

A Proposed Model for Animation of Malay Folktales for Children

Norshahila Ibrahim*, Wan Fatimah Wan Ahmad*, A'fza Shafie**

* Department of Computer and Information Sciences, Universiti Teknologi PETRONAS, 31750 Tronoh, Perak, Malaysia

** Department of Fundamental & Applied Sciences, Universiti Teknologi PETRONAS, 31750 Tronoh, Perak, Malaysia

Keywords:

Animation Principles
Malay Folktales
Children

ABSTRACT

Animation is one of the multimedia elements, which has drawn the attention of children. Animation is widely used in the digitization of folktales as a medium for fostering the spirit of reading among children, promoting socio-cultural value, popularizing folktale story, fostering moral value and so on. Preservation and conservation of Malay folktales in our community are very important and need further attention to ensure the continuity of folklore remains for future generations. In order to capture the animation and Malay folktales components for the model, this research focused on related conceptual model, review of previous models and analyzing digital application of animation in Malay folktales. As a result, based on the studies, a proposed model of animation for Malay folktales will be presented. A significant contribution of this research is providing guideline strategy to animators in developing Malaysian animated folktales.

*Copyright © 2013 Information Systems International Conference.
All rights reserved.*

Corresponding Author:

Norshahila Ibrahim,
Department of Computer and Information Sciences,
Universiti Teknologi PETRONAS,
31750 Tronoh, Perak, Malaysia
Email: shahilaibrahim@gmail.com

1. INTRODUCTION

The effectiveness of information technology (IT) applications in education makes IT as an alternative medium of education and learning process. The use of multimedia enables instructional materials to utilize a variety of exciting elements to ensure students focus on learning. In addition, multimedia elements such as audio, video and animation are able to strengthen students' understanding and memory of the learning content. Education is a process that is experienced by every human being to acquire knowledge. Ancient community received education through delivery of knowledge and information from the older generation orally. Before the existence of organizations like schools, ancient society acquires knowledge from the elders. Knowledge such as taboos, customs, beliefs, and others were delivered orally, throughout the generation, from grandparents to children and grandchildren.

One of the oral activities in the ancient society is storytelling. Storytelling is part of the culture practiced since a long time ago and played a big role in the sociology in all walks of life around the world [1,2]. Humans in ancient times created the story to transfer and share their knowledge with others [2,3]. Storytelling is defined as verbal interpretation of tradition, knowledge or experience, and delivered in an interesting way [4]. Apart for leisure entertainment, storytelling is intended for teaching and scientific explanation. Similar or nearly the same stories are found to exist in several different continents because of their international trade, colonialism, spreading of religion, exploration and migration. The story is influenced by environmental conditions in an area, language, relationship with the local community, the year and change in time. There are various types of stories which include folktales, myths, warrior tales, sagas, animal stories, legends and stories of local lore [5]. At such an early age, storytelling is not only acting as a medium of education, but also as entertainment for the community. The stories are meant to entertain and at the same time delivering educational messages and teaching especially to the children. However, storytelling and a collection of popular local folktales of the specified period gradually disappear.

Thus, to conserve the Malay folktales among children, a new model for animation of Malay folktales will be developed and discussed in this paper as a guide to animators and other researchers. In this paper, background of study, existing model that have been used, animation principles, folktales and children are analyzed in Section 2. The objectives, scopes, and methodology will also be highlighted in this paper. Section 4 describes the conceptual model of animation of Malay folktales in general based on several components, and Section 5 is the conclusions.

2. BACKGROUND OF STUDY

The factor that prompted this study was due to insufficient production of animation stories among local animation developer. Most of the animation stories were imported from Japan and United States. In terms of content and storylines, the imported animation stories were poorly suited for children because they did not match with the local socio-cultural values [6,7]. At the same time, local traditional stories, for example, "Si Tanggang" and "Bawang Merah Bawang Putih" were almost forgotten by the young generation of Malaysian society. They never know the existence of the story due to the exposure given to the stories from western countries [8]. An early study has been conducted among 397 students in Malaysia, and 68.5% of the children knew the story of Cinderella compared to only 13.3% of them were familiar with the story of "Bawang Merah Bawang Putih". Malaysia produced animation stories but the authority did not come out with guidelines that can be used by other animators who want to develop an animated folktale story. Hence, this issue encouraged this study to develop a model for Malaysian animated folktales for children.

2.1. Previous study of Malay folktales

From literature review, there are several researches in digitization of folktales. Earlier, [9] evaluated the effectiveness of storytelling based on the local contents of Malay folktales. The research selected seven types of the Malay folktales; (i) "Penglipur Lara", (ii) moral, (iii) myths, (iv) comical, (v) animal, (vi) knights, and (vii) adventure and mystery. The old contents were replaced with the new medium of presentation by visualization using multimedia and technologies such as three-dimensional (3D), interactivity, Internet and web education. The main medium of this research is animation as it is one of the medium to represent local contents. A few selected students' works were introduced as a result from this study. A guide for better multimedia development of local folklore and the development of digital content creation was provided from this study.

Figure 1 shows a conceptual model for the Edutainment Animation Software proposed by [10] in order to motivate social culture awareness among children and adolescents. This model used 2D animation and also includes learning activities related to folktale story. The advantage of this model is the edutainment software consists of several activities for the users to explore. However, the folktales part needs to be modified so that it can characterize the folktales features and symbols.

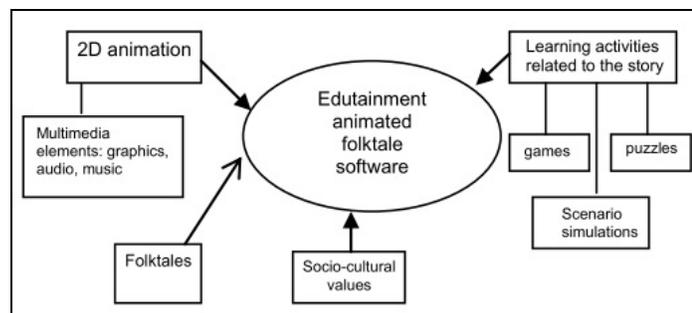


Figure 1. Conceptual model for the Edutainment Animation Software

There is also another model that can be implemented for animation folktales; CITRA [8]. Figure 2 shows the conceptual model for CITRA in an effort to motivate reading habit among primary school students. This model consists of several elements including pedagogical approaches and learning theories, interactivity, indirect teaching and learning approach, holistic child development, instructional medium, and perpetual navigation. The advantage of this model is it includes and explains more on pedagogical approach and learning theories, which is the main objective of this model. In addition, this model also includes the holistic child development as the main target user of this model. However, the drawback of this model is that it does not explain more on folktales elements and characteristics, which is the main story in this model.

Both models explained above are software-based and consist of several modules, but the models did not emphasize on animation principles, although both them focused on animation of Malay folktales. Based

on all the aforementioned research, there has been a limited research on model that can be used as a guideline and rules in designing animation of Malay folktales. Consequently, this research intends to investigate the principle elements of animated folktales focusing on Malaysian context in enhancing children's acceptance and understanding of Malaysian folktales. Based on the researched models from various folktales projects, a suitable conceptual model can be proposed.

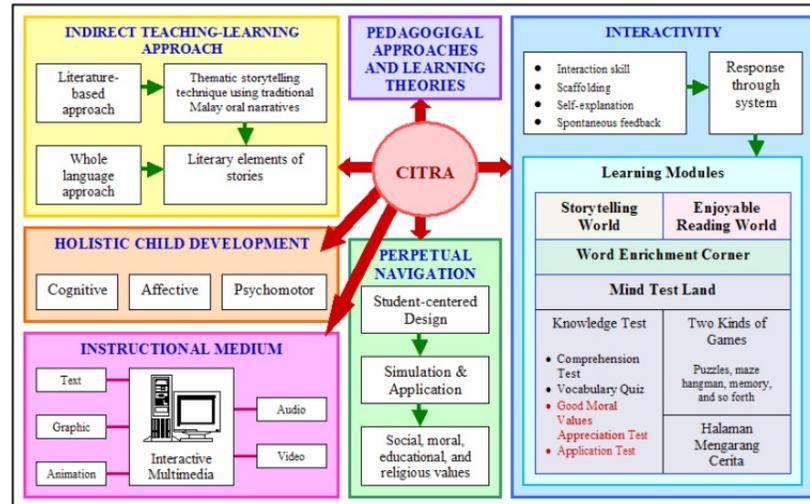


Figure 2. Conceptual model for CITRA

2.2. Animation Principles

Failure of an animator to understand and take into account the principles of animation in publications usually bring them closer to the production of animation that may look beautiful and interesting but perhaps less lifelike and less realistic. Even though there are advanced facilities offered by the animation software technology, it still failed to overcome the advantages and privileges offered by traditional animation drawings. The process of producing animation in conventional method emphasizes some principles during the production. This is to ensure that the animation produced is not only able to attract the attention of the audience, but also looks realistic. Therefore, in the production of digital animation, whether its 2D or 3D animation, some basic animation principles have to be followed to ensure that the results are more interesting and realistic. In other words, the principles of traditional animation can still be used to produce digital animation. This principles consist of 12 animation principles, which are squash and stretch, exaggeration, staging, anticipation, timing, follow through and overlapping action, straight ahead and pose to pose action, slow-in and slow-out, arcs, secondary action, solid drawing and character personality [11–15].

2.3. Folktales and children

The emotional influence that is conveyed in a story is important and is capable of developing thinking skills to the listener for any of the stories presented [4]. Normally, a character in a story makes decisions that involve moral valuation. In particular, children are naturally trying to imagine themselves in the story line and also thinking about what decision they have to make [2,5]. Next, listeners consider the impact of their decisions. Frequent exposure to the story that requires thinking could help young people to formulate the right or wrong concept and form a positive attitude. [1] stated that the story was created to allow children to make up the experience, and helping communities build their meaning or purpose of life. Children as young as three years old are able to imagine and distinguish between the real world and fantasy [3]. Earlier, the story takes place when there is communication between people, cultures, and different time, and these do not involve simple text [1]. The use of computers among children allows storytelling today that can be made in the form of an attractive building experience through a combination of oral storytelling tradition, tradition printing and integrated delivery of comprehensive television in a fun environment.

3. METHODOLOGY

In order to come out with a proposed model for animated Malay folktales, several models that were produced by various developers have been studied. A comparative study has been done among the models and the most suitable model has been proposed. The proposed model will be discussed in next part.

4. RESULT AND DISCUSSION

The conceptual model provides a clear picture at the early stage of the project development. A complete and suitable conceptual model is important as a point of reference. Investigating the significant components for developing animation folktales is very important and several main aspects were taken into account to produce well-developed model. The model consists of eight elements illustrated in Figure 3. The elements are:

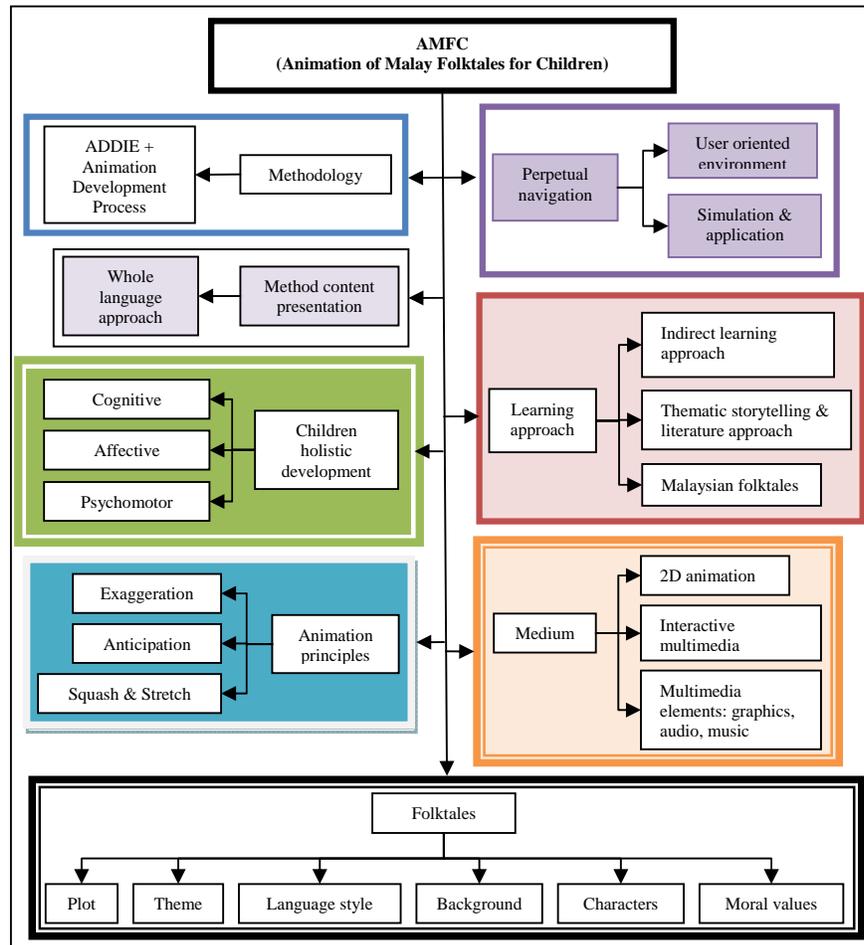


Figure 3. Proposed model for animation Malay folktales

Children Holistic Development. The approach of children holistic development consists of three main teaching and learning theories, which are cognitive, affective, and psychomotor to assist with literacy experience among children [16]. “Cognitive” is defined as the acquisition of knowledge [17]. In cognitive theory, a person will actively involve in the learning process. Based on this theory, learning is the process of linking new information with existing information learned in the past or when a new learning process takes place. “Affective” refers to the skills and processes involved in learning a compilation of suitable behaviours. Lastly, “psychomotor” encompasses all physical aspects based on what they have learnt.

Animation Principles. Twelve principles of animation are revised and refined, and selected principles will be applied in this project. The principles are exaggeration, anticipation, and squash and stretch. These three principles are selected because the combination of these three principles will give more effect and a lot of things can be achieved. According to [18,19], the characteristic in anticipation can be applied in facial animation and character animation which comprise of a nose, a mouth, eyes, eyebrows, hands, legs and others. For example, for a character that moves in a forward direction, the character has to retreat back slightly in advance.

In the development process, exaggeration elements such as sound, action, attitude, features, body movement, facial expression and speech play the important role in order to make the animation more

convincing [20]. The prominence given in an action is to highlight the atmosphere, expression and poses. This can be done by manipulating the color, lighting, and angles. Squash and stretch is essential in making the character motion looks lively [21]. A character has mass and density to make it real and this is shown by the illusion of weight and volume. This principle can be used in animating dialogue and comedy value for more comedic effects. This principle is also useful for animating facial expressions during dialogue and to describe the emotion on the face.

Perpetual Navigation. This project initiated the development of user-oriented software to give freedom to the audience to explore the software without any restrictions or specific order. Navigation design can be standardized and simple so that users will not confuse and lost direction.

Learning Approach. Teaching and learning approach in this project is an indirect learning approach through Malaysian folktales presented in the form of 2D animation. Indirect learning process occurs through messages conveyed in the story. The effect on users occurs through the delivery of emotional and spiritual elements in the story. The content and storylines are taken and modified from the original story.

Medium. The medium components comprised of multimedia elements such as animation, graphics, text, audio, sound and music, and the main medium that will be used is 2D animation. A special module will be developed for Malaysian folktales. According to [12], animation can give emphasis to the presentation of information and allows the audience to focus their attention to the content that they want to deliver. This project is based on interactive multimedia, which includes the use of active texts, buttons and icons.

Folktales. There are six elements in the form of folktales and literary highlights. The theme is an overview of hidden story. The standard story is a story that has a clear theme that can convey a particular message to the audience. Every story has a main character and usually has more than one character. Various personalities in the story depend on the story and the message to be conveyed. The plot is the storyline of a story, and the plots are divided into three parts, which are the beginning, climax and finale. The background of the story usually makes the reader think about where and when the story takes place. Generally, folktales have simple and modest spoken style.

5. CONCLUSION

This paper presents a proposed model for courseware development of Malaysian animated folktales which will be developed specifically for children. The model consists of eight elements; methodology, perpetual navigation, method content presentation, children holistic development, learning approach, animation principles, medium, and folktales elements. As a conclusion, this model is developed as a guideline in developing MAFC and specifically designed to meet the needs of young learners. With the development of this model, it will hopefully encourage animators to develop more Malay folktales animation for children. Thus, this effort will preserve our Malay folktales for future generation. An upcoming study of this research is to verify the components of the proposed model through initial verification for each element.

ACKNOWLEDGEMENTS

The author would like to thank everyone that is involved directly or indirectly with this project especially to Universiti Pendidikan Sultan Idris (UPSI), Universiti Teknologi PETRONAS (UTP) and the Ministry of Higher Education (MOHE) for financial support throughout the research study.

REFERENCES

- [1] K. Madej, "Towards Digital Narrative for Children: From Education to Entertainment: A Historical Perspective," *ACM Computers in Entertainment*, vol. 1, 2003, pp. 1-17.
- [2] F. Garzotto and M. Forfori, "Hyperstories and Social Interaction in 2D and 3D Edutainment Spaces for Children," *Proc. Proceedings of the Seventeenth Conference on Hypertext and Hypermedia - HYPERTEXT '06*, ACM Press, 2006, pp. 57-68.
- [3] A. Paiva, et al., "Heroes, Villians, Magicians, ...: Dramatis Personae in a Virtual Story Creation Environment," *Proc. Proceedings of the Sixth International Conference on Intelligent User Interfaces*, 2001, pp. 129-136.
- [4] J. Donato and S.L. Trostle-Brand, *Storytelling in Emergent Literacy: Fostering Multiple Intelligence*, Delmar Thomson Learning, 2001.
- [5] C. Lynch-Brown, et al., *Essentials of Children's Literature*, Pearson, 2010.
- [6] D. Mohar, "Bringing the Outside In: One Teacher's Ride on the Anime Highway," *Language Arts*, vol. 81, 2003, pp. 110-117.
- [7] G. Haydon, *Values in Education*, Continuum International Publishing Group, 2006.
- [8] S.P. Hwa, "Development and Effectiveness of Interactive Multimedia Package (CITRA) in Moral Education for Primary School Children," PhD Thesis, Dept. Technology and Information Science, Universiti Kebangsaan Malaysia, Malaysia, 2005.

- [9] 9. M.I.Z. Abidin and A.A. Razak, "Malay Digital Folklore: Using Multimedia to Educate Children Through Storytelling," *Information Technology in Childhood Education Annual*, vol. 2003, 2003, pp. 29-44.
- [10] N.A.M. Zin and N.Y.M. Nasir, "Edutainment Animated Folktales Software to Motivate Socio-Cultural Awareness," *Proc. 7th WSEAS International Conference on Applied Computer Science*, 2007, pp. 310-315.
- [11] I.V. Kerlow, *The Art of 3-D Computer Animation and Imaging*, John Wiley & Sons Inc, 2000.
- [12] J. Harun and Z. Tasir, *Animation: From Paper to Digital Screen*, Venton Publishing, 2005.
- [13] T. Vaughan, *Multimedia: Making It Work*, Osborne/McGraw-Hill, 2008.
- [14] J. Lasseter, "Principles of Traditional Animation Applied to 3D Computer Animation," *Computer Graphics*, vol. 21, 1987, pp. 35-44.
- [15] F. Thomas and O. Johnston, *The Illusion of Life: Disney Animation*, Walt Disney Production, 1995.
- [16] E. Wood and J. Attfield, "Developing Play in the Curriculum," *Play, Learning and the Early Childhood Curriculum*, 2 ed., SAGE Publications Ltd, 2005, pp. 118-157.
- [17] S.K. Reed, *Cognition: Theory and Applications.*, Wadsworth/Thomson Learning, 2007.
- [18] J.-H. Kim, et al., "Anticipation Effect Generation for Character Animation," *Proc. Proceedings of the Computer Graphics International Conference*, 2006, pp. 639-646.
- [19] J.-J. Choi, et al., "Anticipation for Facial Animation," *Proc. Proceedings of 17th International Conference on Computer Animation and Social Agents*, 2004, pp. 1-8.
- [20] A. Soon and W.-S. Lee, "Exaggeration of Extremely Details 3D Faces," *Proc. Proceedings of the 24th IASTED International Multi-Conference Internet and Multimedia Systems and Applications*, 2006, pp. 102-108.
- [21] J.-Y. Kwon and I.-K. Lee, "The Squash-and-Stretch Stylization for Character Motions," *IEEE Transactions on Visualization and Computer Graphics*, vol. 18, 2012, pp. 488-500.

BIBLIOGRAPHY OF AUTHORS

	<p>Norshahila Ibrahim is a PhD candidate in Computer and Information Science department, Universiti Teknologi PETRONAS (UTP), Malaysia. She received her Master of Information Technology (Information Science) in 2011 from Universiti Kebangsaan Malaysia (UKM). Her research interests include topics on multimedia animation, children education, and human computer interaction.</p>
	<p>Wan Fatimah Wan Ahmad obtained her PhD from Universiti Kebangsaan Malaysia. She is currently an Associate Professor at Universiti Teknologi PETRONAS, Malaysia. Her research interests include topics on Multimedia, human-computer interaction, mathematics education, e-learning and mobile learning.</p>
	<p>A'fza Shafie obtained her PhD from Universiti Kebangsaan Malaysia. She is currently a lecturer at Universiti Teknologi PETRONAS, Malaysia. Her research interests include topics on computer science and statistics.</p>