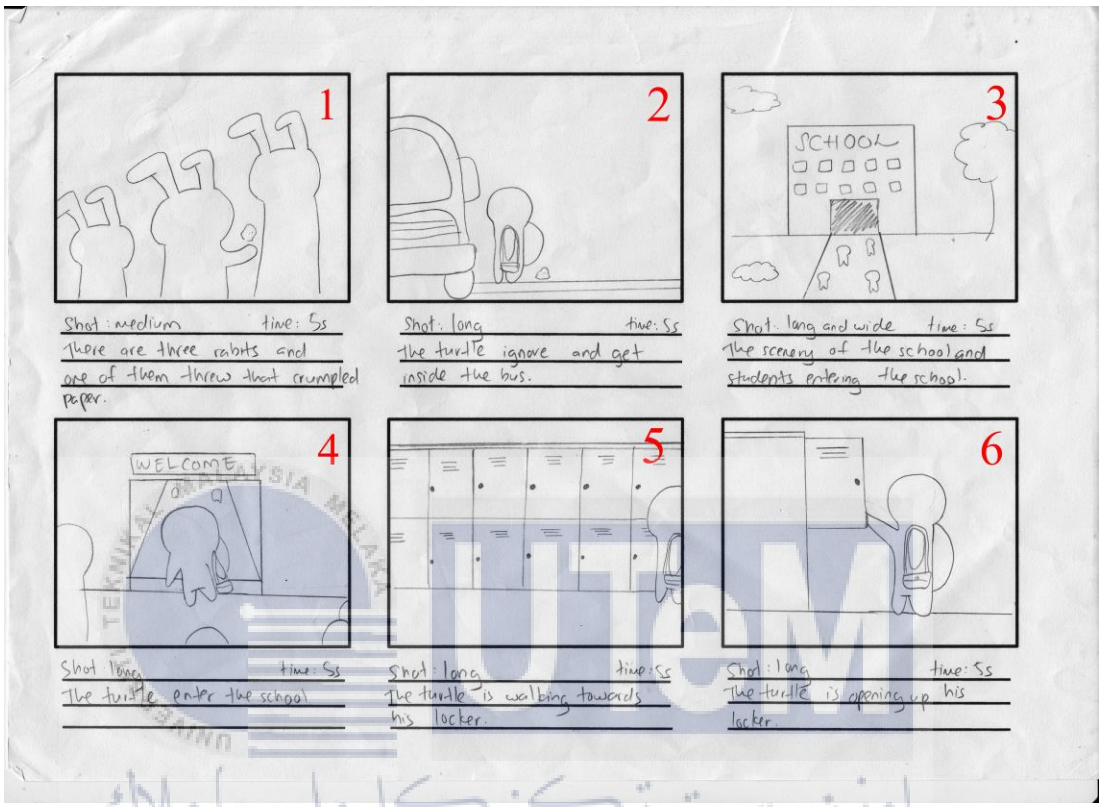


Figure 4.4: Page 3 of initial storyboard

Figure 4.4 show the third page of the initial storyboard. Grid 1: The three rabbit is laughing at the turtle. Grid 2: The turtle is getting inside the bus. Grid 3: A long shoot of the scenery of school. Grid 4: shows the turtle is entering the school. Grid 5: The turtle is walking towards his locker. Grid 6: The turtle is opening his locker.

Figure 4.5: Page 4 of initial storyboard

Figure 4.5 show the fourth page of the initial storyboard. Grid 1: Appeared three shadows behind the turtle's back. . Grid 2: The turtle is surrounded by the three rabbit. Grid 3: A medium shot of the turtle is scared of the rabbit. Grid 4: shows the rabbit push turtle aside. Grid 5: shows the rabbit push the book to the ground. Grid 6: shows the turtle is pushed from behind.

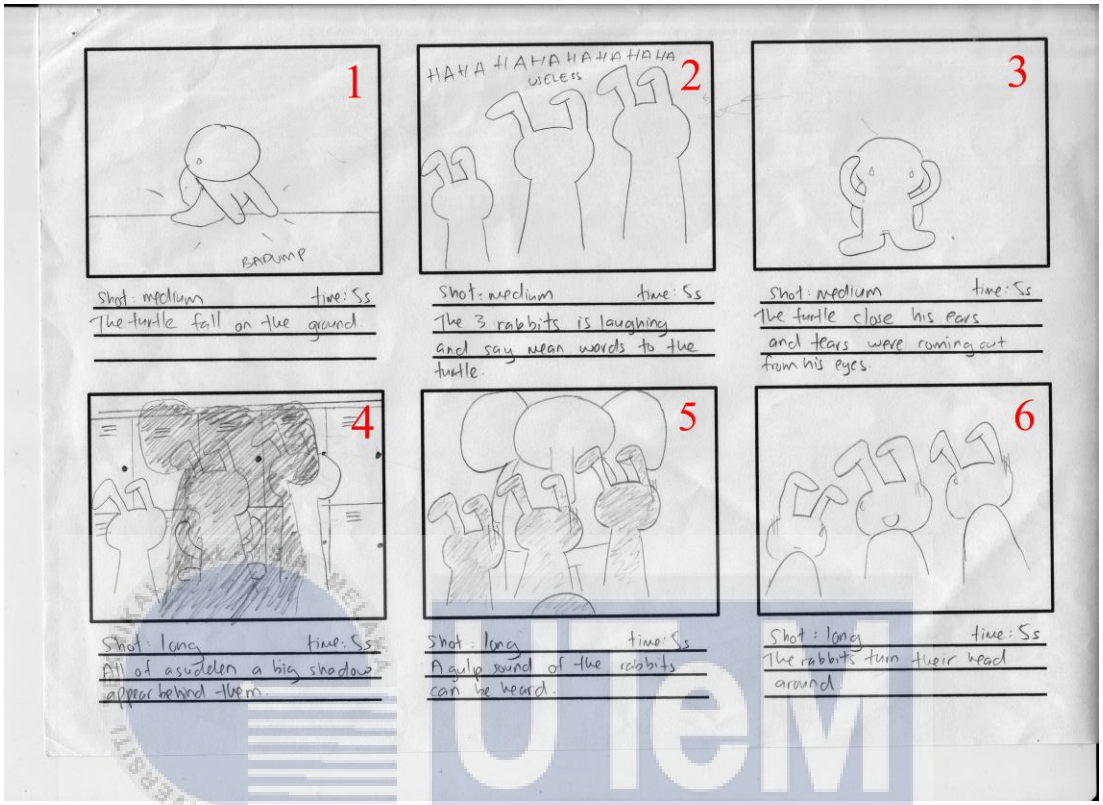


Figure 4.6: Page 5 of initial storyboard

Figure 4.6 show the fifth page of the initial storyboard. Grid 1: The turtle fall down. Grid 2: The three rabbit laughs at the turtle. Grid 3: The turtle is crying. Grid 4: An elephant shows up behind of the rabbits. Grid 5: The rabbits surprised. Grid 6: The rabbits turn their head to the back.

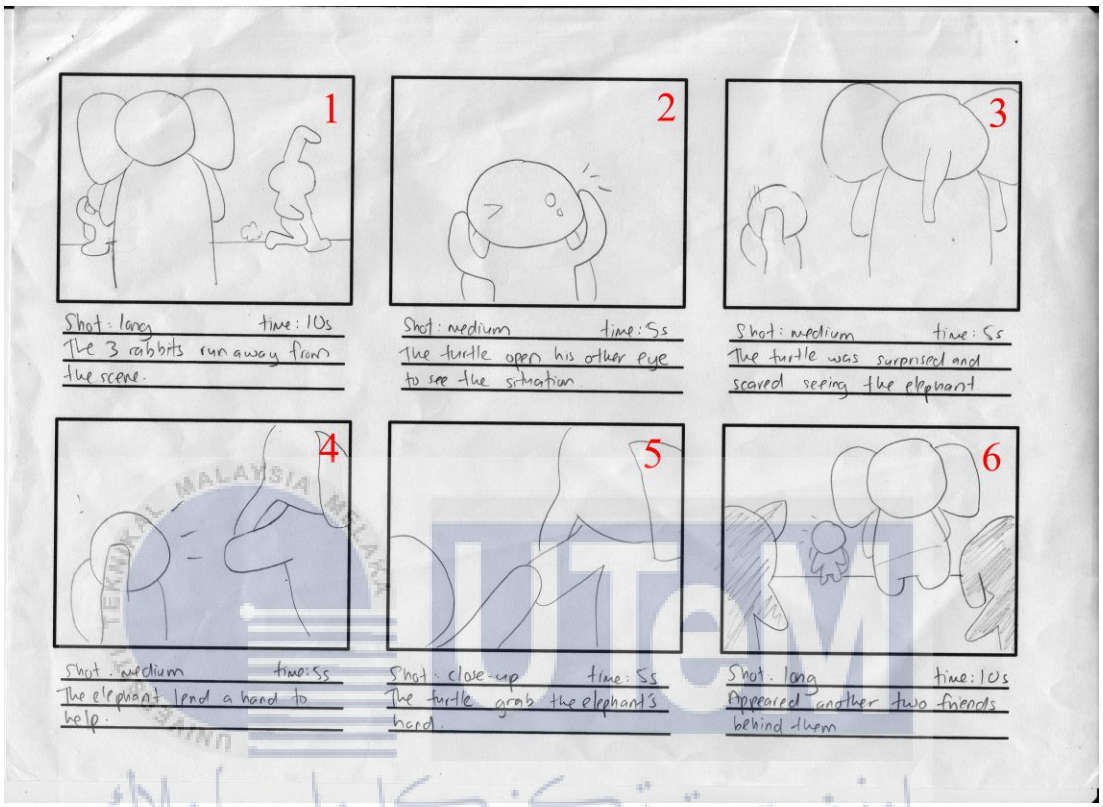


Figure 4.7: Page 6 of initial storyboard

Figure 4.7 show the sixth page of the initial storyboard. Grid 1: The three rabbits run away. Grid 2: The turtle open up his eyes to look the situation. Grid 3: The turtle was surprised and scared of the elephant. Grid 4: shows the rabbit lend a hand to help. Grid 5: The turtle grab the elephant's hand. Grid 6: A long shoot of another two friends appeared from behind.

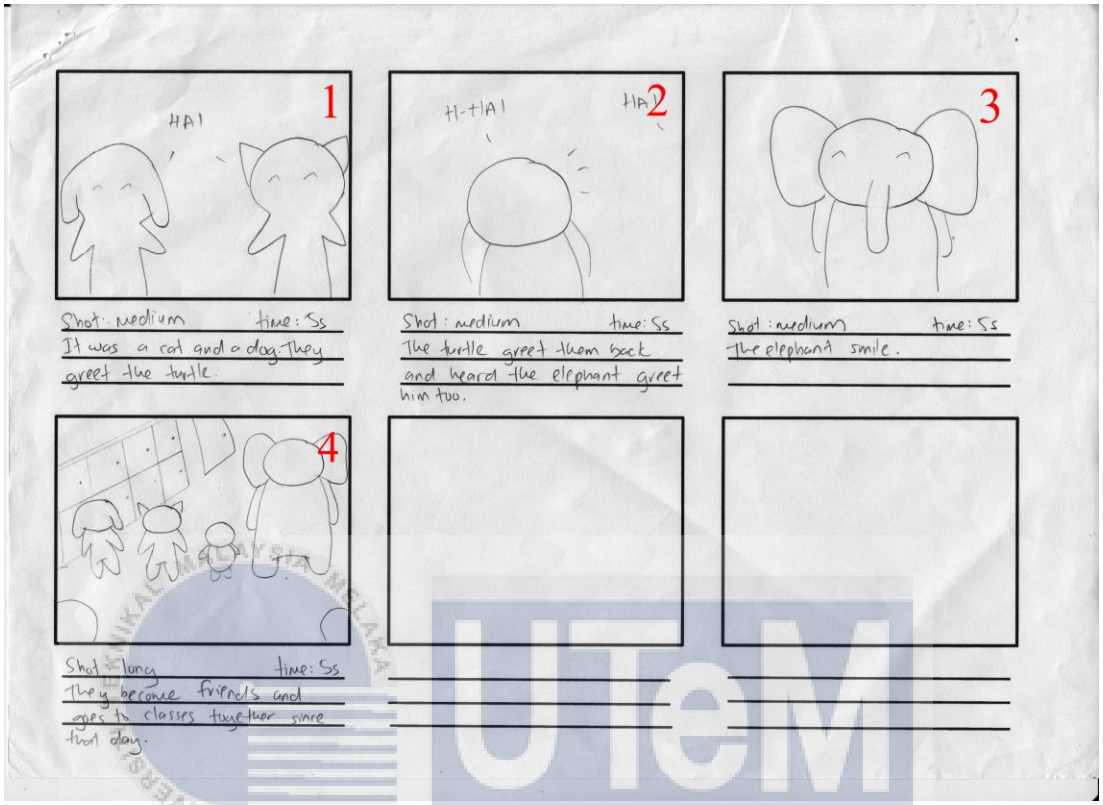


Figure 4.8: Page 7 of initial storyboard

Figure 4.8 show the seventh page of the initial storyboard. Grid 1: The cat and the dog greet the turtle. Grid 2: The turtle greets them back. Grid 3: The elephant is smiling. Grid 4: A long shoot of them become friends.

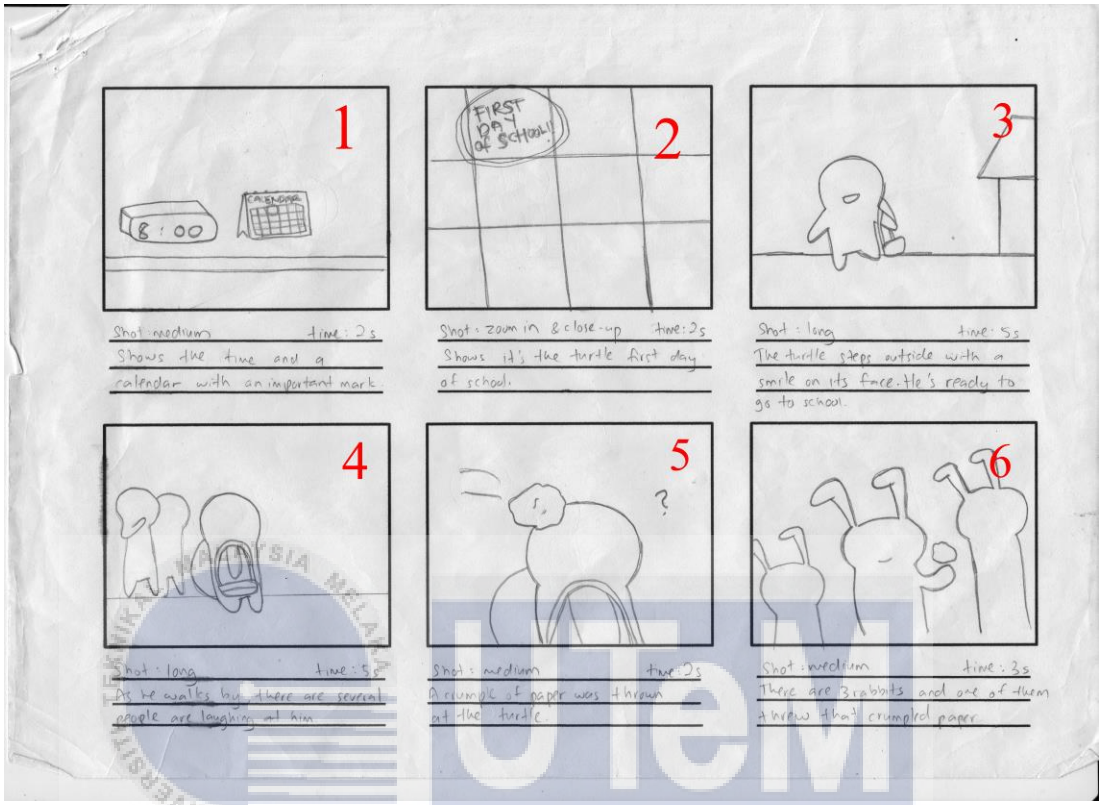


Figure 4.9: Page 1 of final storyboard

Figure 4.9 show the first page of the final storyboard. Grid 1: shows the time and a calendar on a table. Grid 2: A close-up shoot of the turtle's first day of school. Grid 3: The turtle is walking outside of his house. Grid 4: shows the turtle is walking. Grid 5: A crumple of paper is thrown at the turtle's head. Grid 6: The three rabbit is laughing at the turtle.

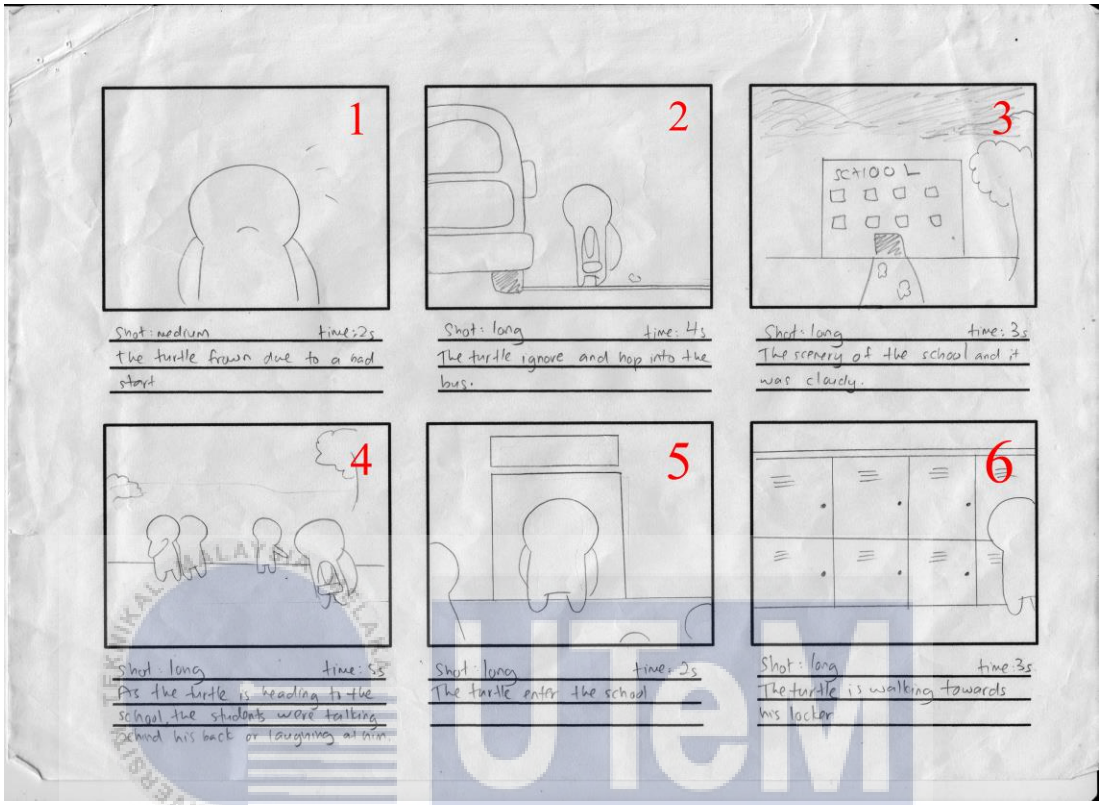


Figure 4.10: Page 2 of final storyboard

Figure 4.10 show the second page of the final storyboard. Grid 1: shows that the turtle if frowning. Grid 2: shows that the turtle is getting inside the bus. Grid 3: A long shoot of the scenery of school. Grid 4: The turtle is walking towards the school. Grid 5: The turtle is entering the school. Grid 6: The turtle is walking to his locker.

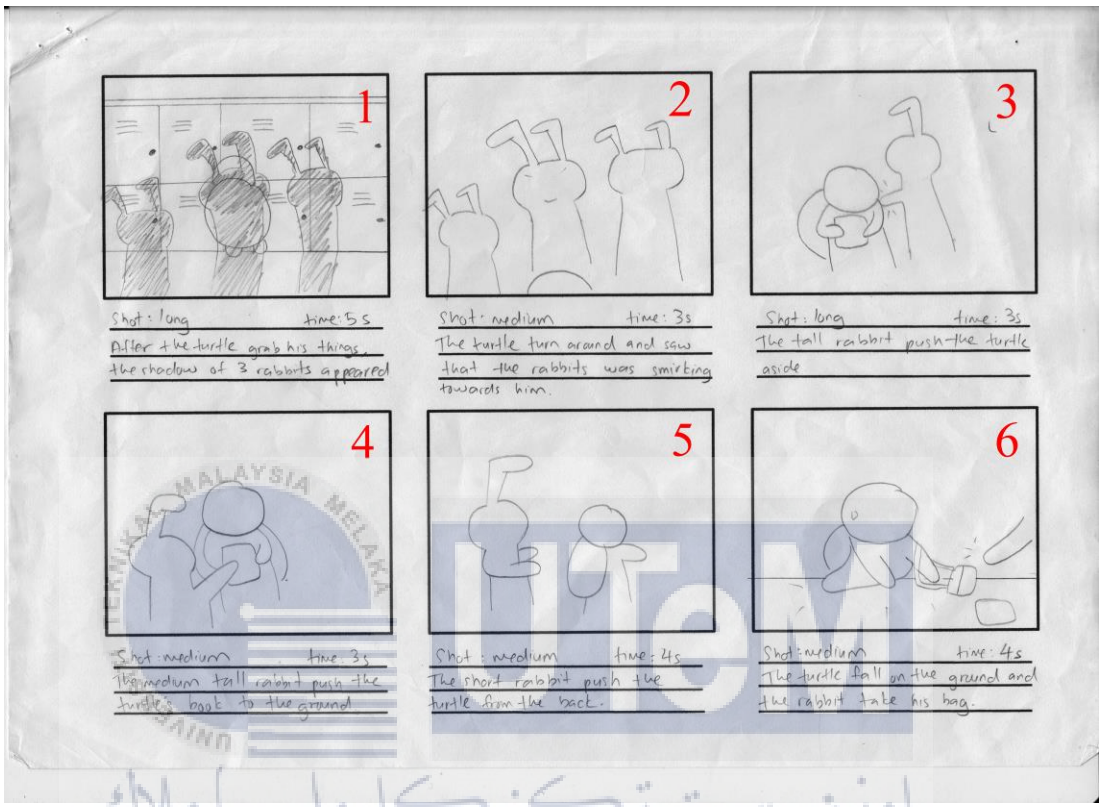


Figure 4.11: Page 3 of final storyboard

Figure 4.11 show the third page of the final storyboard. Grid 1: Appeared three shadows behind the turtle's back. . Grid 2: The turtle is surrounded by the three rabbit. Grid 3: shows the rabbit push turtle to the right side. Grid 4: shows the rabbit push turtle to the left side. Grid 5: Grid 6: shows the turtle is pushed from behind.

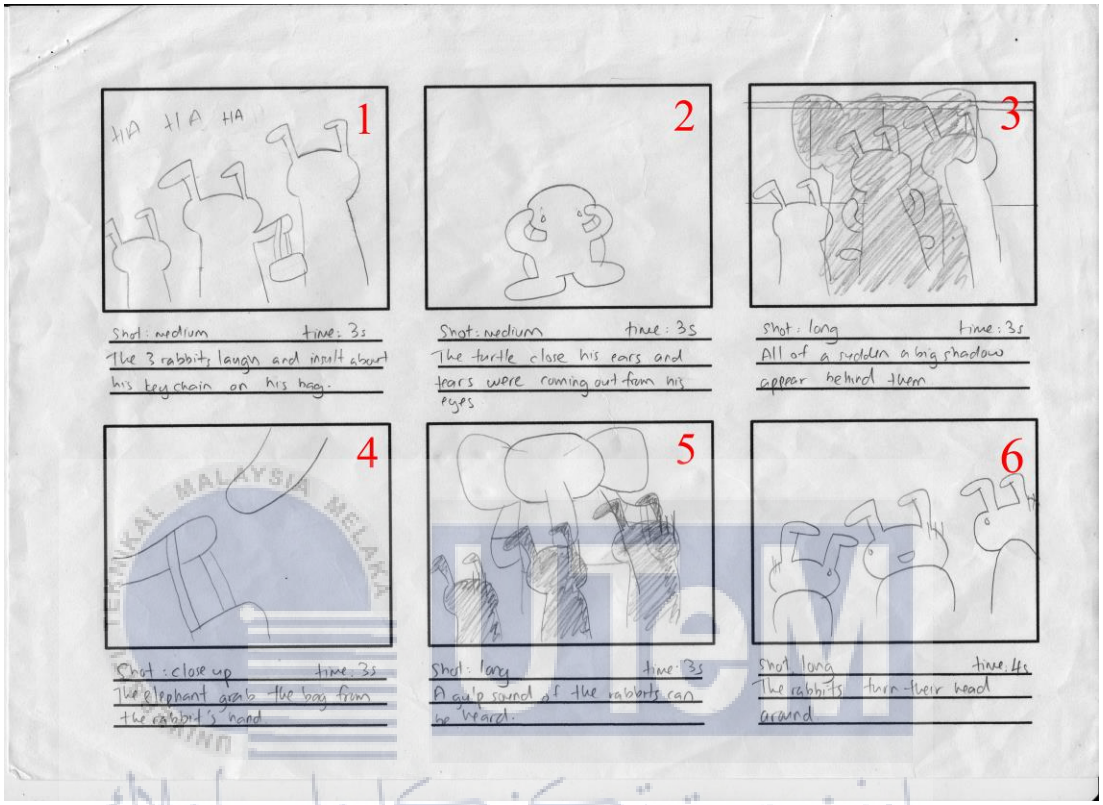


Figure 4.12: Page 4 of final storyboard

Figure 4.12 show the fourth page of the final storyboard. Grid 1: The rabbit grab the turtle's bag. Grid 2: The turtle is crying. Grid 3: An elephant shows up behind of the rabbits. Grid 4: The elephant grab the bag from the turtle's hand. Grid 5: The steps back and scared of the elephant. Grid 6: The rabbits turn their head to the back.

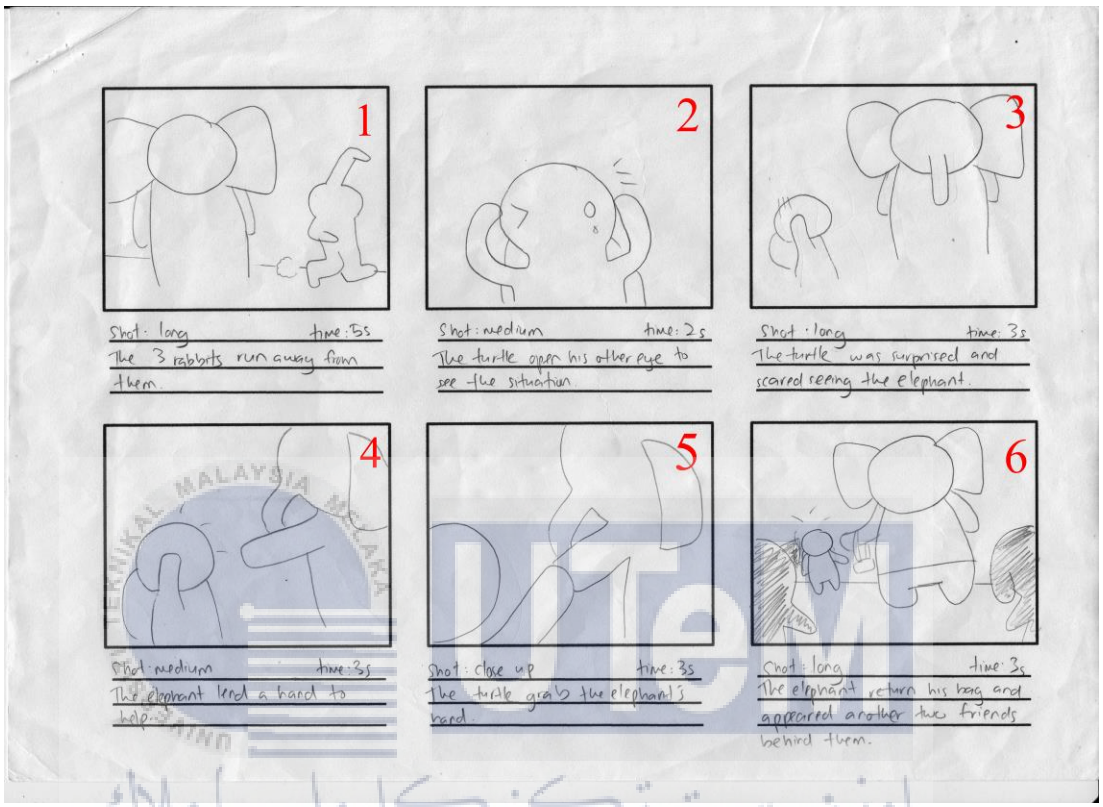


Figure 4.13: Page 5 of final storyboard

Figure 4.13 show the fifth page of the final storyboard. Grid 1: The rabbit ran away from them. Grid 2: The turtle opened up his eyes to see what is happening. Grid 3: The turtle is scared of the elephant. Grid 4: The elephant lend his hand to the the turtle. Grid 5: The turtle grab his hand. Grid 6: A long shoot of another two friends appeared from behind.

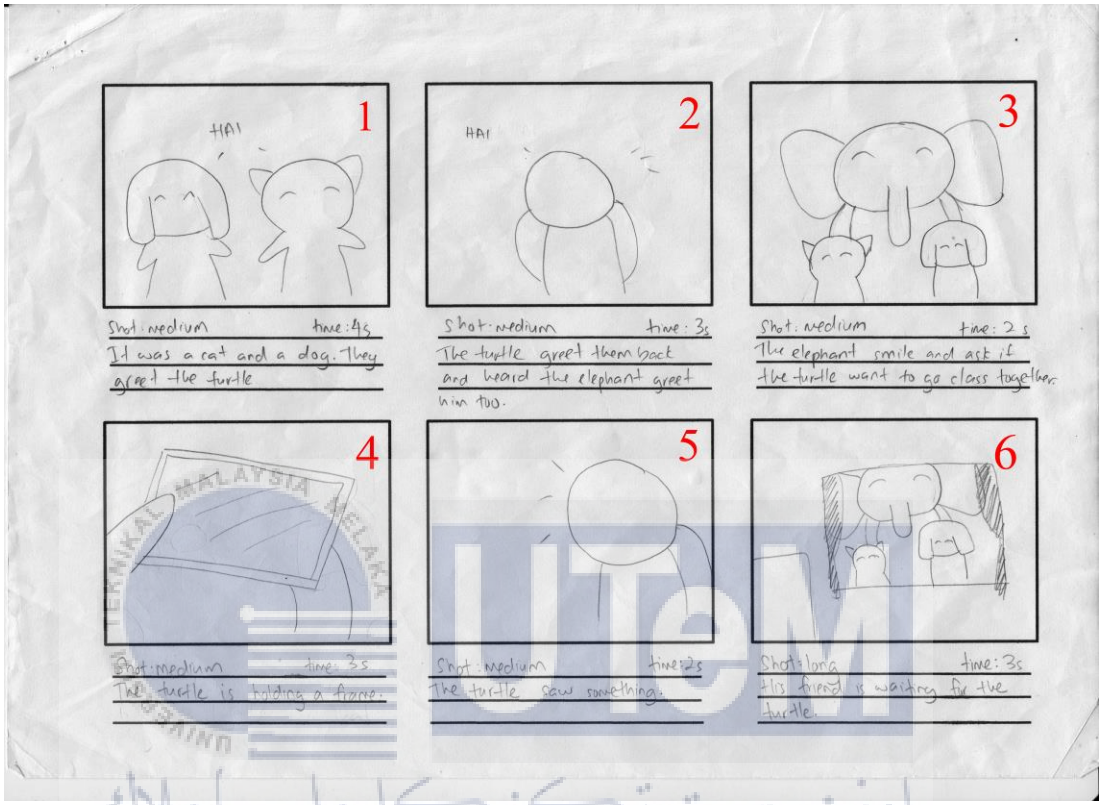


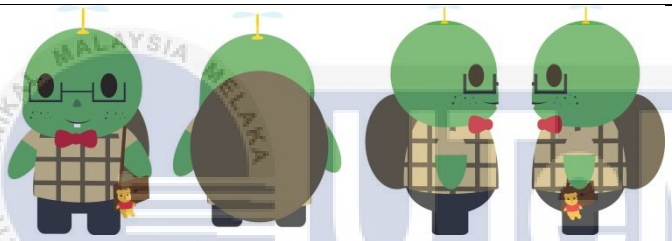
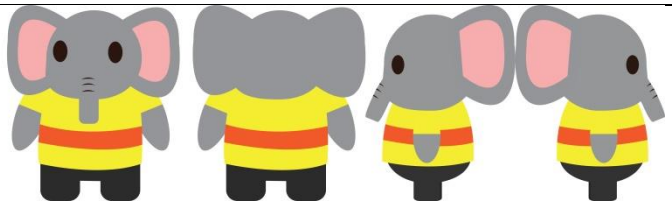
Figure 4.14: Page 6 of final storyboard

Figure 4.14 show the sixth page of the final storyboard. Grid 1: The dog and the cat greet the turtle. Grid 2: The turtle greet them back. Grid 3: They are smiling to the turtle. Grid 4: The turtle is holding a picture frame. Grid 5: The turtle realize something. Grid 6: Three of them are waiting at the outside.

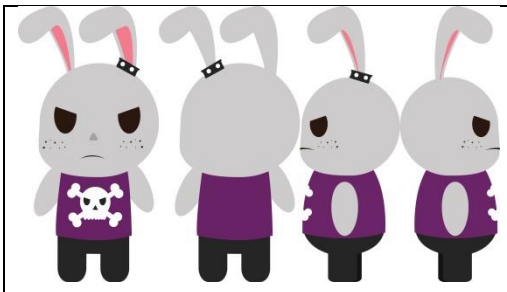
4.3.2 Character Profile

Each of the characters has their own characteristics and traits. The characters' profile is listed in table 4.1.

Table 4.1: The 2D Characters After Developing the Storyboard

Characters	Details
	**Turtle** i. Design use Adobe Illustrator ii. Gender: male iii. Physical attribute: small sized
	**Elephant** i. Design use Adobe Illustrator ii. Gender: male iii. Physical attribute: big sized

	**Cat** i. Design use Adobe Illustrator ii. Gender: female iii. Physical attribute: small sized
	**Dog** i. Design use Adobe Illustrator ii. Gender: male iii. Physical attribute: medium sized
	**Rabbit I** i. Design use Adobe Illustrator ii. Gender: male iii. Physical attribute: medium sized

	**Rabbit II** i. Design use Adobe Illustrator ii. Gender: male iii. Physical attribute: medium sized
	**Rabbit III** i. Design use Adobe Illustrator ii. Gender: male iii. Physical attribute: medium sized

4.3.2.1 Arrangement of characters

Figure 4.18 shows the compilation of the 2D characters in the project. This is to show size of the characters between each other.

Figure 4.2: Compilation of the characters

4.4 Conclusion

In a conclusion, this chapter explains how the linear sequence diagram used for visualizes scene arrangement. In producing a high quality animation, knowing the scope of target user is a must because each age varies different kind of drawing styles. After that, the idea of design character will be drawn based on the suitable of the target viewers. Next chapter will discuss detail about implementation process of project development.

CHAPTER V

IMPLEMENTATION

5.1 Introduction

This chapter basically discusses in detail about the implementation phase. The implementation phase usually begins after the storyboard and character design confirmation. Implementation in multimedia refers to the process of converting the design such as storyboard or plan into a multimedia program. The main content is in this chapter are media creation, media integration and product configuration management.

5.2 Media Creation

The media creation part consists of implementation stage of text, audio, video and animation production.

5.2.1 Production of Text

Most of the text used in the production is created from Adobe Illustrator CS6. In order to create a text in Adobe Illustrator CS6, first click on the text tool box from the left side of the software. The fonts used in Adobe Illustrator CS6 are Digital-7 Mono, Myriad Pro, The Unseen and Hobo Std Medium. They all varied in different sizes which are 100pt for the time of the clock, 50pt for the date of the calendar, 35pt for title of the bus and school and 12pt for the zoom part in calendar. Figure 5,1 shows the text creation in Adobe Illustrator CS6. Table 5.1 shows the production of text.

Table 5.1: Production of Text

Sample	Font Type	Font Style	Size	Color
	Myriad Pro	Regular	50pt	White

	Digital-7 Mono	Regular	100pt	White
	The Unseen	Regular	12pt	Black
	Hobo Std Medium	Regular	35pt	Black
	Myriad Pro	Regular	35pt	Dark Brown

5.2.2 Production of Audio

There are two types of audio used in the project which are background music and voice over for the characters. Most of the background music is downloaded from website that provides free royalty music with '.mp3' format. For voice over, the voice is recorded using Audacity 1.3 in a room which is sound proof. After the voice has been recorded, the sound will be edited to remove noise and improve the quality of the sound. The voice sound is saved in '.mp3' format. Figure 5.1 below shows one of the recording process for voice over.

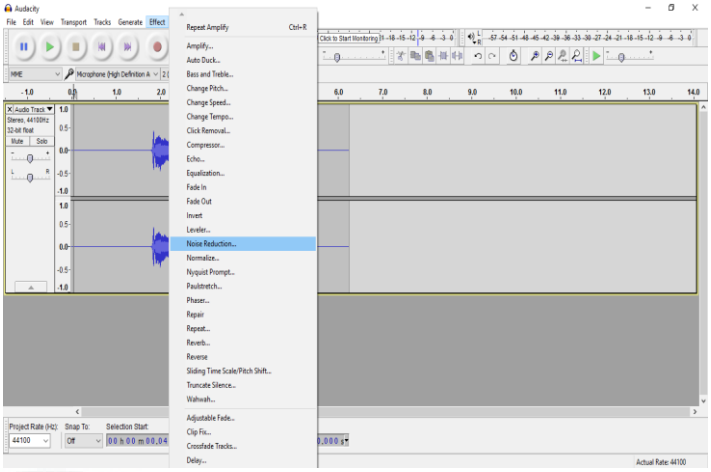


Figure 5.1: Record sound in Audacity 1.3

5.2.3 Production of Graphics

The characters and the scenery for the animation are drawn in vector style. This is because to produce a high quality graphics without any pixelated at the end of the graphics. Most of the characters and scenery is produced by using Adobe Illustrator CS6. Each of the characters' body is separated by different layer so, it easier to arrange in the Adobe After Effects. After finished drawing the characters and scenery in Adobe Illustrator CS6, all image will be import in Adobe After Effects CS6. Figure 5.2 shows one of the creation of the characters.

Figure 5.2: The creation of one of the characters

5.2.4 Production of Animation

In animating the characters for the animation, Adobe After Effects CS6 is used. This is where most of the characters, scenery and other are animated. First of all, the composition is been set to the right frame per second and size of the video. All the graphics that has been drawn in Adobe Illustrator CS6 is import in the Adobe After Effects and it is arranged on the right position. Then, each of them is animated refer to the storyboard. Figure 5.3 for the production process of animation.

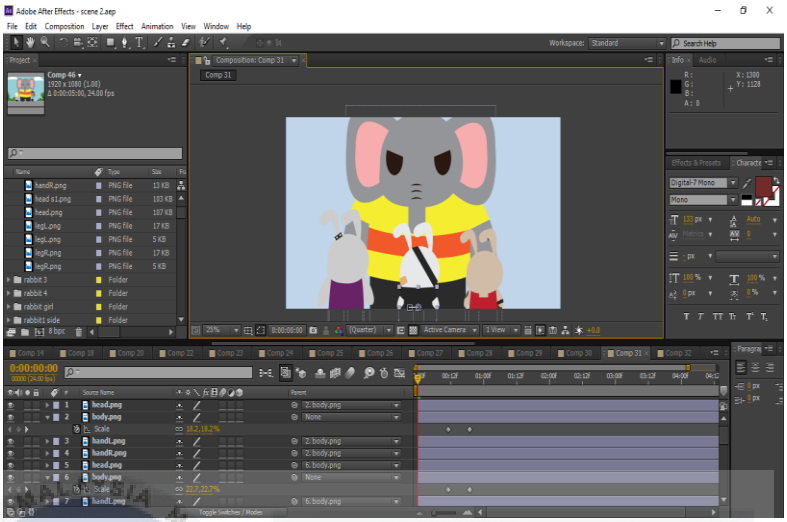


Figure 5.3: Animation production process

5.3 Media Integration

This section will explain the process of combining the created media in order to successfully produce the product. The combination process was done using the Sony Vegas Pro 11. All the files will be import by using this program. The arrangement of video in timeline is done according to the storyboard sequence that has been made. After that, the background sound, narrator voice and suitable transitions is been added from scene to another scene. Once satisfied with the result, the whole file will be rendered for better and smoother movement. The format of 2D animation is '.wmv' and the size is 25.4MB. Figure 5.3 shows the process of media integration in this project.

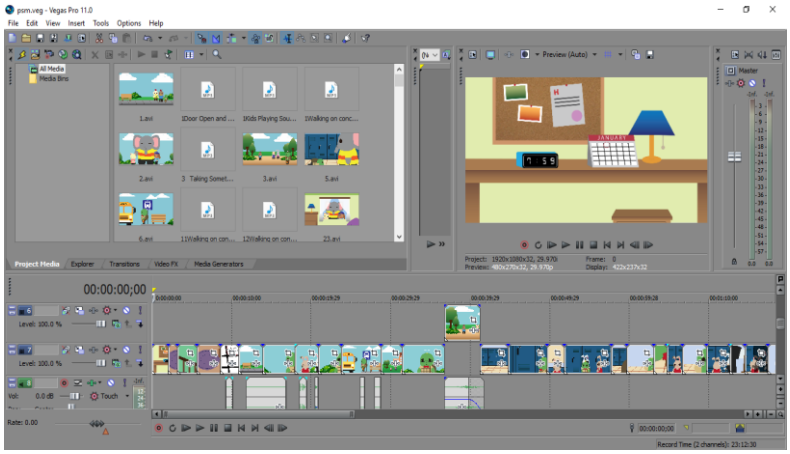


Figure 5.3: Process of combining all files into one video

5.4 Production Configuration Management

In the production configuration management will discuss briefly about configuration environment setup and version control procedure.

5.4.1 Configuration Environment Setup

In developing the project, setup configuration is necessary to ensure that the product can function properly and achieve high quality of product. Table 5.2 below shows the configuration software used in developing the project.

Table 5.2: Configuration Setup

Software	Configuration
Adobe Illustrator CS6	Image Settings i. Size: 1280 x 720 pixels ii. Color mode: CMYK color iii. Graphic type: Vector
Adobe After Effect CS6	Video Settings i. Frame size: 1920x1080 px ii. Frame rate: 24 fps iii. Format: AVI
Sony Vegas Pro 11	Video Settings i. Frame size: 1920x1080 px ii. Frame rate: 24 fps iii. Format: WMV
Audacity 1.3	Setting i. Sample rate: 44100Hz ii. Channel: Stereo iii. Resolution: 32-bit

5.4.2 Version Control Procedure

Version control in development of product is critical because it can recover from unexpected deletions and can restore the latest file version checked into source

control. In this project, there are three version of source. It happens due to alpha and beta testing because in achieving high quality of product, there are some changes need to be done.

Besides that, tested must be done before release the product. There are various types of testing that can be conducted for example Alpha and Beta testing. Alpha testing is conducted before the software is made available to public. Mostly, the developers will implement the Alpha testing in their product. After the testing has been done, there will be given some feedback of the product that needs to be change and enhance. Once satisfy with the product, the product will undergo the second test which is Beta testing. Beta testing is conducted during presentation of product towards the supervisor and evaluator. Feedback from evaluator is normalizing the volume of the background music in the animation.

5.5 Conclusion

In a conclusion, this chapter explains how each of the components used is compiled and the testing used for the product. By compiling each component, a good quality product is produced. Before releasing the product to public, the product must undergo some testing to achieve a satisfy product. Next chapter will discuss detail about the testing of the product.

CHAPTER VI

TESTING

6.1 Introduction

Testing is the mean of gathering data whether the final product is qualified or not to be released to the target. In testing phase, all the data received can be used to determine the overall process whether it achieve the objective. This chapter will discuss detail about testing and the evaluation phase which consist of test plan, test strategy, test implementation and test result and its analysis.

6.2 Test Plan

Test plan is used to determine the test user, test environment and the test schedule that will be carried out for this project.

6.2.1 Test User

There are total 50 respondents who participate in the testing. The testing is divided into three groups of target user which are toddlers, multimedia expert and public. The first testing takes place in Tadika YPJ in Muar where five toddlers who participate in it. The next testing takes place in in Faculty of Information and Communication Technology, Universiti Teknikal Malaysia Melaka (UTeM) where four lecturers participate in the testing and also director of the Rolladice. Another 40 respondents are chosen randomly online.

i. Toddlers at Tadika YPJ, Muar

This type of respondents is evaluated based on the reaction when watching the animation. The reaction from the toddlers shows whether the animation is interesting and can attract their attention. There are five toddlers who participate in the testing. Figure 6.1 shows the testing with toddlers at Tadika YPJ, Muar.

Figure 6.1: Testing with toddlers in Tadika YPJ, Muar

ii. Multimedia experts at Faculty of Information and Communication Technology, UTeM and director at Rolladice

This type of respondents evaluated based on the content of the storyline, visual design of the characters and background and also, the audio used in the animation. There are four lecturers and director of the Rolladice who are expert in arts and creating the animation to evaluate the project depends on the entire multimedia elements that have been integrated in the animation. Figure 6.2 shows the testing with lecturers at Faculty of Information and Communication Technology, UTeM.

Figure 6.2: Testing With One of The Multimedia Experts in Faculty of Information and Communication Technology, UTeM

iii. Public

This type of respondents evaluated based on whether the animation is suitable for the toddlers. The purpose of this testing is to collect all the data to see whether it achieve the objective or not.

6.2.2 Test Environment

The testing is carried out in three different test environments which are Tadika YPJ, Muar, Faculty of Information and Communication Technology, UTeM and online testing. The hardware that required for testing are laptop with VLC Media Player and a mouse.

6.2.3 Test Schedule

Test schedule is important to conduct the milestones of the activities for the testing which is method used for testing, the number of questions, total respondents, date and venue. In this project, the method used for testing is observation and questionnaires. Table 6.1, Table 6.2, Table 6.3 show the schedule of the testing among the toddlers, multimedia expert and public.

Table 6.1: Testing Schedule Toddlers

Target User: Toddlers		
Method: Video	**Total Respondents**	**Date and Venue**
Observation	Toddlers: 5 i. Nur Syaheerah ii. Ahmad Asyraf iii. Muhammad Amir	25/7/2017 10 am – 12 pm at Tadika YPJ, Muar

	iv. Nurul Fatihah v. Fairuz Aqilah	
Total	5	

Table 6.2: Test Schedule for Multimedia experts at Faculty of Information and Communication Technology, UTeM and Rolladice

Target User: Multimedia experts			
Method: Questionnaire	**Number of Question**	**Total Respondents**	**Date and Venue**
Content Visual Audio	2 5 3	Multimedia experts: 5 i. Mr. Muhammad Helmy ii. Dr. Zulisman Maksom iii. Ms. Farah Nadia iv. Mr. Nazreen v. Mr. Radzi Amin	28/7/2017 10 am - 12.00 pm at FTMK, UTeM 31/7/2017 3pm – 4 pm at FTMK, UTeM 1/8/2017 10 am - 11 am at FTMK, UTeM 5/8/2017 via online Google Form
Total	10	5	

Table 6.3: Test Schedule for Public

Target User: Public			
Method: Questionnaire	**Number of Question**	**Total Respondents**	**Date and Venue**
Content	10	40	25/7/2017 - 31/7/2017 via online Google Form
Total	10	40	

6.3 Test Strategy

Test strategy is a set of idea which guides the respondent on test design. The guideline will be provided to the respondent so, it can help to determine the range of the product. The classes of test are divided into five scales. Table 6.4 and 6.5 shows the testing scale.

Table 6.4: Scale of Testing for Multimedia experts

Scale	**Description**
1	Strongly disagree
2	Disagree
3	Neutral
4	Agree

5	Strongly agree

Table 6.5: Scale of Testing for public

Scale	Description
1	Strongly disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly agree

6.4 Test Implementation

This section will discuss about test description, test data, test result and analysis testing.

6.4.1 Test Description

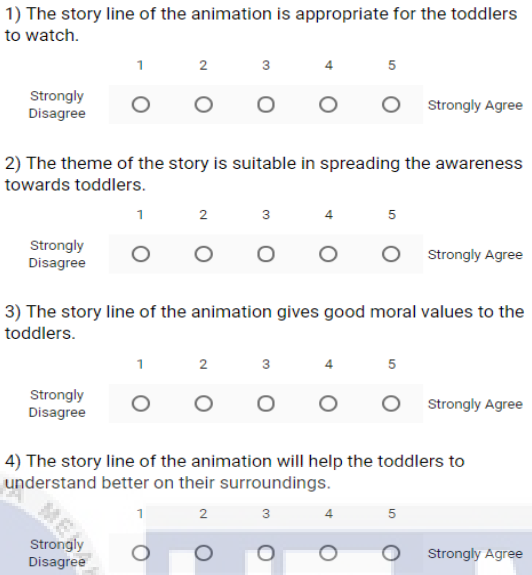
The questionnaire for multimedia experts is divided into three sections. These sections are content, visual and audio. Table 6.6 shows the questions for the content, visual and audio for the animation.

Table 6.6: Questions for the Content, Visual and Audio of the Animation

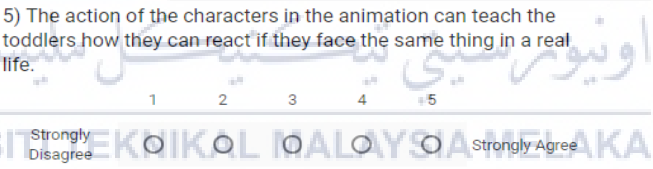
No.	Scale	1	2	3	4	5
	Content / Isi Kandungan:					
1.	The flow of the storyline in the animation is understandable. *Aliran alur cerita dalam animasi dapat difahami.*					
2.	The message of the animation is clearly deliver. *Mesej animasi jelas disampaikan.*					
	Visual / Visual:					
3.	The animation of the characters smoothly animated. *Animasi karakter dianimasikan dengan lancar.*					
4.	The color scheme used in the animation is suitable for the toddlers. *Skim warna yang digunakan dalam animasi sesuai untuk kanak-kanak*					
5.	The character designs used in the animation is appropriate for the toddlers. *Reka bentuk watak yang digunakan dalam animasi sesuai untuk kanak-kanak.*					
6.	Using animals as the characters in the					

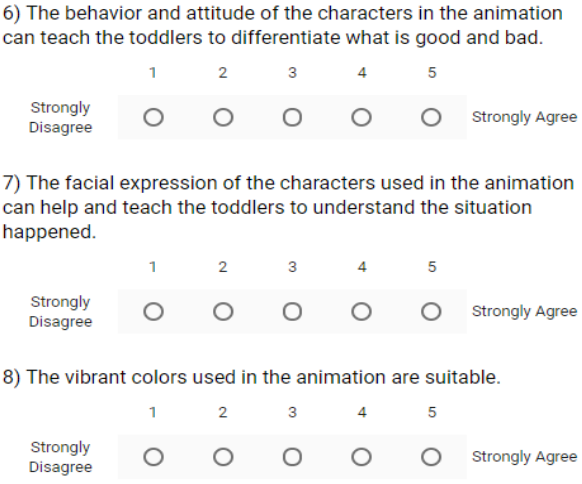
	animation can attract the toddlers' attention. *Menggunakan haiwan sebagai watak dalam animasi boleh menarik perhatian kanak-kanak.*					
7.	Each character portrays good facial expressions and emotions on every situation. *Setiap watak menggambarkan ekspresi wajah dan emosi yang baik pada setiap keadaan.*					
	Audio / Audio:					
8.	The background music and sound effects used is clear. *Muzik latar belakang dan bunyi fx yang digunakan adalah jelas*					
9.	The background music used is suitable for each scene. *Muzik latar belakang yang digunakan sesuai untuk setiap adegan.*					
10.	The volume for the background music and sound effects is in the appropriate level. *Jumlah bunyi kelantangan untuk muzik latar belakang dan kesan bunyi berada di tahap yang sesuai.*					

The questionnaire for public has divided into two sections which are content and other features. The questions provided for the public aim to see whether the animation is suitable for the toddler. Figure 6.3 shows the questions for the public.

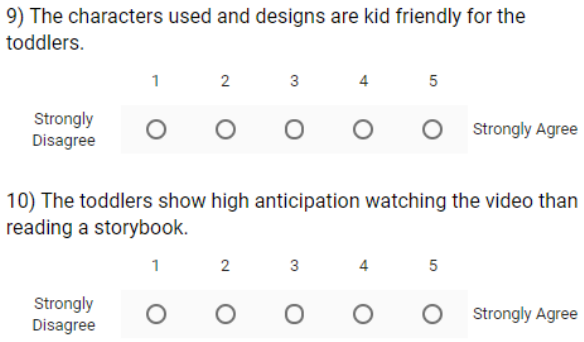


a) The first section of the online questionnaire





b) The second section of the online questionnaire



c) The third section of the online questionnaire

Figure 6.3: Questionnaire Questions for the Public

6.4.2 Test Data

After the testing has been carried out, the data and result of the questionnaires are collected. For the result of the questionnaire for multimedia expert, Table 6.7 shows the result of the animation content from the questionnaire. Meanwhile, Table 6.8 shows the result of the animation's visual and Table 6.9 shows the result of the animation's audio from the questionnaire.

Table 6.7: Result for Content of the Animation from Questionnaire

Scale / Contents	1	2	3	4	5	Total Respondents
Q1	0	0	0	2	3	5

Q2	0	0	2	1	2	5

Legend:

Q = Question, 1 = Strongly Disagree, 2 = Disagree, 3= Neutral, 4 = Agree,

5 = Strong Agree

Table 6.8: Result for Visuals of the Animation from Questionnaire

Scale / Visuals	**1**	**2**	**3**	**4**	**5**	**Total Respondents**
Q1	0	3	0	1	1	5
Q2	0	0	1	2	2	5
Q3	0	0	0	3	2	5
Q4	0	0	2	0	3	5
Q5	0	0	1	1	3	5

Legend:

Q = Question, 1 = Strongly Disagree, 2 = Disagree, 3= Neutral, 4 = Agree,

5 = Strong Agree

Table 6.9: Result for Audio of the Animation from Questionnaire

Scale / Contents	**1**	**2**	**3**	**4**	**5**	**Total Respondents**
Q1	0	0	2	2	1	5
Q2	0	1	1	2	1	5

Q3	0	0	3	0	2	5

Legend:

Q = Question, 1 = Strongly Disagree, 2 = Disagree, 3= Neutral, 4 = Agree,

5 = Strong Agree

For the result of the questionnaire for public, Table 6.10 shows the result of the questionnaire for public.

Table 6.10: Result of the Questionnaire for Public

Scale / Contents	**1**	**2**	**3**	**4**	**5**	**Total Respondents**
Q1	1	0	2	22	15	40
Q2	0	1	2	26	11	40
Q3	0	0	5	24	11	40
Q4	0	1	4	26	9	40
Q5	0	3	7	19	11	40
Q6	0	2	3	22	13	40
Q7	0	0	5	28	7	40
Q8	0	0	2	27	11	40
Q9	0	0	3	24	13	40
Q10	0	0	5	21	14	40

Legend:

Q = Question, 1 = Strongly Disagree, 2 = Disagree, 3= Neutral, 4 = Agree,

5 = Strong Agree

6.5 Test Results and Analysis

All the data and analysis that gained from the questionnaire have been generated into different types of graphical representation for easily analyse the result.

6.5.2 Test Results for Multimedia Expert at Faculty of Information and Communication Technology, UTeM

The testing results is simplified in a graphical representation so, it is much easier to see. Figure 6.4 to 6.6 shows below the result from five respondents which are the Multimedia experts at Faculty of Information and Communication Technology, UTeM and director of Rolladice.

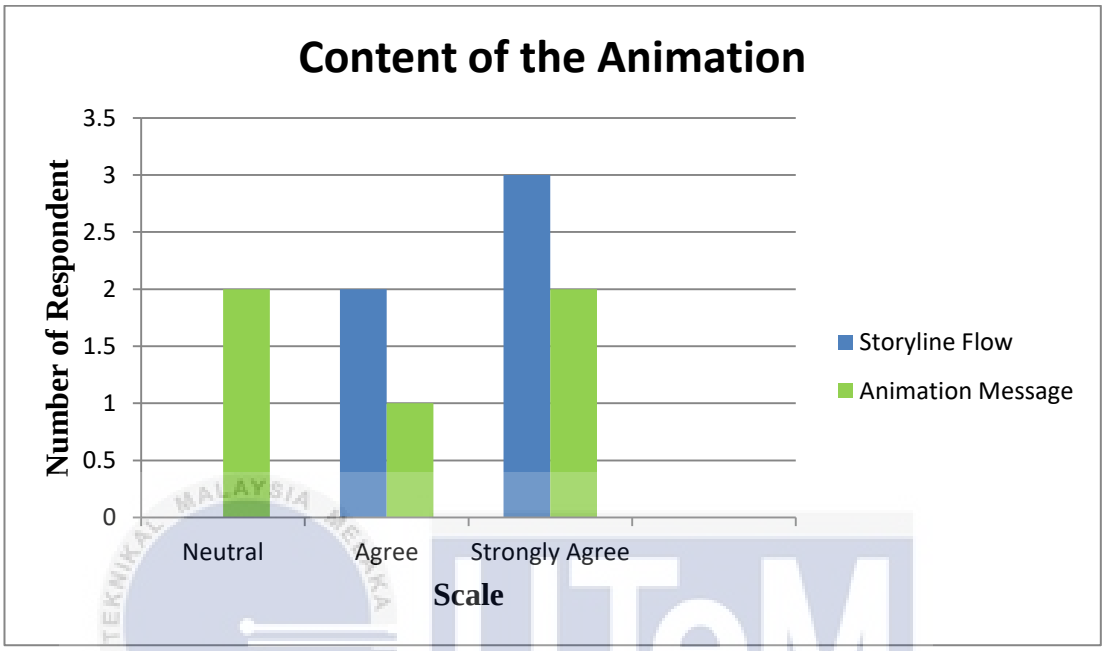


Figure 6.4: Result for Content of the Animation from Questionnaire

The bar chart above indicates the summarization for content of the animation results for multimedia experts. From the analysis results, only one multimedia expert chooses agree meanwhile the rest choose strongly agree as their answers for the storyline of animation. Besides that, for the message deliver in the animation, two out of five multimedia expert chooses strongly agree and one multimedia expert chooses agree as their answers. Meanwhile, the rest choose neutral because the storyline flow can be enhance more to send the message clearly.

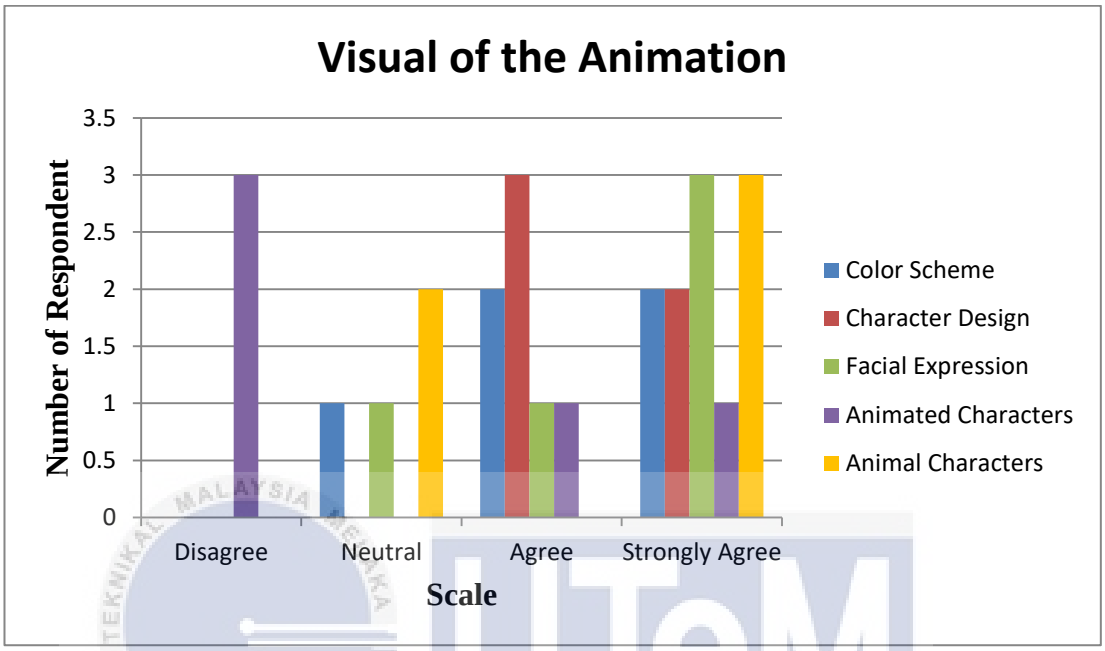


Figure 6.5: Result for Visual of the Animation from Questionnaire

The results for visual of the animation have been summarized in graphical representation. First, for the color scheme, about two multimedia expert chooses agree and strongly agree as their answers. Meanwhile, one multimedia expert chooses neutral as his answer. The comment receive was the color usage was appropriate and pleasing to the eyes. Second, two out of five multimedia experts chooses strongly agree and another three multimedia experts choose agree as their answers for the character designs. Besides that, the results for facial expression of the characters, only one multimedia expert chooses agree and neutral as this answer. Meanwhile, the rest chooses strongly agree as their answers. Next is three out of five multimedia experts chooses disagree for the smoothly done animation of the characters because the characters looks monotonous. Meanwhile, one multimedia expert chooses agree and strongly agree as his answers. As for the using animal as the characters, about three multimedia experts chooses strongly agree as their answers meanwhile the rest is neutral as their answer.

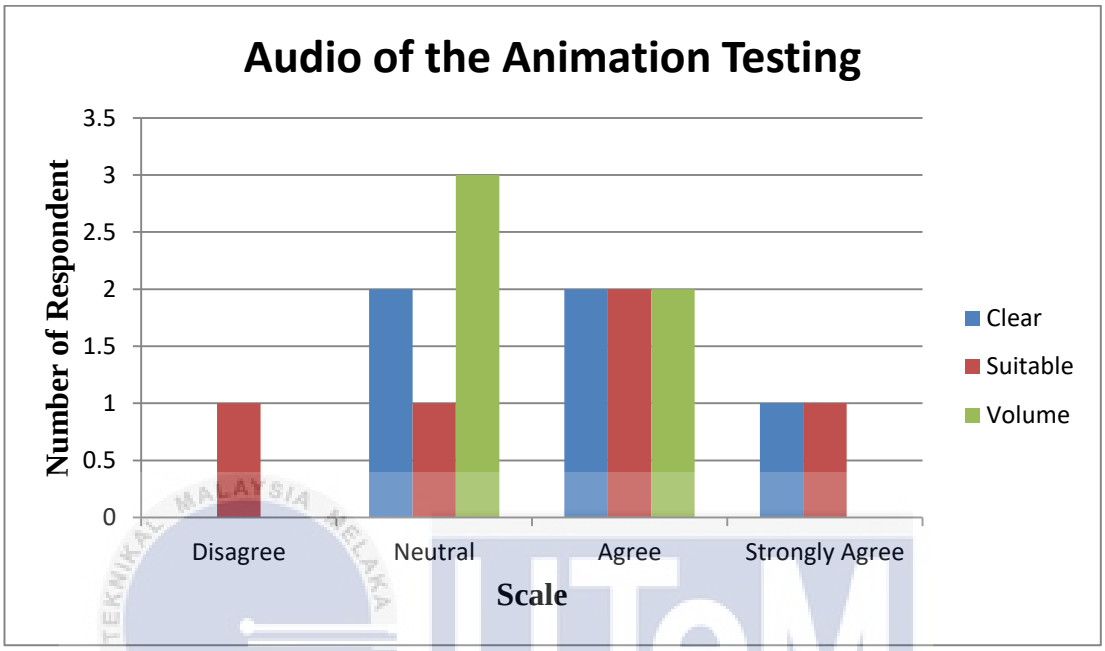


Figure 6.6: Result for Audio of the Animation from Questionnaire

The bar chart above is the summarization for the audio of the animation. For the volume of the sound in the animation, two multimedia experts chooses agree as their answers. Meanwhile three multimedia experts chooses neutral as their answers because the volume of the audio still need to be adjusts on a certain part. Next, one multimedia expert chooses strongly agree and two multimedia experts chooses agree as their answers for the suitable background music used in the animation. Meanwhile, one multimedia expert chooses neutral and disagree for his answer because on certain scene, the background music is not suitable. Furthermore, for the background music and sound effects are clear, one out of five multimedia experts chooses strongly agree and two multimedia experts chooses agree as their answers. They said that the audio is clearly heard in each of every scene. Meanwhile, the rest chooses neutral as their answers.

6.5.3 Test Results for Public

The testing result for public user has been simplified in graphical representation. The Figure 6.7 to 6.9 shows the result from 40 respondents of the public users via using online questionnaire.

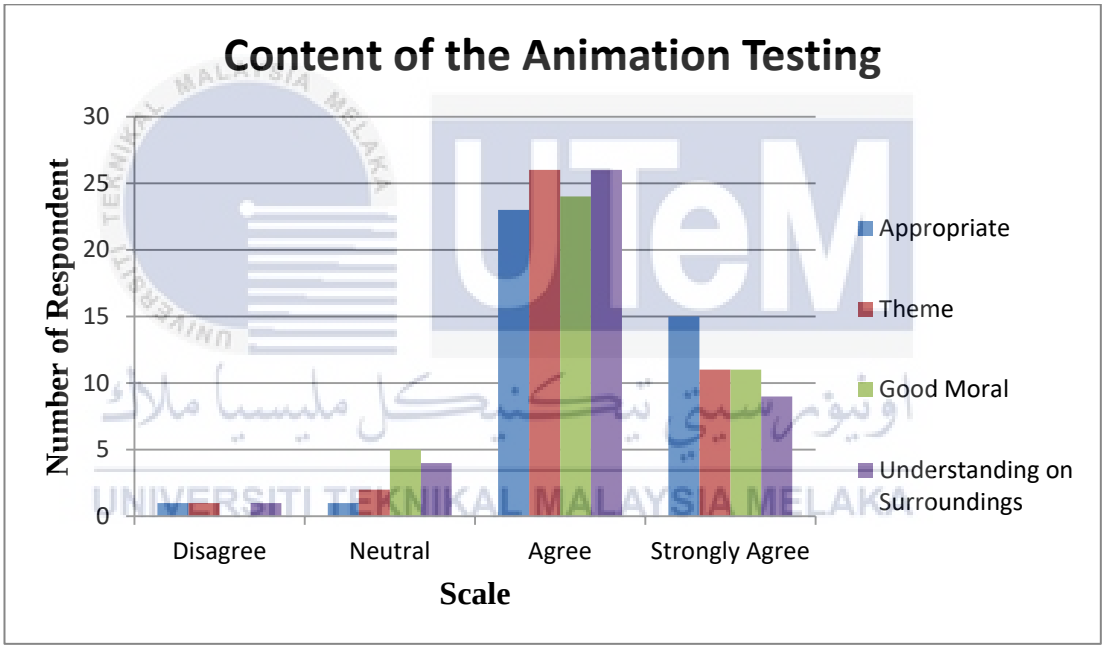


Figure 6.7: Result for Content of the Animation from Public Respondent Questionnaire

The results for content of the animation have been summarized in bar chart above. First, one out of 40 respondents chooses disagree and neutral as their answers whether the animation is appropriate for the toddlers. This is because the topic of bully is quite heavy for them. About 22 respondents choose agree and 15 respondents chooses strongly agree as their answers. Second, only one respondent chooses disagree as their answer due to the same reasons as the first questions. 26 out of 40

respondents chooses agree and 11 respondents chooses strongly agree as their answer for this questions. They said that it is better to spread the awareness in the early age. Besides that, 11 respondents chooses strongly agree and 24 respondents chooses agree as their answers that the animation can give good moral values. The rest respondents chooses neutral. Finally, only one respondent disagree that the animation can help the toddlers to understand more with their surroundings. This is because the in the toddlers phase, they still cannot understand easily. About 26 respondents chooses agree and 9 respondents chooses strongly agree as their answers for the questions.

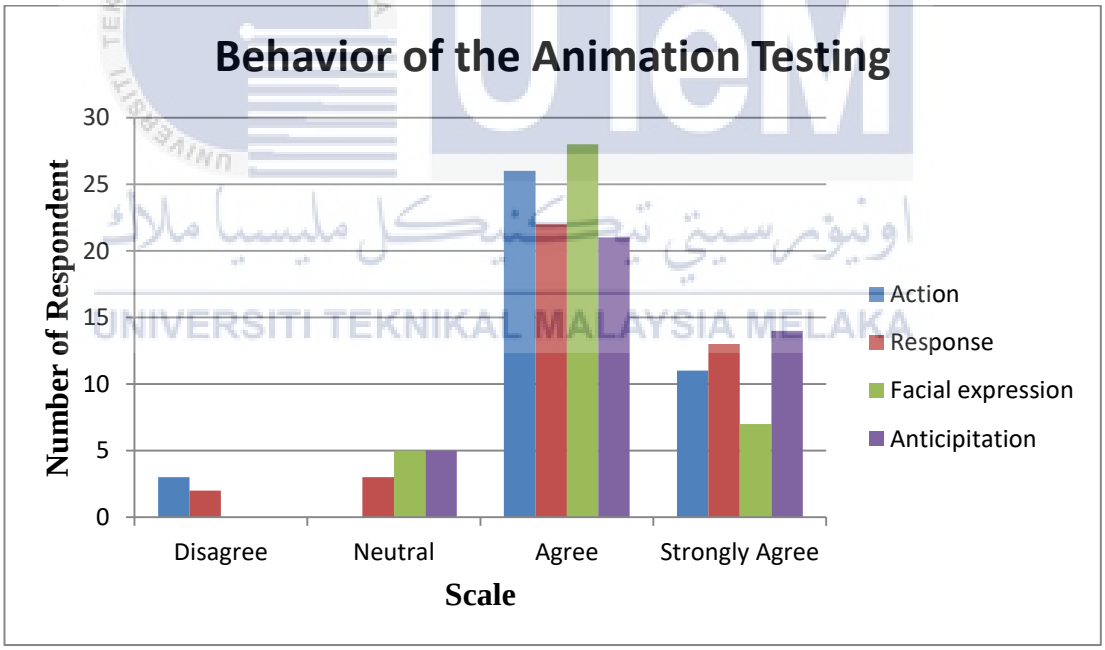


Figure 6.8: Result for Behavior of the Animation from Public Respondent Questionnaire

The bar chart above shows the final results of the toddlers' behaviour when watching the animation. First, three out of forty respondents choose disagree as their answer that the action of the characters can teach the toddlers what to do if they face

the same thing in real life. About 26 respondents chooses agree and 11 respondents chooses strongly agree as their answer for the questions There is about 22 respondents chooses agree as their answers that the attitude of the characters can teach the toddlers how to differentiate what is good and bad. Another 13 respondents chooses strongly agree for that questions. Meanwhile, two respondents chooses disagree because on this phase, the toddlers' understanding is quite slow and still clueless. Besides that, 28 out of 40 respondents chooses agree that the facial expression showed in the characters can teach the toddlers to understand the situation happened. Another 7 respondents choose strongly agree and the rest chooses neutral as their answers. Finally, about 14 respondents chooses strongly agree and 21 respondents chooses agree that the toddler shows high anticipation when watching the animation compare reading the storybook. Meanwhile, 5 respondents chooses neutral for their answer.

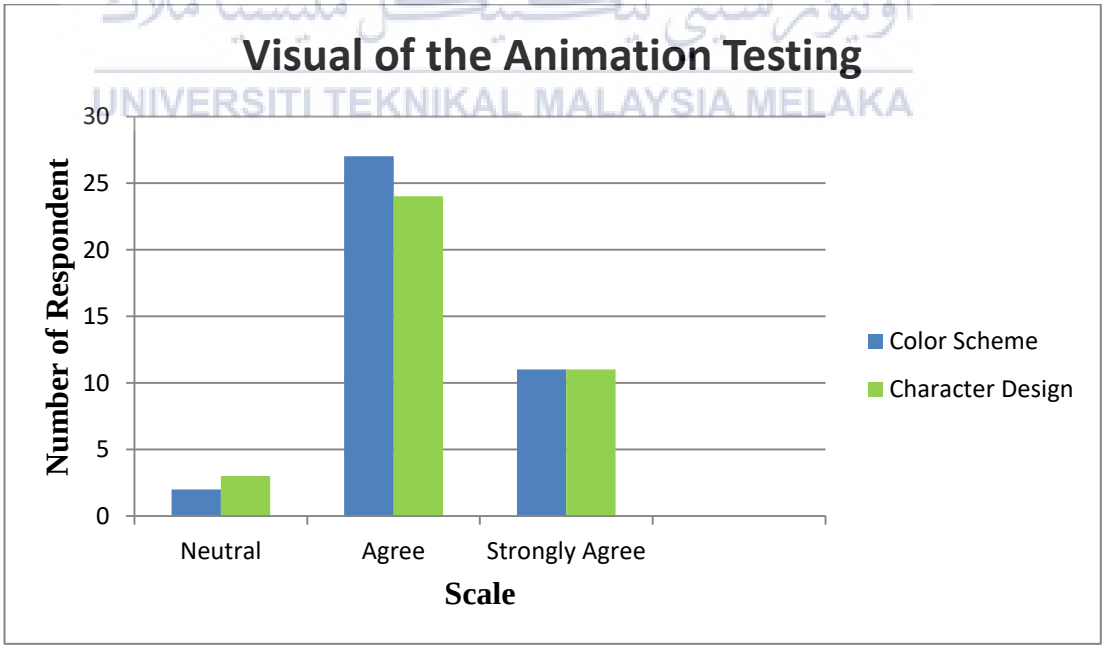


Figure 6.9: Result for Visual of the Animation from Public Respondent Questionnaire

The result for visual of the animation testing has been summarized in the bar chart above. For the color scheme used in the animation, about 11 respondents chooses strongly agree and 27 respondents chooses strongly agree for their answer. Meanwhile, the rest chooses neutral for this answer. Next, there is about 24 out 40 respondents chooses agree and 11 respondents choose strongly agree as their answer that character design used is kid friendly to toddlers. The respondent said that the characters is suitable and can attract the toddlers' attention. Meanwhile, three respondents chooses answers neutral as their answer.

6.6 Conclusion

In a conclusion, the animation received a good feedback and suggestion from the test result and analysis gathered. The animation is accepted to be used as a medium to spread any message towards the toddlers. The next chapter will describe a final conclusion as well as the strength and limitation of the animation.

CHAPTER VII

PROJECT CONCLUSION

7.1 Observation on Weakness and Strength

Every system that has been developed there is bound to have its own weakness and strength. Producing a product that meets the object and fulfil the user requirements, a good planning and time management plays the main role. Based on the testing feedback gathered from all the respondents, weaknesses and strength of this project is discovered.

The weaknesses of this product are as below:

i. The storyline for the animation is quite slow.
ii. Lacking of using sound effects to emphasize with the emotions showed.
iii. The animation of characters is quite monotonous.

The strength of this product are as below:

i. Overall most of the respondent satisfied with the product because it is another alternative way in spreading the awareness to toddlers and public.
ii. The character designs are nicely well drawn and appropriate to the toddlers to watch.

iii. The usage of color scheme is suitable for the toddlers and can attract their attention.

7.2 Propositions for Improvement

In every project there is always a room for improvements to overcome the weakness that has been stated. The improvements of this product are as below:

i. The storyline need to be improved in the time and the story of the animation so, it will not be too lengthy and the story will be more interesting.
ii. Adding various sound effects to the characters which can portrays more deeply about the characters' emotions.
iii. Focus more on the animation of the characters so, it does not look monotonous and have more action on them.

7.3 Project Contribution

This project can contribute to all kindergarten, schools and also, adults who have children, niece or nephew. It is hope that public have self-awareness about bully and how to help when someone is being bullied. Besides that, in keeping up with the modern technology, animation can be another source to spread the knowledge among the public in several of age.

7.4 Conclusion

In a conclusion, the objectives are successfully achieved throughout the time during progress of completing this project. There are some weaknesses in the project but it can still be improvise. This animation can give better visualization not only for toddlers but also for public general knowledge. In spreading the awareness, the step should be taken in early age due to prevent any troubles in the future.

REFERENCES

Allor, J.H. and McCathren, R.B. (2003). "Developing Emergent Literacy Skills Through Stroybook Reading". pp. 72-79.

Boni, S. E. (2008). "Anthropomorphism: How it affects the human–canine bond". *Journal of Applied Companion Animal Behavior Vol 2 No. 1.*

Broemmel, A.D., Moran, M.J., and Wooten, D.A. (2007). "The Impact of Animated Books on the Vocabulary and Language Development of Preschool-Aged Children in Two School Settings".

Burke, C.L. and Copenhaver, J.G. (2004). "Animals as People in Children's Literature".

Evans, M.A. and Aubin, J.A. (2005). "What Children Are Looking at During Shared Storybook Reading". pp. 913-920.

Hansen, C.C. and Zambo D. (2005). "Piaget, Meet Lilly: Understanding Child Development through Picture Book Characters". *Early Childhood Education Journal, Vol. 33 No. 1.*

Morrison, J.B. and Tversky, B. (2000). "Animation: Does It Facilitate Learning?".

Shamsuddin, A.K., Islam, M.B. and Islam, M.K. (2013). "Evaluating Content Based Animation through Concept Art*". International Conference on System Modeling & Advancement in Research Trends (SMART),* Department of Computer Applications, TMIMT ,Teerthanker Mahaveer University.

Vogl, S. (1982). "Animals And Anthropomorphism in Children's Literature".