Edutainment Animated Folktales Software to Motivate Socio-Cultural Awareness

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Abstract: -This paper discusses the design and development of an animated folk tales edutainment software to motivate socio-cultural awareness among children and adolescents. One application of multimedia technology is in edutainment, which includes animated cartoon, animation movies and digital games. Edutainment software can be used to tutor specific subjects, or to change behavior by engendering specific socio-cultural attitudes, such as to address health and social issues of substance abuse or HIV/AIDS and cancer. Animation can also be used as one approach to digital storytelling to encourage literacy. However, some popular animations promote negative behaviors such as alcohol and tobacco use besides causing some neuropsychological problems to children. Therefore there is a need for research to develop well designed animation software with good story plots and local socio-cultural values for educating as well entertaining our children. The objective of this research is to develop and evaluate an edutainment animation software based on a Malay folk story to motivate socio-cultural awareness among schoolchildren and adolescents. This research also hopes to help popularize folk stories among the younger generation besides inculcate good reading habit among adolescents.

Key-words:- Edutainment, 2D animation, socio-cultural values, multimedia application software.

1 Introduction

Rapid advancement in the field of Information and Communication Technology (ICT) has also changed the landscape of education and entertainment. In the field of education, instructions can be delivered using well designed interactive multimedia application software. Multimedia technology enables instructional delivery through effective learning strategies such as story telling through 2D or 3D animation or animated cartoons, simulation and digital games. Animation in the form of cartoons, anime and animated feature films is also a very popular form of entertainment. Therefore animation can be used to tell stories of significant socio-cultural values to educate audience as well as to entertain them. Software developed for the purpose of entertainment as well as for educating users is known as edutainment software.

Animation is a technique that enables a series of static images to look as if they are alive, able to communicate verbally, with action and with the ability to move [12]. Animations are widely used in various industries such as advertisement, entertainment, education and science. In Japan, animation is known as Anime. Anime is an art that can help adolescents to shape and build their identities based on their favourite anime [11]. Anime can also help develop various skills and abilities among children [7]. Therefore, we can use animation to educate children as well as adolescents about their socio-cultural values beside entertain them with interesting folk tales.

2 Background of The Study

This paper discusses the design and development of an animated folk tales edutainment software to motivate socio-cultural awareness among children and adolescents. One application of multimedia technology is in edutainment, which can be used to tutor specific subjects, or to change behaviour by engendering specific socio-cultural attitudes, such as to address health and social issues of substance abuse, HIV/AIDS, and cancer. Animation can also be used as one approach to digital storytelling to encourage literacy. However, some popular

animations promote negative behaviours such as alcohol and tobacco use besides causing some neuropsychological problems to children. Therefore there is a   need for research to develop well designed animation software with good story plots and local socio-cultural values for educating as well entertaining our children. Entertainment programs including video games and animated cartoons are children's favourite leisure time activity whereby they spend hours watching television or videos, or using computer software. Most programs viewed on Malaysian television are imported cartoons or animated feature movies. Not all stories and hence the messages being delivered conform to local values and culture; some programs even   have negative values such as violence, aggressive behaviours and disrespect to parents and adults, which has to a certain extent influenced behaviours of our young generation today. Thus, we read in the newspapers daily about juveniles crimes of rapes, robbery and thefts (New Straits Times 19/11/2005; Malay Mail 13/07/2005, 03/09/2005) and cases of indiscipline among school children. Besides, a study by the University of Missouri-Columbia in the United States has shown a link between violent video games and aggression (S.M. Mohamed Idris, NST 17/01/2006). Researchers found that people who played violent video games had a diminished brain response when shown images of real-life violence.

Studies have also shown that many movie productions from Disney Studio and other similar production houses had influenced children negatively in certain aspects such as smoking and alcohol abuse. As an example, [1] reviewed 50 films released between 1937 and 1997 by 5 major production companies (Walt Disney Co, MGM/United Artists, Warner Brothers Studios, Universal Studios, and 20th Century Fox) that were available on videotape for episodes of tobacco and alcohol use. They found that more than two thirds of animated children's films feature tobacco or alcohol use in story plots without clear verbal messages of any negative long-term health effects associated with use of either substance. Exposure to movie smoking is risk factor for habit formation. A Review of 40 selected studies on smoking in the movies showed that smoking in movies increases adolescent smoking initiation. Exposure to movie smoking makes viewers' attitudes and beliefs about smoking and smokers more favorable and has a dose-response relationship with adolescent smoking behavior [4]. Therefore developing edutainment software which aim to educate and at the same time entertain users is a good alternative to bring about

behavioural change by engendering specific socio-cultural attitudes such as social issues and acceptable behaviours.

1.1 Edutainment
Edutainment refers to entertainment in education. In other words, edutainment means teaching and learning process carried out in a fun and less-serious environment. [3] defined edutainment as a hybrid genre that relies heavily on visual material, on narrative or game-like formats computer games-education-implications for game developers, and on more informal, less didactic styles of address. [5] stated that edutainment software is a type of software intended to educate children through the use of entertainment.

1.2 Animation
 Animation comes from Latin word *Anima* which means 'soul'. To animate is to give life to inanimate object, drawing or image. Animation is an art of movement expressed with images. This illusion of movement is achieved by rapidly displaying frames of many still images in a sequence [9]. Two types of animations are two dimensional (2D) and three dimensional (3D) animations. 2D animation is based on x-axis and y-axis while 3D animation has one extra axis, the z-axis. Development of 3D animations usually requires longer time compared to the same duration 2D animations. 3D animation is realistic while 2D animation is more cartoon-like. There are various techniques for creating animations ; animated flipbooks,   stop-motion,   cut-out,   limited, animatronics, rotoscoping and pixilation. The current technique for 2D animation using computer software is based on the traditional cel animation technique.

To date, Malaysia does not produce many animation stories but imported from other countries such as the United States, Japan and Korea. A lot of these animated stories or cartoons viewed on television are not suitable for children. Some cartoons such as Tom and Jerry have elements of violence while many anime and online animation have pornographic elements in them. However in the 1980s until 1990s, Malaysian educational television did screen a few short animation stories to educate children on moral values. "Hikayat Sang Kancil" (The Lengend of a Mousedeer) , "Sang Kancil dan Monyet" (A Mousedeer and A monkey, "Gagak yang Bijak" (The Wise Crow) and "Singa

yang Haloba" (A Greedy Lion) were popular and have positive effect on many children. Adoption of digital technology for animation production saw local two animation stories produced; "Usop Sontorian" and "Silat Lagenda" or (Legend of the Malay Martial Art) [13]. The storyline of "Usop Sontorian" was about a Malay boy who lives in a village and his daily life activities. "Silat Lagenda" on the other hand was about Malaysian historical story and characters of Malay warriors Hang Tuah and his friends.

1.3 Folktales
Stories, whether being told or read can affect individual emotionally and help in shaping his or her thinking skill [2]. Normally, characters in a story are needed to make decisions by taking moral evaluation into account. From here, viewers or listeners especially children will naturally imagine themselves to be in that particular situation of the story and will think of their own decisions of what they think are the best decision to make [10]. Later, they will think of the consequences from the decision they made. Frequent exposure to stories with active thinking will help youngsters to formulate the concept of right and wrong and shape up positive attitudes [10].

The term "folktale" usually refers to stories like fairy tale and wonder tale which normally consist of magical elements [15]. They are basically stories that involve a world of imagination with surroundings full of magical animals and human with supernatural powers and abilities like the fairies [15]. Due to international trade, war, religious preaching, exploration and migration, similar stories are found in different parts of the world. These stories could be myths, warrior stories, sagas, animal stories, legends, local traditional stories and folktales [15],[2],[10].

Malaysia is rich with numerous interesting folktales. [6] concluded in her research that through stories, messages with educational values could be delivered. These values are aspects such as living in harmony in a multi-racial community, and moral values from social and religious perspectives. Folktales are not only being told or read for fun but are also for the search of an identity which can help clarify one's cultural values [8]. Unfortunately, Malaysian traditional folktales, such as *"Si Tanggang"* and *"Bawang Merah Bawang Putih"* are slowly being forgotten by our youth. They seems to have no knowledge of the existence of such stories since they are more exposed to foreign folktales. Our children are now more familiar with

"Cinderella", "Beauty and the Beast" and "Snow White" rather than our own local stories such as *"Si Tanggang", "Bawang Merah Bawang Putih"* and "Lagenda Mahsuri" [14]. So, there should be efforts taken to revive our folktales before it is too late to do so.

3 Objective Of The Study
The objective of this research is to develop and evaluate an edutainment animation software based on a Malay folk story to motivate socio-cultural awareness among school children and adolescents. This research also hopes to help popularize local folktales among the younger 'ICT savvy' generation besides inculcate good reading habit among adolescents.

4 Methodology
A methodology based on ADDIE Instructional Design Model is used, taking into consideration the animation development process of pre-production, production and post-production as detailed in Figure 1. 2D animation story in this edutainment software has the purpose of delivering good moral values to promote socio-cultural awareness while entertaining the audience. The research framework is as shown Figure 2.
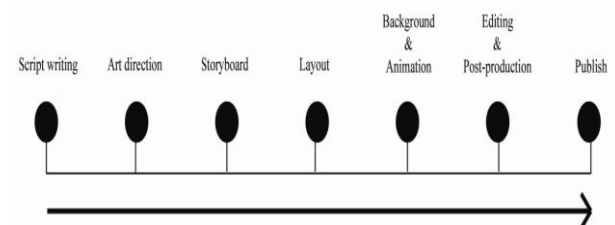

Fig.1 Three phases of animation product development

5 Design And Development
The design and development process involves developing conceptual model for the software (Fig.3), story and character development and development of supporting elements and animating.

5.1 Story Development
A few good and interesting stories were researched and compared to identify the socio-cultural or moral values and "Si Bangau yang Membalas Budi" or (The Crane that Rewards Good Deeds) was selected. The story revolves around an era of yesteryear and consists of magical elements of a

talking crane and its transformation into a human form. The setting of the story is in a rural Malay village. Based on the original storyline, a script was written with dialogues for each and every character in the story.

The story started with panning around the village area to indicate the type of surrounding environment or the setting of scene of the story. Then, two of the main characters are introduced with a scene showing how they earn their living. This is to highlight the fact that the characters are people who live near poverty.
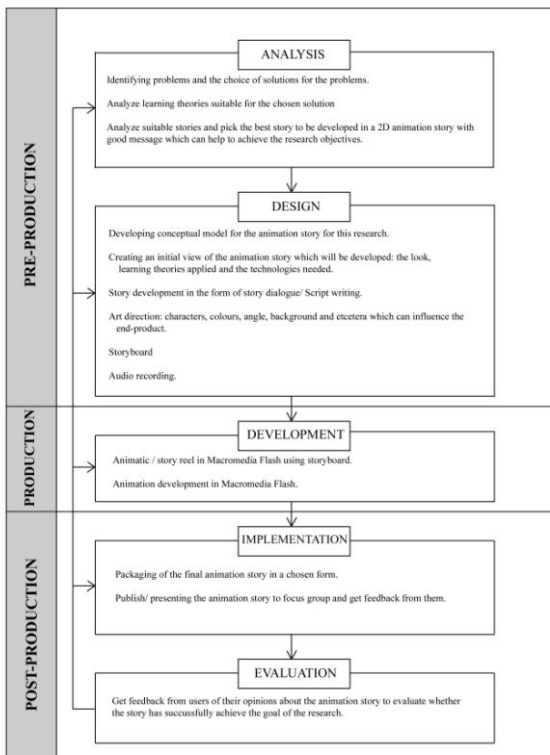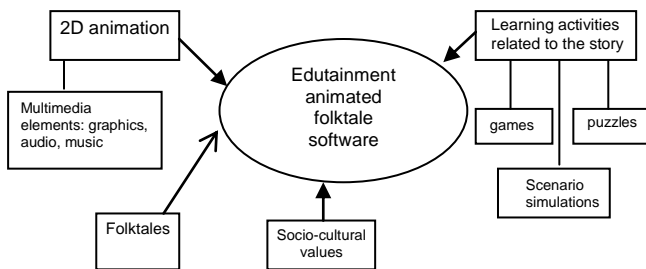

Fig. 2 Research Framework

Fig. 3 Conceptual Model for the Edutainment Animation Software

As the story moves on, enter the third character, the crane. Since this is a folktale, talking animal is not an oddity but is logical to the mind as does the crane's ability to communicate verbally with the human characters. As the story progresses, the fourth character is revealed and the central messages designed to be delivered through the story are shown little by little until the end of the story. Towards the resolution of the story, the climax is shown to create suspense. The ending of the story is narrated by a different voice to ensure that all messages or moral of the story are transferred to the audience.

5.2 Character Development

The story "Si Bangau yang Membalas Budi" has four main characters which are an old man named Pak Mat Pak Mat's wife, Mak Som; a talking crane and a young beautiful lady named Mariam. Besides all these four characters, there are a few supporting characters towards the end of the story, who are the villagers.

All characters are designed based on our local identity in terms of physical appearance, attires, and styles. Fig. 4 is an illustration of the main human characters of the story. The first step in designing these characters was to sketch on papers. Then, all characters and props are designed, developed and edited directly in the application software Adobe Illustrator and Adobe Photoshop. However, most of the characters and props are developed directly using Macromedia Flash MX Professional 2004.
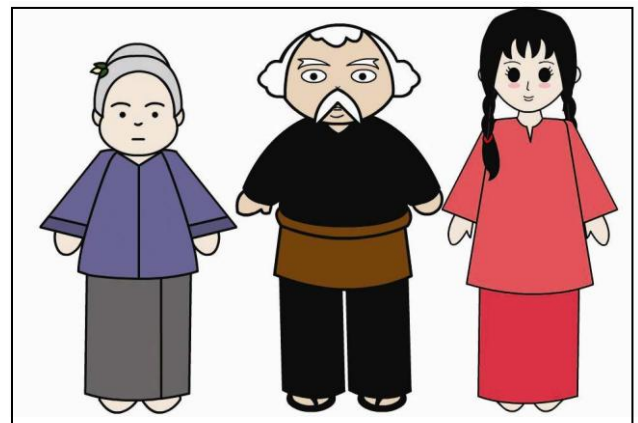

Fig. 4 Three main characters in "Si Bangau yang Membalas Budi" developed using Macromedia Flash MX Professional 2004.

Figures 5 to 8 are screenshots of some scenes from the animated story "Si Bangau yang Membalas Budi".

Fig. 5 Screen shot of one of an early scene in "Si Bangau yang Membalas Budi".

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Fig. 6 Screen shot of a scene showing the Pak Mat's traditional Malay house .

Fig. 7 Screen shot of a scene where Pak Mat doing his routine to earn living.

Fig. 8 Screen shot of a scene in the market.

5. 3 Development of Supporting Elements

Elements such as audio and sound effect are inserted in the animation stories to make the presentation of the story more attractive and interesting. Different audios are used for different situations and according to the mood of the scene. Types of audio used for the animation story are background music, dialogues, narration and sound effects. These audio files were recorded and edited using Cool Edit Pro Version 2.00. Most graphics were created directly in Macromedia Flash MX Professional 2004 while a few were edited in Adobe Photoshop and Adobe Illustrator.

5.4 Animation

The animation process was carried out using Macromedia Flash MX Professional 2004. Limited animation technique is used since this technique allows development of animation in shorter times. A character is broken down into a few different parts and each part can be reused many times. For example, human character can be parted into the head, hair, body, left hand, right hand, left leg and right leg. This can help in saving work space memory and time taken for drawing. Every part is saved in the Flash library.

On stage in Flash, each part of a completed character is placed in different layers (Fig.10) so that every part in each layer can be animated in different ways. A layer in Flash cannot have more than one graphic if the graphic is to be given moving effect. To create movement, frame is manipulated to give the best quality animation. The frame rate of this story is 25 fps or 25 frames are played in a second.

Fig. 10 Screen shot of a workspace during
animation process in Flash MX 2004

6   Conclusion

This paper has discussed the design and development of an animated folktale "Si Bangau yang Membalas Budi".   The central theme or morals of the story intended and designed to be transferred to the audience are; 1) do not break promise, 2) be kind to people as well as animals and 3) good deeds will be rewarded. The software will be evaluated for usability and to get the children's perception on its quality. Edutainment animated folktale software based on 2D animation can help in educating young children to adopt good values and behaviours as well as promote socio-cultural awareness besides helping to revive and sustains the existence and popularity of local folktales among future generations. Availability of reasonably priced   hardware and animation software   in the market helped ease development process and reduce production time.

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