Exploring the Use of Narration for Audio Description in Enhancing Blind and Visually Impaired Children's Visualization of Video Movie Films

by

Shadiqin Binti Firdus

Dissertation submitted in partial fulfilment of
the requirements for the
Bachelor of Technology (Hons.)
(Information & Communication Technology)

JANUARY 2012

Universiti Teknologi PETRONAS
Bandar Seri Iskandar
31750 Tronoh
Perak Darul Ridzuan

CERTIFICATION OF APPROVAL

Exploring the Use of Narration for Audio Description in Enhancing Blind and Visually Impaired Children's Visualization of Video Movie Films

by

Shadiqin Binti Firdus

A project dissertation submitted to the
Information & Communication Technology Programme
Universiti Teknologi PETRONAS
in partial fulfillment of the requirement for the
BACHELOR OF TECHNOLOGY (Hons.)
(INFORMATION & COMMUNICATION TECHNOLOGY)

Approved by,

(Dr. Josefina Barnachea Janier)
Associate Professor

UNIVERSITI TEKNOLOGI PETRONAS
TRONOH, PERAK
January 2012

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

SHADIQIN BINTI FIRDUS

ABSTRACT

Watching movie or television is always a challenge for the blind and visually impaired people because most of the scenes are not verbally described in order to give the full view of the program content. This has narrowed the opportunity of the blind and visually impaired people to access interactive learning in order to acquire knowledge and skills for independent living. The developed experimental model of Audio Video Describer (AVD) that uses Bahasa Malaysia and English short cartoon movie film with the integrated narration is believed to assist the blind and visually impaired children to experience movie film. Data resulted from a survey containing ten questions on perceptions in the form of Likert scale rated from 1 being strongly disagree to 5 being strongly agree. Comments and feedback were gathered through interview from the respondents after each stage of AVD developed. Based on the analysis of the evaluation results of first draft of AVD, second draft of AVD was developed and the evaluation was repeated to determine the effectiveness of the AVD model. The final AVD models were tested on normal sighted students, six visually impaired adults and also on the blind and visually impaired children. The key findings from the analysis showed that the language, voice, pitch and timing used for the audio description are suitable. This indicates that the AVD potentially can assist the blind and visually impaired children to experience and to enjoy the movie film. With the use of AVD, it can result in minimal help from the normal people to describe the movie for them.

ACKNOWLEDGEMENT

First of all, the author would like praise to Allah S.W.T, the Most Gracious and Most Merciful for giving the opportunity and strength in completing this project dissertation without extreme difficulties. In this opportunity, the author would like to express gratitude to her supportive supervisors, Assoc. Prof. Dr. Josefina Barnachea Janier and Assoc. Prof. Dr. Wan Fatimah Binti Wan Ahmad for their kind assistance and guidance while developing the project.

The author would also like thank her colleagues in Universiti Teknologi PETRONAS (UTP) for their constructive feedback that contributed in the process of developing the project. Not to forget, greatest gratitude goes to her beloved parents, Norida Binti Mohd Razi and Firdus Bin Zakaria, for their endless support and motivation.

The authors also would like to thank Universiti Teknologi PETRONAS (UTP) for the financial assistance given through the Short Term Internal Research Fund (STIRF No. 19/2011) and also to Malaysian Association for the Blind (MAB) and National Council for the Blind (NCB) for providing support in this research. The author would also like to thank those either directly or indirectly involved in this project.

TABLE OF CONTENTS

CERTIFICATION OF APPROVAL i

CERTIFICATION OF ORIGINALITY ii

ABSTRACT iii

ACKNOWLEDGEMENT iv

LIST OF FIGURES vii

LIST OF TABLES viii

CHAPTER 1: INTRODUCTION 1

1.1. Background 1

1.2. Problem Statement 1

1.3. Objectives 2

1.4. Scope of Study 2

1.5. Relevancy of the Project 3

1.6. Feasibility of the Project within the Scope and Time frame 3

CHAPTER 2: LITERATURE REVIEW 5

2.1 Blindness and Vision Impairment 5

2.2 Access to Information 7

2.2.1 Braille 7

2.2.2 Computers 7

2.2.3 Voice recognition 8

2.3 Introduction to Audio Description 8

2.4 Brief History of Audio Description 9

2.5 Past Audio Description Made for the Blind People 10

CHAPTER 3: METHODOLOGY 12

3.1 Phase 1: Project Definition 12

3.2 Phase 2: Implementation 13
3.3 Phase 3: Project Test and Integration 17
3.3.1 Project testing 17
3.3.2 Observations – facial expressions and non verbal cues 19
3.3.3 Survey and interview 19
3.4 Phase 4: Verification and Validation 21
3.5 Tools 21
3.5.1 Software 21
3.5.2 Hardware 22
3.5.3 Instrument 22
CHAPTER 4: RESULTS AND DISCUSSIONS 23
4.1 Experimental Model 23
4.1.1 Bahasa MalaysiaAVD 24
4.1.2 English AVD 26
4.2 Analysis of Results 29
4.2.1 Bahasa Malaysia AVD 29
4.2.2 English AVD 33
4.2.3 Evaluation results with a visually impaired child 37
CHAPTER 5: CONCLUSION AND RECOMMENDATIONS 39
REFERENCES 40
APPENDICES 42
A. Gantt Chart 42
B. Survey's Questions 44
C. Pictures during project testing 47

LIST OF FIGURES

Figure 1: New global estimates of vision impairment and blind by WHO 6

Figure 2: Basic Braille (a - z) 7

Figure 3: Sesame Street, Elmo's World with Audio Description 10

Figure 4: V-Shaped lifecycle model 12

Figure 5: Project activities 13

Figure 6: Computer Microphone 15

Figure 7: Sony Vegas 7.0 Interface 16

Figure 8: First Scene of Upin & Ipin dan Kawan-kawan 24

Figure 9: Some other scenes from Upin&IpindanKawan-kawan 25

Figure 10: First Scene of Boundin' 26

Figure 11: Scenes from Boundin' 27

Figure 12: Other scene from Boundin' 28

Figure 13: With the disabled children at Pemulihan Dalam Komuniti (PDK) PERMATA 37

Figure 14: The author with Haziq, child with low-vision 38

Figure 15: Project testing with the students 47

Figure 16: Project testing with the visually impaired adults 47

Figure 17: Project testing with the blind and visually impaired children 48

LIST OF TABLES

Table 1: Project Testing using Bahasa Malaysia AVD 17

Table 2: Project Testing using English AVD 18

Table 3: Survey Questionnaires 20

Table 4: Video duration of the AVD 23

Table 5: Evaluation result using Bahasa Malaysia AVD without Blindfold 29

Table 6: Evaluation Result using second draft of Bahasa Malaysia AVD with Blindfold 31

Table 7: Evaluation result using second draft of Bahasa Malaysia AVD with visually impaired adults 32

Table 8: Evaluation result using First Draft of English AVD 33

Table 9: Evaluation result using Second Draft of English AVD 35

Table 10: Evaluation result using second draft of English AVD with visually impaired adults 36

Table 11: Observations with Haziq, 6 years old child with low vision 38

Table 12: Gantt Chart (FYP I) 42

Table 13: Gantt Chart (FYP II) 43

CHAPTER 1
INTRODUCTION

1.1. Background

Most of the daily activities will involve the sense of sight. These activities include reading, watching television, driving, eating, etc. In each of the movements or actions that people take, in most of the cases, they have to see it in order to respond to it. Unfortunately for some people, they have lost this one important sense, since they were born or due to some diseases or accidents that led to their blindness or vision impairment. In order to live their life, these blind and visual impaired individuals have to maximize the use of their other four senses: hearing, taste, smell and touch. The use of Braille for reading, the use of guide dog, the use of special path that has different tiles at the pedestrian walk for the blind people, are the few examples of how the surrounding condition is trying to help them to fit into the community and they will be able to be independent with lesser help from the society.

Acquiring knowledge is not just through reading. A lot of other interactive ways in acquiring knowledge with various kind of latest technology that offers opportunity to gain information and experience something from it. As Braille is one of the best inventions that the blind people have ever utilized to read and acquire knowledge and there are few other alternative ways of learning for the blind people.

1.2. Problem Statement

Currently, most of the video movie films make use of visual aid more than the audio description. A lot of lessons can be learned from video movie films and may reflect significant values to someone's life. These movie films can be an interactive platform to gain knowledge through the elements in the movie. Blind people could

not have the movie experience because of lacking in the description or narration in the video movie films. Normal people that accompany these blind people while watching movie films need to describe in further details about the specific actions, movements, facial expressions, locations and important happenings that took place in the movie.

In future, this help from the normal people need to be eliminated or at least minimized with the aid of the narration for audio description in order to enhance their visualization of video movie films.

1.3. Objectives

The objectives of this project are:

1. To explore the use of narration to describe the elements of a video movie film.
2. To develop an experimental model Audio Video Describer (AVD) that will enhance blind and visually impaired children's visualization of movie video elements.
3. To evaluate the experimental model of AVD in terms of language, voice, pitch and timing used for audio description.

1.4. Scope of Study

The scope of study for this research covers the area of multimedia, i.e. Human Computer Interaction. The experimental model uses video editing software to develop the Audio Video Describer (AVD) that uses narration to be integrated into short movie cartoon. There are two AVDs developed for this project which are Bahasa Malaysia and English.

The source of data for this research is a survey questionnaire with 10 items on perceptions about perception will be evaluated using a Likert scale of 1 to 5. The key findings to be evaluated at the end of the project are the language, voice, pitch, sound elements and timing used for the narration.

1.5. Relevancy of the Project

This project will be beneficial to the blind children as they will be able to experience the movie elements through AVD with minimal help from the normal people. The narration for audio description needs to be descriptive enough for the blind children for them to visualize and experience the video movie film.

Applying this AVD to most of the film will be practicable in helping those blind individuals to learn and at the same time have fun with movie films. This research will assist the blind children to understand the movie film through the developed descriptions. Whatever the exact nature of the visual impairment, it is apparent that most visually handicapped viewers will not be able to take-in the full screen or follow the movements and subtle gestures which are vital to programme understanding and enjoyment.

1.6. Feasibility of the Project within the Scope and Time frame

This project is feasible in terms of scope as it focuses on the children aged 3 to 12 years old which enjoys cartoon movie films. As this project will cater for the need of Malaysian's blind children, the limitation of this project is the concern about the level of their English education background. Therefore, besides English movie film, a suitable Bahasa Malaysia children movie film will also be used to develop the AVD.

This project also has the limitation on the level of visual memory that the blind children have. Some blind people are born with the blindness and some of the blind people have some visual memory before they lose their sight due to some accidents or diseases. With the support and care from the family and relatives, they are helped with the objects and elements in their surroundings including colours, shapes, sizes, etc. Through this kind of assistance, as they grow older, they will become more sensitive to their surroundings because they have utilized their other senses (i.e. touch, smell, and taste). Therefore, they can understand what will be described or at least get the general idea of what is being described in the movie. This relates closely with the audio description that will be developed, as it will cater for both groups; i.e. blind children with visual memory and blind children without visual memory.

Other limitation about this project is the amount of description provided for one specific time is lengthy for some part. Therefore, short pauses will be used between the scenes in order to fit the audio description.

This project will be developed within two semesters, which comprises of 8 months, starting from October 2011 to May 2012. This project will be developed based on four main phases, which comprises of project definition, implementation, project test and integration and verification and validation. The research phase will be carried out during the first semester, which is in October until December 2011 whereas the development of the prototype will be initiated immediately in November 2011. Testing will be conducted after each of the drafts of experimental model is ready. Thus, based on the division of how the project will be developed, this project is believed to be completed within the timeframe.

CHAPTER 2
LITERATURE REVIEW

2.1 Blindness and Vision Impairment

Blindness is the state of being unable to see anything, lost the sense sight in both eyes. The effect is permanent in certain cases and for some, it is treatable. Dahl and Shiel Jr. in one of their articles in medicenet.com, have defined blindness as the state of being sightless. A blind individual is unable to see and by that, it signifies the condition of total blackness of vision with the inability of a person to distinguish darkness from bright light in both of their eyes. Vision impairment is another case that is related to the blindness. Visually impaired is a state where the partially blind people have complications on seeing things which in some degree can be considered as handicap. Vision impairment, or low vision, is defined by United States National Library of Medicine, National Institute of Health (NIH) as even with spectacles, contact lenses, support of medicine or surgery, people do not see well. It will not be considered as handicap or visually impaired for the people with normal long-sighted and myopic. Vision impairment may result in a constrained field of vision or a diminished ability to see sharpness of details, read standard-size print, determining colour or depth perception, see contrasts, adjust to changes in light or glare, or locate objects.

According to World Health Organization (WHO), in their released new global estimates of vision impairment stated that the number of people with vision impairment (presenting vision) is 285 million (65% of whom are aged over 50 years). Of these, 246 million have low vision (63% over 50) and 39 million are estimated to be blind (82% over 50).As depicted in Figure 1, 39 million

encompassed 14% of the total estimates of visual impairment are the totally blind people. It is quite high and the number will be increasing in the future.

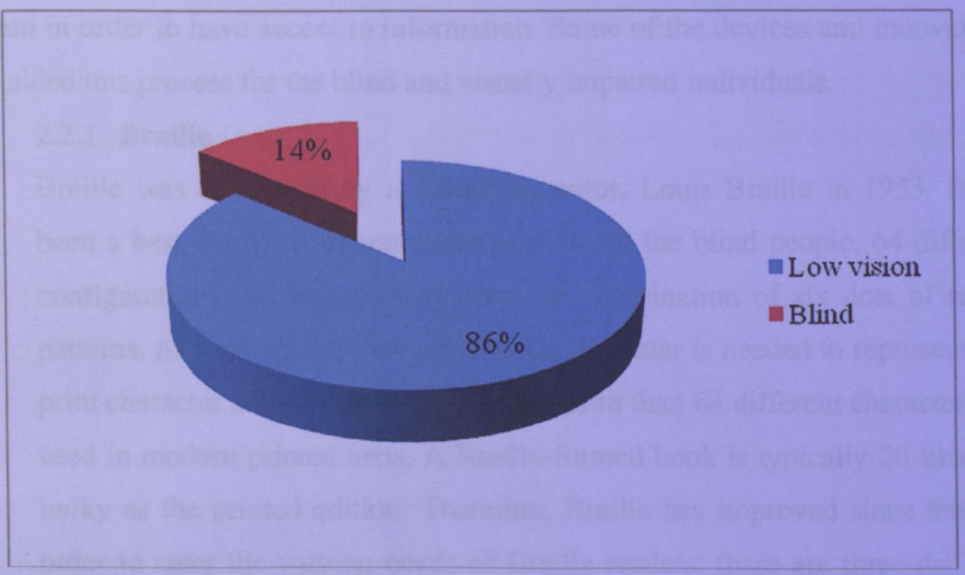

Figure 1: New global estimates of vision impairment and blind by WHO

WHO stated that "there are four levels of visual function, according to the International Classification of Diseases -10 (Update and Revision 2006): normal vision, moderate visual impairment, severe visual impairment and blindness". For the moderate visual impairment combined with severe visual impairment are grouped together under the term "low vision".

In 1996, The Ministry of Health Malaysia have recorded about 65,000 blind individuals in Malaysian, and around 500,000 have vision impairment. From 65,000, approximately 5,000 of them are children whereby the visually impaired children are about 50,000. From the entire total, only 14,000 are registered with the Malaysian Associates for the Blind (MAB). This is due to lack of awareness among the blind community about the opportunity that they have in order to improve their life condition. The percentage of blind children is quite high in Malaysia, which is about 8%, and the visually impaired children are about 10% from the total.

The major causes of avoidable blindness are cataracts (50%), glaucoma (15%), corneal opacities (10%), trachoma (7%), childhood blindness (5%), and onchocerciasis (4%).

2.2 Access to Information

The limitation of the blind and visually impaired people does not halt them to acquire information and have access to it. Technology has given significance impact to them in order to have access to information. Some of the devices and innovations have aided this process for the blind and visually impaired individuals.

2.2.1 Braille

Braille was developed by a French inventor, Louis Braille in 1953. It has been a best-known communication system for the blind people. 64 different configurations can be obtained from the combination of six dots of raised patterns. At times, more than one Braille character is needed to represent one print character and because of this many more than 64 different characters are used in modern printed texts. A Braille-formed book is typically 20 times as bulky as the printed edition. Therefore, Braille has improved since then, in order to cater the varying needs of Braille readers; there are three different grades of Braille.

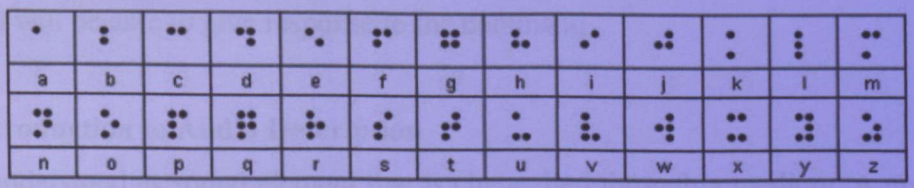

Figure 2: Basic Braille (a - z)

Some of the money notes include the Braille at the tip of the notes to assist the blind people to differentiate the notes. Other than that, there were also elevators that concern about the blind people by including the Braille as well besides the normal floor numbers.

2.2.2 Computers

With text-based operating systems, such as the disk operating system (DOS), a blind person could access information with almost the same ease as the sighted person. The output involves may be a lot more than the normal

sighted person, which are the synthetic speech, a transitory Braille display or large characters on the monitor.

Generally, computer's graphical user interface is not meaningful to the blind people but may be meaningful to the low level visual impaired individuals as they can magnify the size of the text and interface. Some of the websites also have the option to increase the font size or decrease the size according to the reader's preference.

2.2.3 Voice recognition

With the advancement of technology nowadays, the smartphones have improved a lot more than the previous versions. It has helped the blind and visually impaired people to access information. The technology evolves from the very basic Short Message Service (SMS) to video call using 3G and recently, there is an advanced voice recognition system developed for the iPhone 4S users. Siri on iPhone 4S is the intelligent personal assistant that helps the user to get things done just by asking. It understands the command and will be able to give response to the command.

2.3 Introduction to Audio Description

Audio is understood as sound element that is channelled through a medium. A great example will be the music that people listen to mostly every day. Different genre of music brings different mood to the listener. That is how audio can affect or influence people's feeling and mood. The description is by using audio to be the narrations in order to describe a movie film. In this project, audio description is used to help the blind or the visually impaired individuals to experience movie films, so that later they can relate it from each scenes and able to acquire knowledge from it. They have a limited entertainment in which most of the blind people can enjoy themselves only by listening to the music and also the radio deejays. They have limited ways to get information, and by the use of audio description, it will enhance their visualization towards movie film by reimagining the elements in the film in their head and able to picture how the movie goes by.

According to Lodge and Slater, audio description can be defined as the description that provides a separate commentary channel carrying narrated descriptions of the visual elements of television scenes such as costumes, facial expressions, actions and places which delivered to the visually impaired viewers or the blind individuals during pauses in the programme dialogue.Audio description gives extra explanations about the happenings that are not verbal to the blind and visually impaired individuals.The programme dialogue includes movie films, music videos, any television programmes, etc. The description fits in between the dialogue and does not interfere with imperative sound and music effects.

It provides opportunity for the blind and visually impaired individuals to have equal access to learning opportunities. Described and Captioned Media Program (DCMP) stated that with regards to the amount of accessible educational media, less than 1% of the total amount is described for students who are blind and visually impaired. This has made a great loss for the opportunity of the blind and visually impaired children to gain knowledge.

2.4 Brief History of Audio Description

There have been many noteworthy developments in the audio description since more than 60 years ago. People have realized that audio description has made significant impact to the blind people and visually impaired to visualize movie and television programmes.

In 1972, Dr. Gregory Frazier, the Professor at San Francisco State University, has established the first non-profit company, AudioVision to explore the concept of making media and live performances more accessible to people who are blind or visually impaired. From 1988 to 1989, James Stovall produced audio description of classic TV shows and movies for home videos. Then, he found the Narrative Television Network to offer description for movies on cable television.

The National Academy of Television Arts and Sciences awarded special Emmys to four organizations that brought audio description to television which are AudioVision Institute (Gregory Frazier), Metropolitan Washington Ear (Margaret Pfanstiehl), Narrative Television Network (James Stovall) and PBS/WGBH (Barry Cronin and Laurie Everett).

In 1993, there has been a study conducted by the American Foundation for the Blind (AFB) and WGBH (a non-profit organization that produces media access for people with disabilities to the television, radio, web/new media, community partnerships, and non-broadcast educational productions) about the acceptability of the descriptions in television program. The study found out that those who were able to hear descriptions could recall more of the program content.

By the year 1997, the World Wide Web Consortium has recommended the use of SMIL 1.0 (Synchronized Multimedia Integration Language) for producing video and other visual media as this will provide framework for closed captioning and description of internet media.

The audio description was further advanced in the year 2003 as National Captioning Institute (NCI) partners with non-profit educational organization Sesame Workshop to produce the first ever Sesame Street with description for the blind or visually impaired children. The glory continues in 2006 as the 63 major motion pictures released to the theatres in United States with audio description.

2.5 Past Audio Description Made for the Blind People

Joel Synder defines audio description is the visual that is made verbal. Some of the audio described movies, movie trailers and videos are available at the net for the accessibility of the blind and visually impaired people to experience movie. An example prepared for the children in the Audio Description Associates LLC from the clip of Sesame Street, Elmo's World.

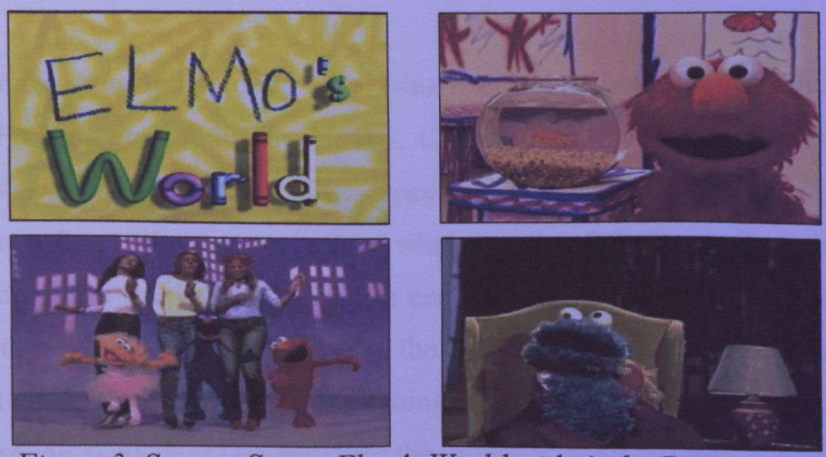

Figure 3: Sesame Street, Elmo's World with Audio Description

In the net, there are some video described comes with the captions and some did not have the captions. Referring to the above figure, the Elmo's World is not captioned. The video is described before the actions are taking place. Some of the description comes along together with the actions. There are also some actions that are not been described in the video clip. This is to avoid a heavy, overwhelming description to the listener. Other than that, this video clip does not use any pauses to fit the description in it.

There is also the audio description in audio format only. An example of this is from a short clip of movie, Charlie and the Chocolate Factory, a 54 seconds of audio description, able to give a visual impact to the listeners.

"Mister Wonka bends down to unlock the tiny door then pushes on the circular panel which opens up on to a magical Technicolor landscape. There's a huge chocolate waterfall, and a chocolate river, flowing through a bright acid green meadow which is covered in strange brightly coloured plants and giant red and white toadstools. Wonka leads them in... "Now, do be careful my dear children..." "

The adjectives used in the description are clear and simple for the children: **huge** chocolate waterfall, **bright** acid **green** meadow, **brightly coloured** plants. These have given a clear visual idea to the listener about the characteristics of the magical Technicolor landscape in the Wonka's Chocolate Factory.

Another audio description done is a whole movie being described without the captions. For this kind audio description, CaptionMax, a closed captioning service and subtitles provider, they are the specialist for captioning, subtitling, video description and encoding has prepared a whole movie of Gulliver's Travels with full audio description from beginning till the end without the caption. The tone is a bit monotonous and will not be suitable for the blind and visually impaired children to listen to it and later experience the on-going scenes in the movie. A suitable voice, pitch and sound element are essential for the program understanding.

CHAPTER 3
METHODOLOGY

This project will implement the V-Shaped lifecycle model as the requirements for the project are clearly defined and the software development technologies and tools are well known.

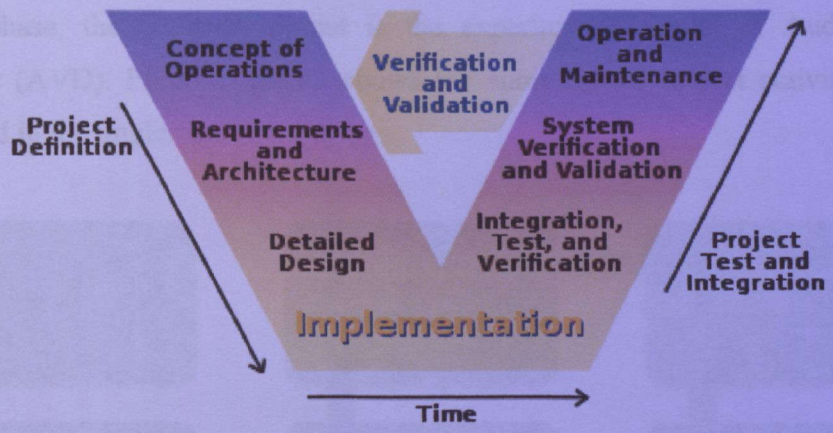

Figure 4: V-Shaped lifecycle model

This lifecycle model is simple and easy to use. Four main phases are identified to suit the project: project definition, implementation, project test and integration and lastly is verification and validation. These phases are evaluated against specific duration of time, which is about six months.

3.1 Phase 1: Project Definition

In this phase, planning is involved by which the concept of operations, requirements and architecture is set up for future understanding. To understand the concept of operations, the nature of the blind people and visually impaired individuals must be

understood beforehand. Understanding their disabilities, activities, limits and their needs is essential throughout the project. Together with that, the requirements of audio descriptions can be identified as the experimental model of the audio description will attempt to accomplish the need of the blind and visually impaired children in attaining minimal help from the normal people to describe the movie film for them. Study will be conducted across the project timeline from beginning till the end of the project. Expected output for this phase is background of study, together with the literature review, objectives, scope of study and also the methodology identified.

3.2 Phase 2: Implementation

Once the project definition is understood, the implementation phase will take place. In this phase, the expected output is the experimental model of Audio Video Describer (AVD). Figure 5 below shows the summary of project activities being conducted in the implementation phase.

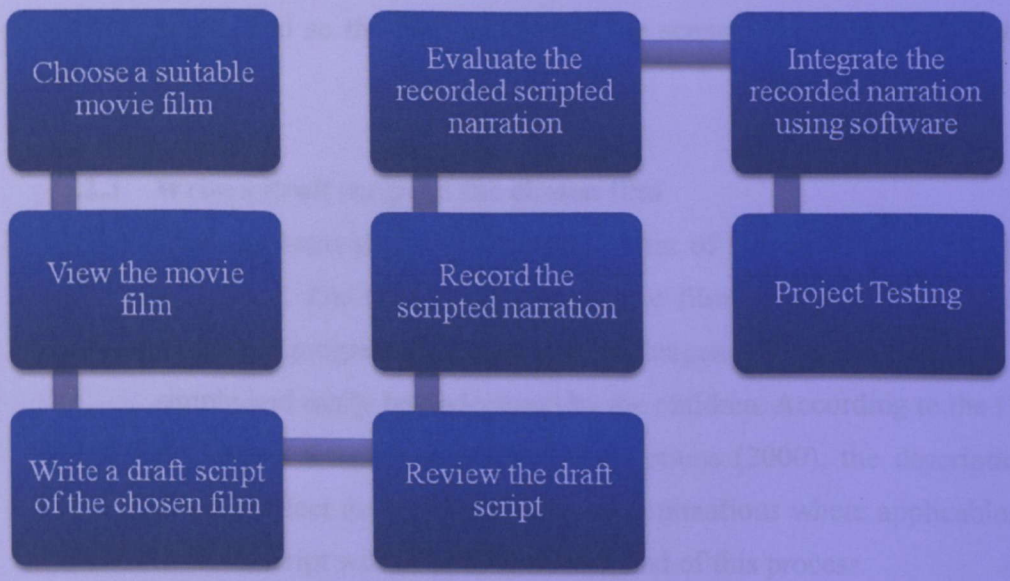

Figure 5: Project activities

The implementation will be conducted as follow:

3.2.1 Choose a suitable movie film

In this project, the movie film to be used as the AVD model is a cartoon movie film. The movie need to be reviewed in order to make sure that it is suitable for the listener. Movie with lots of actions will not be very suitable for the project as it will occupy the listeners with overloaded information and later may cause the listeners to losetheir interest towards the movie.

3.2.2 View the movie film and decide the timing for each scene

After the movie has been chosen, some elements of the movie should be observed and taken into consideration as the audio descriptions that will be made is meant for the blind and visually impaired individuals. The movie should have a balanced narration and actions in it. There should be appropriate length of time in one scene. The transitions between the scenes is decided in such way that it can easily be recalled so that they can relate the scenes from beginning to the end.

3.2.3 Write a draft script of the chosen film

Then, the next step is to write the script of the narration to describe the movie. For this project, the movie film to be used is from the children's programmes. Therefore the language for description will be simple and easily be understood by the children. According to the ITC guidelines for preparing audio descriptions (2000), the descriptions should reflect the 'cute' aspect of the animations where applicable. A draft of script will be obtained at the end of this process.

3.2.4 Review the draft script

The draft script prepared need to be rehearsed with the movie in order to ensure the description's time is complying the movie's timing. Any unnecessary descriptions should be discarded during this process. The

right language and pitch also need to be suitable with the movie's scene.

3.2.5 Record the scripted narration using the right language, voice, pitch and timing for audio description

A computer microphone will be used to record the narration using the right language, voice, pitch and timing. The recording will be held in an acoustic room to ensure a good quality of audio is obtained.

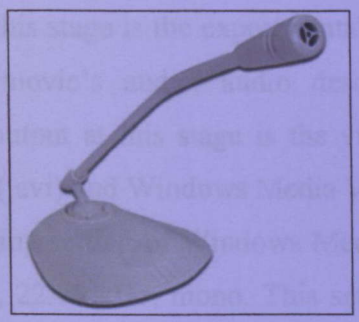

Figure 6: Computer Microphone

The software used to record the narrator's voice is Windows 7 Sound Recorder. At the end of this stage, the expected output will be the recorded audio description.

3.2.6 Evaluate the recorded scripted narration in terms of language, pitch and timing used

After the recording, the description needs to be replayed again before the integration process so that there will be no significance description left out that probably will contribute to the understanding of the movie film.

3.2.7 Integrate the recorded narration with software to the video movie film and this results the AVD experimental model

The sound level of the movie may overpower the audio description. In order to cater this, the movie's sound level should be lowered compared to the audio description so that it can catch the listeners' attention. The video editing software that will be used is Sony Vegas 7.0. It will integrate the movie's audio together with the audio description and the motion pictures as well. If necessary, a short pause will be used to give coherent timing for the audio description. The expected output for this stage is the experimental model of AVD that has integrated the movie's audio, audio description and motion pictures. The final output at this stage is the video format AVD in Audio Video Media (.avi) and Windows Media Video (.wmv) file that has the audio rendering setting of Windows Media Voice 9, with the attributes of 20kbps, 22.05 kHz, mono. This setting is to ensure the narrator's voice rendered seamlessly with the movie's audio and motion pictures.

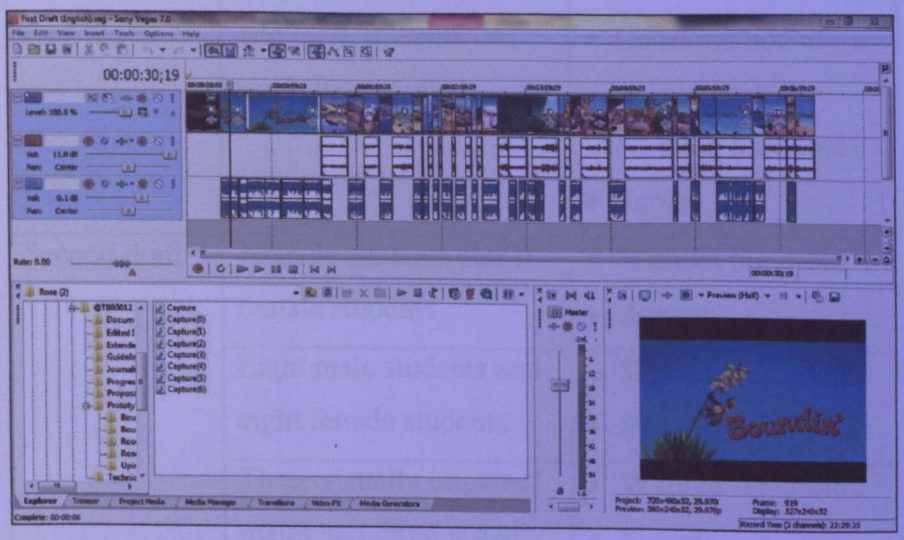

Figure 7: Sony Vegas 7.0 Interface

3.3 Phase 3: Project Test and Integration

3.3.1 Project testing

The audience for the testing is from different background of study (engineering and technology programmes) and from various years of study. The testing involved normal sighted students with the average age of 22. All are enrolled in the Universiti Teknologi PETRONAS. The six visually impaired adults involved in the testing are the workers at the National Council for the Blind (NCB) with the average age of 47. The visually impaired child is from the Malaysian Association for the Blind (MAB) with the age of 6. The further details about his background will later be discussed in the Chapter 4: Results and Discussions.

The project testing is being done in multiple stages, using the Bahasa Malaysia AVD and English AVD as tabulated in Table 1 and Table 2 below:

Table 1: Project Testing using Bahasa Malaysia AVD

Experimental model	Audience	Method
First draft	Ten male students and ten female students	• Usual method of video watching (without blindfold) • Survey
Second draft	10 male students and 10 female students	• Without blindfold • Survey
	Eight male students and eight female students	• With blindfold • Survey
	Three visually impaired males and three visually impaired females (adults)	• Without blindfold • Survey • Interview • Observations (facial expressions and

		other non-verbal cues)
	One visually impaired child	• Without blindfold • Interview • Observations (facial expressions and other non-verbal cues)

After the first testing using Bahasa Malaysia AVD, all the comments and feedback were revised in order to come up with the second draft of Bahasa Malaysia AVD. There are changes made to the first draft of AVD in terms of the speed of narration, use of pauses during narration to fit the audio description in between the movie and degree of description's detail have been increased in order to make the narration more descriptive to the target audience of the project. It is then tested to the normal sighted students, visually impaired adults and also the blind and visually impaired children.

Table 2: Project Testing using English AVD

Experimental model	**Audience**	**Method**
First draft	15 male students and 15 female students	• Without blindfold • Survey
Second draft	10 male students and 11 female students	• Without blindfold • Survey
	Three visually impaired males and three visually impaired females (adults)	• Without blindfold • Survey • Interview • Observations (facial expressions and other non-verbal

		cues)
	One visually impaired child	• Without blindfold • Interview • Observations (facial expressions and other non-verbal cues)

For the English AVD, the testing was done using the first draft and second draft. Similar to the testing conducted for the Bahasa Malaysia AVD, the second draft of English AVD is then tested again to the normal sighted students, visually impaired adults and the visually impaired child.

3.3.2 Observations – facial expressions and non verbal cues

Observations were being made to the respondents during the project testing in order to interpret the acceptability of the AVD. Some of the non verbal cues that are obvious to be observed are the smile and laughter while watching or listening to the AVD. These observations are captured using photographs and videos.

3.3.3 Survey and interview

Quantitative and qualitative approaches were employed to meet the aims of the project. A survey containing 10 items on respondents' feel and experience of the AVD and also acquiring their comments and feedbacks was constructed. After they have gone through the experimental model, ten questions on perceptions will be given in Section A, in the form of Likert scale (1 being strongly disagree to 5 being strongly agree) and in Section B, open ended question about extra comments or feedbacks will be given to evaluate the effectiveness of the AVD. The interview was conducted to the

visually impaired adults and blind and visually impaired child to acquire their perceptions and feel about the AVDs. Table 3 below shows the survey with the 10 questions.

Table 3: Survey Questionnaires

No.	Item	1	2	3	4	5
1	The words and language used in the audio description are appropriate and simple enough to be understood.					
2	The pitch used in the narration of audio description is suitable with the scenes in the movie.					
3	The timing used in the narration of audio description is coherent with the timing of the movie.					
4	The level of sound elements (i.e., background music and sound effects) are appropriate and do not distract the delivery of audio description.					
5	The voice of the narrator for the audio description is appropriate and friendly.					
6	The scenes from the movie can be understood with the provided audio description.					
7	I enjoyed the movie with the provided audio description.					
8	I was able to visualize the different movie scenes with the provided audio description.					
9	I easily understood the movie with the audio description.					

10	I was able to appreciate the movie with the provided audio description.					

At the end of this phase, the expected output will be the results of the survey done against the tested experimental model of AVD towards the particular group.

3.4 Phase 4: Verification and Validation

3.4.1 Analyse data and results

The data from the series of questionnaire will be used for analysis either the AVD has helped the blind and visually impaired children to experience movie elements and acquire knowledge through an interactive way.

3.4.2 Documentation

All results from beginning of the project, the analysis, commentaries and feedbacks will be documented for future reference.In this phase, after the results have been analysed, the effectiveness of AVD towards the normal and blind children can be measured.

3.5 Tools

There are several tools involved in developing the prototype for this project. These tools can be divided into few categories:

3.5.1 Software

The software that will be used is video editing software, Sony Vegas 7.0. The software is able to integrate the audio description, sound, video and captions according to the time specified. Other than that, Cyberlink WaveEditor and Windows 7 Sound Recorder are usedfor sound recording purposes.

3.5.2 Hardware

In this project, the microphone for computer will be used to record the narration of audio description. The video editing will utilize the use of the computer. Finally, the final product will be the experimental model of AVD which will be stored in Digital Video Disc (DVD) to be played in the television or computer.

3.5.3 Instrument

Ten (10) questions will be formed in Likert scale (1 being strongly disagree to 5 being strongly agree) and in Section B, open ended question about extra comments or feedbacks will be given to evaluate the effectiveness of the AVD.

CHAPTER 4
RESULTS AND DISCUSSIONS

This section discussed about the key findings on effectiveness of the Audio Video Describers (AVD) that have been tested to the normal sighted students, visually impaired adults and blind and visually impaired children.

4.1 Experimental Model

Two experimental models have been developed for the project, whereby one is in Bahasa Malaysia and another one is in English. Table 4 below shows the duration of the experimental models, before and after the description is being added to the video.

Table 4: Video duration of the AVD

Audio Video Describer		Video Duration	
		Original clip	With added description
Bahasa Malaysia	First Draft	00:05:00	00:06:59
	Second Draft		00:06:44
English	First Draft	00:04:15	00:07:13
	Second Draft		00:08:06

In the beginning of the movie video, a brief introduction about the episode is given, along with the introduction of the characters that are involved in the movie. Below are some examples of the audio description with the timing, provided with the Bahasa Malaysia and English description. For the Bahasa Malaysia AVD, the translation in English is provided below the description. It is developed using a short Bahasa Malaysia movie cartoon, Upin & Ipin dan Kawan-kawan, from the episode

entitled Tamak. The second AVD was developed based on short English cartoon movie, produced by a popular animation studio from United States, PIXAR Animation Studios entitled Boundin'.

4.1.1 Bahasa MalaysiaAVD

[00:00:06 – 00:00:55]

Figure 8: First Scene of Upin & Ipin dan Kawan-kawan

Episod ini mengisahkan tentang salah satu pengalaman Upin dan Ipin berpuasa pada bulan Ramadhan. Sifat tamak pada bulan ramadhan sangat jelas terlihat apabila membeli juadah berbuka puasa kerana apabila dalam keadaan lapar, semuanya kelihatan sedap dan nafsu membeli makanan lebih daripada biasa.

Upin dan Ipin adalah dua orang kembar berumur 5 tahun, berkepala botak, kecil dan lincah. Mereka tinggal bersama kakak mereka, Kak Ros dan Opah di Kampung Durian Runtuh. Episod ini juga memaparkan Mail, kawan sekelas Upin dan Ipin yang menjual ayam goreng di bazar ramadhan.

Lewat waktu petang, cuaca cerah. Di luar rumah Upin dan Ipin, Kak Ros sudah bersedia di halaman rumah untuk ke bazar ramadhan membeli juadah berbuka puasa.

The translation in English is as below:

This episode is about of one of Upin and Ipin's experience fasting in Ramadan. The greed in fasting month is pretty obvious especially when buying food for breaking

fast because when in hunger, everything looks tempting and the will to buy food is more than usual.

Upin and Ipin are twins aged 5 years old, bald, small and agile. They live with their sister, Kak Ros and Opah in Kampung Durian Runtuh. This episode also features Mail, Upin and Ipin's classmates who sell fried chicken at the bazaar ramadhan.

Late afternoon, the weather looks fine. Outside of Upin and Ipin's house, Kak Ros is in the house yard, ready to go to the bazaar to buy food for breaking fast.

[00:01:51 – 00:02:04]

Figure 9: Some other scenes from Upin&IpindanKawan-kawan

Upin dan Ipin kagum melihat pelbagai jenis ayam dijual. Peniaga menjual kepak ayam bakar, ayam percik, ayam golek dan bermacam-macam lagi. Semuanya nampak sedap dan menyelerakan.

The translation in English is as below:

Upin and Ipin impressed with the variety of chicken sold. Dealers are selling grilled chicken wings, ayam percik, roasted chicken, and others. Everything looks delicious and tempting.

Between the minutes of [00:00:06 – 00:00:55], an introduction was given about the overview, the characters involved, weather and also the setting of the village is given in order to give the main idea of the story. This is also important for the target audience to estimate the amount of characters and their characteristics that they will encounter in the movie. During the minutes of [00:01:51 – 00:02:04], Upin and Ipin has encountered different types of chicken in the bazaar that made them want to buy all of them. These different kinds of chicken may not be able to be distinguished well by the blind and visually impaired children but it is essential for the audio description to be descriptive and sounds appealing to the target audience.

4.1.2 English AVD

[00:00:24 – 00:01:34]

Figure 10: First Scene of Boundin'

The title of this story is Bounding. Bounding is the act of jumping forward or upward like a spring. There once lived a young lamb out in the American west, an area with a stream. The young lamb has a white wool coat that he takes much pride in as he is good in dancing. In the area, there are mole rats, streamburrow owl, a rattle snake and little fishes in the stream. Life is good and happy. One day, a man comes and takes him away in an old car. The lamb being shaved and then he's dumped into a mud puddle during a rainy night, naked and bare. Lamb is sad about his state and his mole rats neighbours all laugh at him. He hides under the sagebrush to get out of the rain just as a wise American Jackalope comes onto the scene and gives him some

good advice. An American Jackalope is a mythical animal described as a jackrabbit with antelope horns or deer antlers. In the story, the Jackalope can bounce very high.

[00:02:40 – 00:03:09]

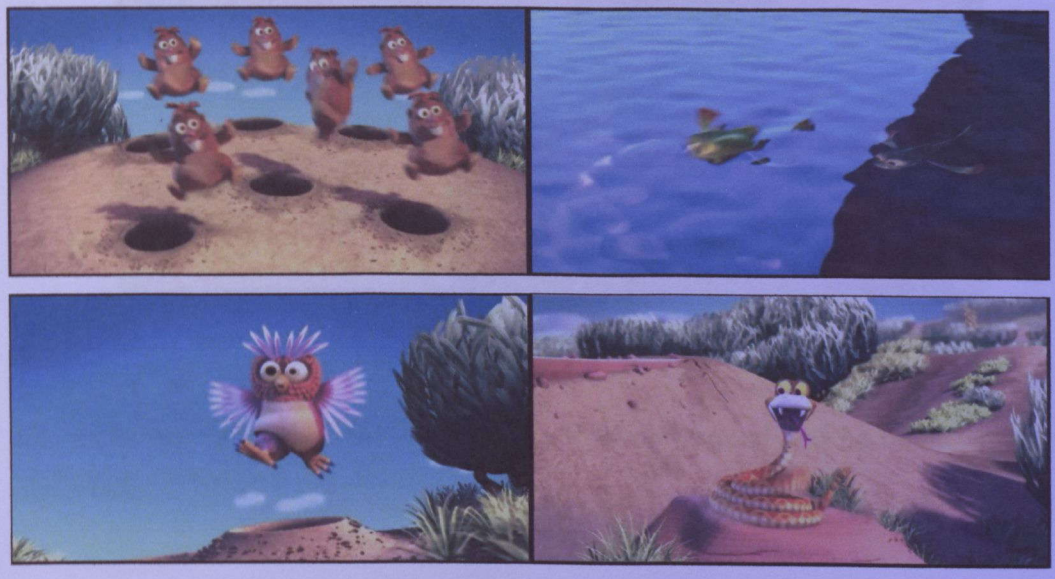

Figure 11: Scenes from Boundin'

Six mole rats jumping out of the holes, from right to left and left to right. The fishes appear at the surface of the river and dancing around. And there goes the owl jumping in and out from the hole, with his silly eyes. The brown rattle snake on a rock moves its body in the same position; try to dance with the others as well.

[00:05:56 – 00:06:02]

Figure 12: Other scene from Boundin'

The jackalope raise his right feet and tap it on the ground and he bounces up high like a ball.

During the minutes of [00:00:24 – 00:01:34], the introduction of the story is given to the audience. The introduction includes the brief storyline of the movie, the characters involved and the setting of the surrounding. Between the minutes of [00:02:40 – 00:03:09], the description includes the amount of mole rats jumping out of the holes, the position of the fishes swimming in the stream, the physical look of the owl when it jumps in and out of the hole and the movement of the snake that triedto dance with the other animals in the area. Referring to the description on Figure 10, the use of metaphor to describe the scene (*... bounces up high like a ball*) is also essential to make it easier for the blind and visually impaired children to understand the on-going scenes in the movie.

4.2 Analysis of Results

4.2.1 Bahasa Malaysia AVD

The overall evaluation result using Bahasa Malaysia AVD without blindfold is given in Table 5. Table 6 shows the evaluation result using Bahasa Malaysia AVD with blindfold. Table 7 in this section shows the evaluation result with six visually impaired adults.

Table 5: Evaluation result using Bahasa Malaysia AVD without Blindfold

Item No.	Items	Score			
		First Draft	Second Draft	Average score ($\bar{x}$)	Average score (%)
1	Simplicity of words and language used	4.50	4.60	4.55	91.0
2	Pitch used in narration suitable	4.10	4.55	4.33	86.5
3	Coherent timing of narration	3.95	4.20	4.08	81.5
4	Suitable level of other sound elements	3.25	3.40	3.33	66.5
5	Appropriate voice of narrator	3.75	4.55	4.15	83.0
6	Able to understand the scenes	4.20	4.35	4.28	85.5
7	Able to enjoy the movie	3.80	4.00	3.90	78.0
8	Able to visualize the relationship of the movie	4.30	4.50	4.40	88.0
9	Easy to understand the movie	4.20	4.15	4.18	83.5
10	Able to appreciate the movie	4.05	4.45	4.25	85.0
n = 20		4.01	4.28	4.14	82.9

In Table 3, it shows that the lowest value of item depicted by the item 4 which is the level of other sound elements. The other sound elements included in the AVD are background music and sound effects. The levels of these sound elements are too high and have disrupted the attention of the audience to the narration of audio description. This is not acceptable as the audio description is the main element to be focused on. For the second draft's result, it has increased to 3.40. The highest value depicted in the table is the first item of the second draft, which is the simplicity of words and language used with the score of 4.60. This can be interpreted that the words and language used are suitable for the audience. With the total average mean of 4.14 (82.9%) for all of the items, it shows that the Bahasa Malaysia AVD is acceptable. From Table 5, in comparison between the first draft and second draft of AVD developed, it shows improvement of result. This was further supported by the comments and feedbacks given by the students after they have watched the AVD. From the first draft's comments and feedbacks are as follow:

- They prefer not to have blank screen during the short pauses when the description was being given, and this have been improved on the second draft by placing still image of the particular scene among the short pauses.
- For the narrator's voice, it has been changed from one different narrator to another narrator that has better tone, clearer voice and higher pitch to suit with the future target audience of the experimental model, which are the blind and visually impaired children. This is important in order to gain their attention throughout the movie.
- There is also comment regarding some part of the audio description script, whereby the description should emphasized on the details that will give a full view of the scene being described. In order to achieve this, the description should include the object and elements in the particular scene.

Changes were made to incorporate comments and resulted in the second draft of AVD. Using the second experimental model of AVD's, the results are shown in

Table 5, where the respondents were able to visualize and understand the movie scenes.

Table 6: Evaluation Result using second draft of Bahasa Malaysia AVD with Blindfold

Item No.	Items	Average score ($\bar{x}$)	Average score (%)
1	I understood the scenes in the movie by just listening.	4.56	91.3
2	I visualized the happenings/scenes in the movie by just listening.	4.50	90.0
3	I enjoyed the movie even.	4.25	85.0
4	I appreciated the movie.	4.25	85.0
5	I like the movie even if I cannot watch the scenes.	4.19	83.8
6	I can remember some/if not most of the scenes through the conversations of the characters in the movie.	4.44	88.8
7	I can describe a scene/ happening in the movie by just listening in the conversation of the movie characters.	4.25	85.0
8	I feel frustrated because unable to see the movie.	3.56	71.3
9	I am happy because I can see.	4.75	95.0
10	I am lucky that I could see my surroundings.	4.88	97.5
n = 16		4.36	87.3

For the blindfolded testing, the result is tabulated in Table 4 above. The respondents were given a different set of questions asking about their feel and experience about the experimental model. They were also asked about which scene that they were able to remember and able to describe after they have listened to the AVD. It turned out that the scene that the respondents remembered the most is when the characters are

excited to choose what food to buy at the Ramadhan bazaar. This is because the scene was described in detailed about the types of chicken sold and the surrounding's condition of that place. The highest score is indicated by item 10, with total average score of 4.88. The lowest score depicted in Table 6 is the item 8, with the total score of 3.56, the ability to visualize the relationship of the movie. This is due to the condition of the testing, which is they are blindfolded during the testing and not being able to foresee the relationship of the scenes clearly. Total average score for this blindfolded testing depicted that the AVD testing with blindfold is acceptable with the score of 4.36 (87.3%).

Table 7: Evaluation result using second draft of Bahasa Malaysia AVD with visually impaired adults

Item No.	Items	Average score ($\bar{x}$)	Average score (%)
1	Simplicity of words and language used	3.33	66.7
2	Pitch used in narration suitable	3.33	66.7
3	Coherent timing of narration	2.67	53.3
4	Suitable level of other sound elements	2.67	53.3
5	Appropriate voice of narrator	3.83	76.7
6	Able to understand the scenes	4.33	86.7
7	Able to enjoy the movie	3.67	73.3
8	Able to visualize the relationship of the movie	4.00	80.0
9	Easy to understand the movie	4.33	86.7
10	Able to appreciate the movie	3.33	66.7
n = 6		3.55	71.0

The lowest score depicted by both of item 3 and item 4, which are coherence of timing for audio description and suitability of other sound elements with the score of 2.67 (53.3%). The highest score is on both items6 and 9, which depicted that the visually impaired adults understood the movie with the aid of audio description. The overall rating for Bahasa Malaysia AVD is 3.55 or 71.0%, indicating that majority of

the respondents accepted the use of AVD for better scenes visualization and better enjoyment of the Bahasa Malaysia short movie cartoon.

4.2.2 English AVD

For the English AVD, it was tested without any blindfold. The overall evaluation result using English AVD is given in Table 8 and Table 9 below. Table 10 in this section shows the evaluation result with six visually impaired adults.

Table 8: Evaluation result using First Draft of English AVD

Item No.	Items	Average Score ($\bar{x}$)	Average score (%)
1	Simplicity of words and language used	4.03	80.7
2	Pitch used in narration suitable	3.73	74.7
3	Coherent timing of narration	3.67	73.3
4	Suitable level of other sound elements	4.00	80.0
5	Appropriate voice of narrator	4.00	80.0
6	Able to understand the scenes	4.27	85.3
7	Able to enjoy the movie	3.90	78.0
8	Able to visualize the relationship of the movie	4.20	82.7
9	Easy to understand the movie	4.30	86.0
10	Able to appreciate the movie	4.10	82.0
n = 30		4.01	80.3

For the English AVD, the result is shown in Table 7. The highest score recorded is by item 9, ease to understand the movie with the score of 4.30. The lowest score is on item 3 which is on timing of narration with the total score of 3.67. This is due to the clashing between the narration and the background music of the movie. With the total average score of 80.3%, this reflected that the respondents are satisfied with the AVD and it will be able to help the target audience, the blind and visually impaired children to understand and enjoy the movie. The results denoted that the experimental model was able to gain positive feedback from the respondents.

The comments and feedbacks given both were positive and constructive:

- There are some respondents suggested that the narration should be more expressive, cheerful, with suitable tone and pitching order to make it more interesting.
- There is also a suggestion that the narration should be shorter and should be using simple English for the blind and visually impaired children's understanding.
- One of the respondents suggested that the narrator should use the right accent and should improve on the clarity of voice.
- The introduction at the beginning of the video was a bit too fast and need to slow down.
- During the short pauses where the audio description is fitting in, there should be a suitable background music accompanying the audio description.
- The respondent also suggested that in the introduction, the narration should include the characteristics of each of the animal in the movie and add more description about the environment of the scenes.

On the positive side, most of the respondents like the voice of the narrator and they are being able to visualize the movie better with the audio description provided along the movie.

Table 9: Evaluation result using Second Draft of English AVD

Item No.	Items	Average Score ($\bar{x}$)	Average score (%)
1	Simplicity of words and language used	3.95	79.0
2	Pitch used in narration suitable	3.76	75.2
3	Coherent timing of narration	3.43	68.6
4	Suitable level of other sound elements	3.95	79.0
5	Appropriate voice of narrator	3.95	79.0
6	Able to understand the scenes	4.43	88.6
7	Able to enjoy the movie	3.90	78.1
8	Able to visualize the relationship of the movie	4.14	82.9
9	Easy to understand the movie	4.19	83.8
10	Able to appreciate the movie	3.95	79.0
n = 21		3.97	79.3

The respondents indicated that use of English AVD showed that the item 3 (timing used) was rated as 3.43 (68.6%) and the highest rating was 4.43 (88.6%) for item 6, depicted that the scenes in the movie can be understood. The rating of average score decreased from the 80.3% (first draft) to 79.3% (second draft) due to the timing used for the narration which uses long pauses in the AVD to fit in the narration is somehow unlikely acceptable for some of the respondents. With the total average score for second draft is 3.97 (79.3%), indicating that majority of the respondents still agreed that the use of AVD will be helpful for the blind and visually impaired children to understand, visualize the scenes and enjoy the movie.

Table 10: Evaluation result using second draft of English AVD with visually impaired adults

Item No.	Items	Average score ($\bar{x}$)	Average score (%)
1	Simplicity of words and language used	3.50	70.0
2	Pitch used in narration suitable	3.33	66.7
3	Coherent timing of narration	2.67	53.3
4	Suitable level of other sound elements	2.50	50.0
5	Appropriate voice of narrator	3.17	63.3
6	Able to understand the scenes	4.67	93.3
7	Able to enjoy the movie	3.83	76.7
8	Able to visualize the relationship of the movie	4.17	83.3
9	Easy to understand the movie	4.50	90.0
10	Able to appreciate the movie	3.50	70.0
n = 6		3.58	71.7

The responses from the 6 visually impaired adults (3 males and 3 females) showed that item 3 is rated the lowest (53.3%), this is the coherence of timing of audio video description with the movie scenes; while item 6, rated as the highest, 4.67 (93.3%). This indicates that the respondents understood the scenes in the movie with Audio Video Description. Overall mean for evaluating the English cartoon with AVD is 3.55 (71.7%), indicates majority appreciated the use of Audio Video Description. Most likely, through the use of AVD, the movie can be understood and be enjoyed by visually impaired individuals. Some of the comments were given to improve the AVD for the movies are:

- Over description given for some scenes
- Audio description clashed with the movie dialogues for some instances
- Audio description is too fast
- The pitch should be stronger
- Do not prefer to have short pauses in between the movie scenes

- Preferred that audio description should come after the actions take place

Through observation, i.e., facial expression, all viewers were smiling while "watching" the movie with the provided audio description.

4.2.3 Evaluation results with a visually impaired child

The last stage of the project testing was held with the blind and visually impaired children at Pusat Pemulihan Dalam Komuniti (PDK) PERMATA, Malaysian Association for the Blind (MAB) located at Kuala Lumpur. These children have the average age of 6 with multiple disabilities. There is child with autism, learning disability and blind. For some other cases, there is also blind child with learning disability. The worst case is the multiple disabilities of blind, deaf and mute. For this case, they can only communicate through sense of touch. They are trained with real life skills, reading, counting and other basic skills of living and surviving. Due to the multiple disabilities that they have, these children could not give any comments, feedback or any non-verbal cues regarding the AVD that they have watched or listened.

Figure 13: With the disabled children at Pemulihan Dalam Komuniti (PDK) PERMATA

Despite of these limitations, there is one child with low vision, named Haziq, 6 years old which can give some feedback on the Bahasa Malaysia AVD that he has

watched. His mother is a totally blind and his father has a low vision. The other Haziq's siblings have no disabilities at all.

Observations were being made to the child during the testing. There are some facial expressions and non-verbal cues can be observed with Haziq to measure the effectiveness of AVD on visually impaired children. The observations are more obvious when he watched the Bahasa Malaysia AVD compared to English AVD. He probably did not understand the English movie cartoon that he watched because his English educational level is still low.

Table 11: Observations with Haziq, 6 years old child with low vision

Program Understanding	**Facial expressions/ other observations**
Can recall few scenes from the movie	Smiled when watching some of the scenes
Enjoyed as if he is watching a normal movie cartoon	Tried hard to watch with his right eye only because his left eye is totally blind
He understood the movie	Needed to sit closely to the television

Figure 14: The author with Haziq, child with low-vision

CHAPTER 5
CONCLUSION AND RECOMMENDATIONS

The project discussed the development of an experimental model of an audio video describer by integrating the chosen short movie cartoons narration. Based on the final draft of evaluation results, the percentage of total average score for the testing with normal sighted students was above 80% and for the visually impaired adults, it was above 70%. With these figures, it can be concluded that the respondents are satisfied with the experimental models of AVD. The major areas that need to be improved are the timing, tone and pitch in order to suit the future target audience of the experimental model, which are the blind and visually impaired children. Due to limitations of children multiple disabilities, the evaluation with the target audience was narrowed down to one child with low vision.

Despite the limitations of the multiple disabilities of the children, the findings from the blind and visually impaired adults indicated that the AVDs can be used as a positive approach to help the blind and visually impaired children to be able to visualize and understand the different scenes shown in the movie. AVD also worked as an instrument for the blind and visually impaired people to acquire information and knowledge from video movies.

For further work expansion, it is recommended for some of the children's Bahasa Malaysia television programmes in Malaysia to have audio description in order to increase the public awareness of the practicability of the audio description for the blind and visually impaired people.

REFERENCES

[1] Abdullah, R. A. K. (2009, Novermber 1). Kecacatan bukan penghalang Chee Wah. *Utusan Malaysia.* Retrieved from http://www.utusan.com.my/utusan/info.asp?dt=1101&pg=kn_02.htm&pub=Utusan_Malaysia&sec=Kesihatan&y=2009

[2] Apple iPhone. *What is Siri?* Retrieved from http://www.apple.com/iphone/features/siri-faq.html

[3] Audio Description Associates. (2008). What is audio description? Retrieved from http://www.audiodescribe.com/about/whatisad.php

[4] CaptionMax on YouTube. Gulliver's Travels. (2011, February 10). Retrieved from http://www.youtube.com/captionmax#p/u/0/9Ii-9ILMgbc

[5] Dahl, A.A &Sheil Jr., W.C..*Blindness*. Retrieved from http://www.medicinenet.com/blindness/article.htm#

[6] Described and Captioned Media Program. Description Timeline Highlights. (August 2011). Pp. 1-7. Retrieved from http://www.dcmp.org/caai/nadh193.pdf

[7] Foong, O. M. &Mohd Razali, N. S. (2011). *Signage Recognition Framework for Visually Impaired People*, Vol. 5, pp. 488. Retrieved from http://www.ipcsit.net/vol5/89-ICCCM2011-C063.pdf

[8] Helal, S., Mokhtari, M. & Abdulrazak, B. (Eds.). (2008). *The Engineering Handbook of Smart Technology for Aging, Disability and Independence.* Hoboken, NJ: Wiley & Sons Inc., pp: 4 – 5.

[9] Helal, S., Mokhtari, M. & Abdulrazak, B. (Eds.). (2008). *The Engineering Handbook of Smart Technology for Aging, Disability and Independence.* Hoboken, NJ: Wiley & Sons Inc., pp: 171-173.

[10] ITC Guidance On Standards for Audio Description. (May 2000). Retrieved from http://www.google.com.my/url?sa=t&rct=j&q=itc%20guidance%20on%20%20standards%20for%20audio%20description&source=web&cd=1&=0CBsQFjAA&url=http%3A%2F%2F

www.ofcom.org.uk%2Fstatic%2Farchive%2Fitc%2Fuploads%2FITC_Guidance_On_Standards_for_Audio_Description.doc

[11] L. Bud, Boundin', United States: Pixar Animation Studios, 2003.

[12] Lodge, N. K. & Slater J. N., 1992, 'Helping Blind People to Watch Television - The AUDETEL Project', Proceedings International Broadcasting Convention, IEEE conference 358, Amsterdam, July 1992, pp 86-91. Retrieved from http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=160418

[13] Medline Plus, National Health Institute, National Eye Institute. *Vision Impairment and Blindness*. Retrieved from http://www.nlm.nih.gov/medlineplus/visionimpairmentandblindness.html

[14] NHS Choices: Causes of visual impairment (2009, November 2). Retrieved from http://www.nhs.uk/Conditions/Visual-impairment/Pages/Causes.aspx

[15] Prevention of Blindness and Visual Impairment: *WHO Releases the New Global Estimates on Visual Impairment*. (2010). Retrieved from http://www.who.int/blindness/en/

[16] Tennessee Council of The Blind. (2008.) *What is Braille*. Retrieved from http://www.acb.org/tennessee/braille.html

[17] The DCMP on YouTube. Equal Access in The Classroom. (2008, December 21). Retrieved from http://www.youtube.com/watch?v=GZ4OeOJ10W4

[18] U. Yasin, Upin & Ipin dan Kawan-kawan: Tamak, Shah Alam: Les' Copaque Production Sdn. Bhd., 2008.

[19] Utusan Yang DiPertua Pertubuhan Pembangunan Orang Buta (PPOB) Pulau Pinang: Jaafar Md. Isa. (2009). Retrieved from http://www.ppob.org.my/index.php?option=com_content&view=article&id=48&Itemid=56

[20] World Health Organization (WHO): *Visual Impairment and Blindness*. Retrieved from http://www.who.int/mediacentre/factsheets/fs282/en/

[21] Your Local Cinema.com. Charlie and the Chocolate Factory. Retrieved from http://www.yourlocalcinema.com/ad.mp3samples.html

APPENDICES

A. Gantt Chart

ACTION ITEMS		SEPT/OCT					NOV					DEC				OUTPUT
		W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	
PLANNING	Read journals, articles to prepare for LR			◆												
	Draft out Literature Review															
	Discuss LR with SV															Literature review
	Identify Methodology to be used															Methodology
DESIGNING	Choose video movie film to be used					◆										Movie decided
	Seek for narrator															Narrator decided
	Watch movie - divide into few scenes					◆										Segregated scenes of the movie
	Develop scripts							◆								Scripts of audio description
	Integrate script with video										◆					First prototype
EXPERIMENTAL PROCEDURES	Draft out survey questions								◆							Survey questions
	Conduct survey															
	Data Gathering									◆						Survey result
DATA ANALYSIS	Validate data															Survey analysis
	Document data											◆				Interim Report & Technical Report
IMPORTANT DATES	Proposal Submission															
	Announcement on list of approved titles															
	FYP 1 Talk															
	Extended Proposal Submission (10%)															Extended Proposal
	Proposal Defence (Oral Presentation) (40%)															
	Interim Report Submission (50%)															Interim Report

Table 12: Gantt Chart (FYP I)

ACTION ITEMS		JAN/FEB						MARCH				APRIL				OUTPUT
		W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	
PLANNING	Read journals, articles to add content into LR															Literature Review
DESIGNING/ DEVELOPMENT	Choose video film to be used	◆														Video decided
	Develop scripts			◆												Scripts of audio description
	Record voice of narrator					◆										Audio files of narration
	Integrate script with video					◆										Second prototype
	Review video and editing						◆									Edited second prototype
EXPERIMENTAL PROCEDURES	Draft out survey questions						◆									Survey questions
	Testing and survey							◆								Survey result and feedbacks
	Data Gathering								◆							Tabulated data
DATA ANALYSIS	Analyze and validate data															Survey analysis
	Document data														◆	Final Dissertation
IMPORTANT DATES	Progress Report Submission															Progress Report
	Pre-SEDEX															Presentation Poster
	Dissertation Submission															Disseration (Loose bound)
	SEDEX															Presentation Poster
	VIVA															Presentation Slides
	Final Dissertation Submission															Final Dissertation, Technical Report

Table 13: Gantt Chart (FYP II)

B. Survey's Questions

Use of Narration for Audio Video Description (English Version)

The purpose of this survey is to evaluate the effectiveness of audio description to be used in enhancing blind children's visualization of a short English movie film. Please complete this survey based on the audio video description (AVD) that you have watched/listened.

* Required

Please state your gender. *

- Male
- Female

Please state your age. *

_____

1. The words and language used in the audio description are appropriate and simple enough to be understood. *

Strongly Disagree	Disagree	Fair	Agree	Strongly Agree

2. The pitch used in the narration of audio description is suitable with the scenes in the movie. *

Strongly Disagree	Disagree	Fair	Agree	Strongly Agree

3. The timing used in the narration of audio video description is coherent with the timing of the movie. *

Strongly Disagree	Disagree	Fair	Agree	Strongly Agree
○	○	○	○	○

4. The level of sound elements (i.e. background music and sound effects) are appropriate and do not distract the delivery of audio description. *

Strongly Disagree	Disagree	Fair	Agree	Strongly Agree
○	○	○	○	○

5.The voice of the narrator for the audio description is appropriate and friendly. *

Strongly Disagree	Disagree	Fair	Agree	Strongly Agree
○	○	○	○	○

6. I understood the scenes from the movie with the audio description provided along the movie. *

Strongly Disagree	Disagree	Fair	Agree	Strongly Agree
○	○	○	○	○

7. I enjoyed the movie with the audio description provided along the movie. *

Strongly Disagree	Disagree	Fair	Agree	Strongly Agree
○	○	○	○	○

8. I was able to visualize the relationship of the movie with the audio description provided along the movie. *

Strongly Disagree	Disagree	Fair	Agree	Strongly Agree
○	○	○	○	○

9. I easily understood the movie with the audio description provided along the movie. *

Strongly Disagree	Disagree	Fair	Agree	Strongly Agree
○	○	○	○	○

10. I was able to appreciate the movie with the audio description provided along the movie. *

Strongly Disagree	Disagree	Fair	Agree	Strongly Agree
○	○	○	○	○

11. Do you have any extra comments or feedbacks about the Audio Video Describer that you just watched/listened?

_____

_____

C. Pictures during project testing

Figure 15: Project testing with the students

Figure 16: Project testing with the visually impaired adults

Figure 17: Project testing with the blind and visually impaired children