Learning moral values through virtual technology: the development and evaluation of Malaysian virtual folktales- Hikayat Land

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Abstract

Moral values are one of the most important lessons to be learnt by Malaysian children. In order to become a harmonious and balanced person in intellectual, spiritual, emotional and physical terms, Malaysian children need to be exposed to moral education since primary school. These important lessons should not only be taught in school but also practiced within society where children can be taught indirectly about moral values by exposing them to Malaysian folktales. Malaysian folktales are rich in moral values and ethics, and they also help children to understand their culture and their roles in the society. However, nowadays Malaysian folktales have been forgotten and children are fonder of foreign folktales compared to the local ones. Therefore, we propose a new method of teaching children about moral values and at the same time preserving Malaysian folktales, by using virtual technology like Second Life. In this paper we will share experiences about the development of Hikayat Land -- the Malaysian Virtual Folktales based on the KANCIL model. A pilot study has been conducted with ten children (11-14 years old), and it showed that moral values can be projected through a virtual learning environment. Despite the many successes we see in our findings, there are a few aspects that should be revised in order to ensure that this technology is effective in teaching young Malaysians about moral values.

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1. Introduction

In Malaysia, children have been exposed to moral values education since primary school. It is one of the most important lessons to be learnt by young Malaysians in order to become a harmonious and balanced person in intellectual, spiritual, emotional and physical terms. However, these important lessons should not only be taught in school, but should also be practiced by family members as a quality relationship between a child and his family will contribute to the child’s moral development.

One of the effective ways to help children develop their moral behaviour is teaching them by example as proposed by Fittro (1997). This can be done by exposing children to folktales (Mukti and Hwa 2004). Well known for their

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moral lessons with regards to concepts such as honesty, diligence, tolerance and other motivational elements, Malaysian folktales can be used as a medium to convey such valuable messages to children either through reading, watching or listening to the stories. The oldest method of delivering folktales is verbally, with stories usually being read by the elders before a child goes to sleep. However, due to a more modern lifestyle and by living in a digital era, parents may forget to spend quality time with their children and may allow technology to replace their roles in the home by feeding their child with computer games and the Internet.

The impact of technology such as the Internet with the ability of providing a world without boundaries has allowed foreign folktales to conquer the Malaysian animation market and has made young Malaysians forget about their local folktales that are so rich in moral values and ethics. Mukti and Hwa’s (2004) study revealed that more children are now into western folktales such as Cinderella and Snow White compared to local folktales like Si Tanggang, Bawang Putih Bawang Merah dan Mahsuri. Some of the foreign products contain inappropriate content that is not suitable for the moral development of young Malaysians. Alcohol and tobacco can be seen in many of the scene produced by the five gigantic companies of Walt Disney Co, MGM/United Artists, Warner Brothers Studios, Universal Studios, and 20th Century Fox (Adam O. Goldstein, Rachel A. Sobel et al. 1999). Without providing a clear message of a scene’s plot, this can contribute to children’s initiation into smoking behaviour, as children are still developing cognitively, and they cannot distinguish between good and bad behaviour shown by the characters.

This has raised some degree of anxiety amongst Malaysian parents, yet still little action has been taken by the government. Based on Hassan Muthalib’s report in 2007, local folktales were first produced in 1978, based on animal genre folktales, Sang Kancil. Having obtained a positive response from Malaysian audiences, five more series were produced in 1980 by the Malay Film Unit. These were followed by Silat Lagenda (based of Hang Tuah the Malay Warriors) in 1998 and Puteh, an adaptation from local legend Bawang Putih and Bawang Merah in 2001(Muthalib 2007).

A slow preservation action, either by the government or by private sector, could contribute to the extinguishing of Malaysian folktales. Although scholars like (Mukti and Hwa 2004; Zin and Nasir 2007; Zin and Nasir 2008) have integrated Malaysian folktales into their education programme development, the scale of this research area are still limited. The small scales of research and preservation methods have motivated us to introduce Hikayat Land, a virtual form of Malaysian folktales village that contains stories of Hikayat Sang Kancil. This virtual method of learning moral values has been designed for our target audience; children age between 11 and 14 years. Here, users can explore with their peers, and learn more about Malaysian folktales in a fun way.

This paper has been organized as follows: Section 2 will describe education in a virtual environment and will consider the unique features of the virtual world, Second Life. This is followed in Section 3 by the development of Hikayat Land and explanation of the KANCIL model. Meanwhile, in Sections 4 and 5, we offer an evaluation and the results based on the Hikayat Land pilot study. Lastly, future works and a conclusion is provided in Sections 6 and 7.

2. Education in virtual environment

Education in virtual environment (EVE) technology is considered to be one of the most powerful tools for enhancing the teaching and learning process. Their contribution is not only restricted to their technology characteristics, information management and presentation, but include the way in which it engages users in a high level 3D spatial environment. Another element that distinguishes this promising technology from other learning tools is the ability to create a sense of presence. The terminology of presence can be described as a user’s feeling of being there, although users are actually in different remote physical spaces. Limited research has been done on presence and how it can effects learning outcomes. Tassos (2006) reported the vital roles of presence, and found that presence can enhance users’ experience, and help them successfully undertake their learning tasks. This evidence are also supported by McIsaac and Gunawardena (1996) who indicated that presence is important in distance learning, and this can increased a learner’s satisfaction with regard to learning (Masanori 2009).

In our research, we have selected Second Life (SL) as our EVE platform. There are various reasons for choosing this technology over other conventional education technologies. First, SL supports constructive theory where users
can actively participate during the learning process in this computer-generated world. Children will learn from example as proposed by Fittro (1997) and knowledge will be constructed by children through the experience and the activities provided in the virtual land (Ai-Lim Lee, Wong et al. 2010). The second reason for choosing this virtual technology is due to its popularity since it was launched in 2003. SL is well known amongst educators, and many studies have been done in this virtual world. For example, Traphagan et. al. (2010), investigated the learning experience in Second Life, Nik Ahmad et. al. (2010), investigated the virtual courseware design in the virtual world by using instructional design, Azilawati et. al. (2007) used the SL platform to support debate activity, and Jarmon et al (2009) with his two years pilot programme examining Second Life pedagogical application in higher education. See (Azilawati, Caroline Mei Lin et al. 2007; Jarmon, Traphagan et al. 2009; Traphagan, Chiang et al. 2010; Nik Ahmad, Wan et al. 2011) for further reading.

Nevertheless, we believed that technology alone cannot a successful learning process. However, it is useful if the developer can learn to understand the unique features of technology in order to ensure that users will benefit from it before it is released to the intended user. The uniqueness of SL is that it provides a complete package of features that has been offered by other technology, including instant messaging, email, telephone calls, file sharing, news feed, etc. The combination of these unique features in one technology is an additional point for choosing this platform over other virtual technology platforms.

<table>
<thead>
<tr>
<th>Virtual Environment Features: Second Life</th>
<th>Other Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private chat (real-time direct text-based)</td>
<td>Instant messaging (IM) like Yahoo! Messenger, ICQ, Window Live Messenger</td>
</tr>
<tr>
<td>Grouping chat (real-time direct text-based)</td>
<td>Chat room like</td>
</tr>
<tr>
<td>Private message (delayed direct text-based)</td>
<td>Email</td>
</tr>
<tr>
<td>Voice over Internet Protocol (VoIP)</td>
<td>Telephone call</td>
</tr>
<tr>
<td>Note card</td>
<td>Newsfeed/RSS</td>
</tr>
<tr>
<td>Sharing documents (example: *jpeg)</td>
<td>File sharing</td>
</tr>
<tr>
<td>Teleporting</td>
<td>Hyperlink</td>
</tr>
<tr>
<td>Video recording</td>
<td>Video recording</td>
</tr>
</tbody>
</table>

3. Hikayat Land: The development of Malaysian virtual folktales in Second Life

Hikayat Land is the Malaysian virtual folktale land that uses collaborative virtual environment technology (Second Life) in order to enhance teaching and learning of moral values in an enjoyable way. It has been carefully designed, based on the KANCIL Model. The description of the six phases is as follows:

3.1 Identified users’ characteristics and dexterity (Kenalpasti ciri-ciri utama pengguna)

It is important to understand the characteristics of our intended users, as their capability and cognitive abilities differ according to their age. In Hikayat Land, we applied Piaget’s theory of children development. According to Piaget, a child’s development can be segregated into four stages: 1) sensory-motor (birth-2 years), 2) pre-operational (2-7 years), 3) concrete operational (7-11 years), and 4) formal operational (11 and above). Each of these stages has its own characteristics. As our users are children aged 11-14 years, they are in the formal operational stage. A child in this category starts to think logically about objects and events. Although this theory refers to 11 years of age and above, children are capable of handling problems and think like an adult. However, based on our previous experience, these children’s interests and preferences are still different from those of an adult.

3.2 Analysing activities/tasks according to age-appropriate (Analisis aktiviti berdasarkan peringkat umur pengguna)

3.2.1 Activity #1: Ask the Storyteller (Tanya Penglipur Lara)
Participants can communicate with our chat bot, named Penglipur Lara by asking him about Malaysian folktales. This chat bot has been develop using Linden Scripting Language (LSL). Meanwhile the brain information has been stored in Pandorabot’s software robot hosting service by using Artificial Intelligence Markup Language (AIML).

3.2.2 Activity #2: Watching Room (Alam Wayang)
Participants can learn about moral values through watching the series *Hikayat Sang Kancil* produced by RTM, and can also increase their knowledge about the history of the first animated series which was disseminated in 1978.

3.2.3 Activity #3: Let’s Read! (Jom Baca)
There are four *Hikayat Sang Kancil* stories which can be found in Hikayat Land. These are *Hikayat Sang Kancil dan Sang Monyet*, *Hikayat Sang Kancil dan Sang Sempo*, *Hikayat Sang Kancil dan Pak Belang* and *Hikayat Sang Kancil dan Gong Ajaib*. These stories are presented in slideshows. The participants can interact with the slides by controlling the three main buttons; Start (the first page), Next and Back (previous pages). At the end of each series, a lesson is used for participants to show what they have learned from the stories they have read.

3.2.4. Activity #4: Test Your Knowledge (Uji Minda Anda)
A test checkpoint has been developed to ascertain users’ understanding of the moral values incorporated into Malaysian folktales, Sang Kancil. They are given a few questions in the virtual environment which they need to complete before they end the session. All answers can be viewed on the participant’s bottom-left interface, and their scores are given once they have completed the test. All marks are recorded and sent to the developer’s email account.
3.3 Moral values and national traits asserted (Nilai-nilai Murni dan Ciri-ciri Kebangsaan Diterap)

It is important to integrate national traits in order to show the spirit of patriotism in the design of Hikayat Land. A traditional Malay house called *Rumah Melaka* has been developed in Hikayat Land. This denotes the Malay race as being the largest race in Malaysia, and that the language used in this land is the national language of Malaysia; Bahasa Melayu. The influence of Malaysian traits can also be viewed as part of the design of the *Penglipur Lara* character, in that he is wearing the male Malaysian traditional type of clothing, *Baju Melayu*, the *Tempayan* and also plays the *Gong* (Malaysian traditional musical instrument).

3.4 Content and Character Development (Cerita dan Karektor Dibangunkan)

All characters in these folktales has been develop in Macromedia Flash 8

3.5 Implementation and Testing (Implementasi dan Ujian)

3.6 Report and Iteration (Laporan dan Pengulangan)

![KANCIL Model](image.png)

Figure 3. KANCIL Model. This illustration has been adapted from (Masmuzidin, Jiang et al., 2010)

4. Evaluation

In 2010, a pilot study was conducted with the involvement of 10 participants in order to allow the evaluation of Hikayat Land. Our main concern was with regard to the usability and the user perception of the virtual folktales land. Evaluation is often described as being a complicated process; some of evaluation methods (EM) require the involvement of a great number of participants, evaluators and time, all of which definitely increases the cost each time an evaluation session is undertaken (Masmuzidin, Jiang et al. 2011). However, the work of Neilsen (1993) has proved that this procedure can involve a small number of participants, and works using three to five testers. This results in approximate 80% identification of usability problems (Nielsen and Landauer 1993).
The guidelines for usability testing with children have been followed (Hanna, Risden et al. 1997). We created an informal environment in order to welcome the children and to remind them the objective of the study was the usability of Hikayat Land. We emphasized the importance of their opinion for Hikayat Land improvement, in order to make it useful for other children.

A demographic questionnaire was distributed and each participant received a card detailing the tasks that had to be completed within 25-35 minutes. We also suggested that they explore the Second Life land to ensure that they were familiar with the context before performing the tasks. The five tasks were 1) navigation in Second Life, 2) interaction with the folktales, 3) watching a streaming video and learning history, 4) interaction with a chat bot called Penglipur Lara and, 5) undertaking quizzes.

5. Results and discussions

5.1 Readability

The participants found that 16-pt font is more suitable and readable compared to 14-pt in this virtual environment. This was based on the way they read the dialogue aloud (16-pt), instead of the narration (14-pt). This finding was in contrast with the research reported by a number of scholars, who found textual information with size 14-pt to be the easiest font to be read by children (Michael Bernard, Bonnie Lida et al. 2001) (Bruckman and Bandlow 2003). This contrasting result may also be contributed to by other factors such as the distance from the reading point (the child’s standing point) and the reading material location.

5.2 Vocabulary difficulties

We noticed inaccuracies in terms of word pronunciation with regard to one word written in the folktales. The inaccuracies among younger participants showed that their vocabulary and language development is still limited, and the way in which they understand words cannot be predicted (Read and MacFarlane 2006). Table 2 shows the words in terms of, correct and false pronunciation which reflects the meaning of words that were based on a translation from the Dewan Bahasa dan Pustaka online dictionary. Other word such as ujar and nyaring were pronounced correctly, but the participants did not understand the meaning of each word. This problem however was not experienced by older participants.

<table>
<thead>
<tr>
<th>Words</th>
<th>Descriptions/correct pronunciations</th>
<th>Descriptions/false pronunciations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rendang</td>
<td>/réndang/: many leaf and the branch (not tree); leafy</td>
<td>Malay traditional food</td>
</tr>
<tr>
<td>Tempik</td>
<td>Strong sound of voice because of happy, angry /témpek/: stick or stick to</td>
<td></td>
</tr>
</tbody>
</table>

5.3 Interactivity

The result from this pilot study showed a conflict of interest with regard to the interaction style of girls and boys. The girls preferred to read the slide, and automatically compared it to a click-on-button virtual book. Feedback such as “It is much easier to read when I don’t have to click it”, and by pointing at the object and expressing that “I preferred the front slides compared to this one”, showed their feelings on this point and the use of click interaction. (Masmuzidin, Jiang et al. 2011). We also found the automatic information board progressed too fast, and participants needed to read the words at least twice. The words per row exceeded the participants’ ability to read, as their reading speed is definitely not as fast as that of adults. This contributed to the cognitive load and reflected on the users’ performance when learning about moral values. Therefore, further research needs to be conducted on how many words per minute on a slide is readable for children aged 11-14 years in the virtual environment.

5.3 Interaction
During the evaluation session, we told the children that the chat bot (Penglipur Lara) could only communicate in English, as we wanted to know the participants’ abilities in English. 3 out of the 10 participants (all of them girls), could translate the questions given in Bahasa Malaysia into English and were able to communicate with the chat bot. However, 40% could only ask the first question, and the rest did not even want to try. We believe that this hesitation is caused by a feeling of insecurity as children do not like to make mistakes in the presence of other people, and they often stop taking any action when faced with difficulties (Sjef and Panos 2010).

5.4 Active participation and collaboration

The concepts of active participation, collaboration or team work, and the conception of sharing objects in the world is accepted. Responses like “I like to read this with other people”, “I am OK with partners”, and “I want friends, but two is enough” showed how social interaction plays a significant role in the learning environment. This creates a sense of presence, as participants can share their experience, argue, and make conversation with their peers. 80% of the participants liked the new idea of virtual land by offering opinions like “It is fun!”, and “Interesting game, I like it”.

Younger participants (aged 11-12 years) showed that they enjoyed their time in Hikayat Land. Reading aloud and using funny character voices showed how they engaged in Hikayat Land. Despite this positive behaviour, older children (13-14 years old), were more concentrated and focused during the evaluation process. They loved the idea of learning and playing in a virtual environment, but folktales were not in their list of interests.

6. Future works

In future work, we would like to investigate the following aspects:

6.1 Whether the distance between the user’s standing point and the reading material contributes to the readability of the on-screen material

At this point, creating virtual objects such as a chair can be thought of as an option to overcome the frustration. However, we still need to know the possible height to place both the reading material and the virtual chair in Hikayat Land. Another question that will arise in future is: will participants sit on the virtual chair as they already are in the same position in the real world, or will they ignore them?

6.2 How many words per row can be read by children per minute as a means of reducing cognitive load problems?

Is there any difference in the speed of reading between girls and boys, and between young children (11-12 years) and older children (13-14 years old)?

7. Conclusion

The positive response we gained in terms of the result in the pilot study, clearly shows that virtual technology can be another tool to enhance the teaching and learning of moral values, and also as a way of making Malaysian folktales more fun to learn. However, our intention with regard to Hikayat Land is not to replace traditional teaching methods in Malaysian primary school. However, by introducing new methods for conveying this topic, we can hopefully make a difference in terms of teaching and learning about moral values, especially for home use. All the feedback will be used to enhance the design and usability of Hikayat Land.

References


