"Sudsakorn" Role Playing Game on Mobile Phone

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Abstract

There has been significant recent interest in how to sustain Thai ancient literature for the next generation. This paper shows how to apply technology to teach Thai ancient literature through Role Playing Game (RPG) on mobile phone. This was due to designation of the RPG to suit Thai culture. The Role Playing Game has followed the story of Thai ancient literature called "Sudsakorn". Besides, this RPG invented a learning system to the players. The players can gain knowledge and enjoy playing the RPG in an innovative way that is different from other media. There are forty students participate in this study. The students' understanding about the story was measured before and after playing game. There were two phases of design process. The first phase was to develop RPG on mobile phone using Java script. The second phase was to evaluate the RPG quality by three experts and then evaluated the students' understanding and their satisfaction. The data collected were analyzed using mean and standard deviation. The results from experts indicated that the quality of the RPG was good and the students' satisfaction was good, too. The students' understanding about "Sudsakorn" literature also improved. This can be concluded that, as teacher, we should select the appropriate media to motivate learners to learn. The innovation and technology can be used as a tool to improve learning in this era.

Introduction

The new technologies provide opportunities for creating learning environments by providing scaffolds and tools to enhance learning. However, technologies do not guarantee effective learning. Inappropriate uses of technology can hinder learning. As is widely reported across many media, computer games increase rapidly. There is a growing level of interest in how we might use games to provide engaging and effective learning experiences. There are two key themes common to the development of games for education, namely: 1.The desire to harness the motivational power of games in order to making learning fun. 2. A belief that learning through doing in games such as simulations offers a powerful learning tool (Kirriemuir, & McFarlane, 2004). One focus of current attention is the educational use of computer or video games, but gaming is not restricted to play with or through the device. Interactive games can take the form of wider, distributed games that involve both face-to-face interaction and mobile devices such as PDAs and mobile phones. The rampant of mobile devices such as PDAs means that classrooms will increasingly have the channels to run games of this type. However, these technologies are still relatively expensive, and require specific programming and configuration. There is another type of device that has already found its way into the classroom, which could also be used to play these kinds of games: the mobile phone. Mobile phone offer a novel, engaging, and easy way to engage learners in interactive learning games (Lonsdale, Baber, & Sharples, 2004). Although the retrieval and display capabilities of typical phones are limited, we can still use them as effective facilitators for learning. The use of mobile phone is suitable for "any where and any time" concept. For the twenty-first century, mobile games have become an important trend in the mobile phone industry. Role Playing Game (RPG) is one kind of a mobile game suitable for mobile devices and attractive to players. With an RPG, the players take the roles of fictional characters and participate in an interactive story. All RPGs share basic Role-Playing concepts and differ in certain functional requirements. RPGs are further differentiated by the properties of a specific mobile device platform on which they run, and which affect RPG's design and implementation. This includes high end mobile devices with 640x200 colorful screen and up to 80M memory versus lower end devices with 100x80 mono display and less than 100kb memory; the new mobile devices J2ME MIDP2.0 compliant versus the old ones MIDP1.0 enabled. RPGs must perform well across all these difference devices (Zhang, & Jarzabek, 2005). In Thailand, most RPGs on mobile

phone are imported and mainly in English. Therefore, we have developed Thai RPG on mobile phone that Thai culture was embedded. The conversation among the characters all in Thai language, the characters' attires and scenes in the RPG are designed based on Thai essence. We choose the story called "Sud-Sa-Korn" from a section of the most famous Thai literature "Pra-A-Pai-Ma-Nee" composed by, "Suntornpoo", the well-known poetry of the Second reign to the Third reign in Thailand (Premseri, 1997). This RPG not only plays for entertainment purpose but also provides content of the literature. Players are drawn in to the learning experience by having to play a role, react to instructions, and process information. Besides this, other knowledge about Thai culture such as Thai proverbs was included in the RPG. For example, the game player needs to rearrange Thai proverb before attack the enemies. In this study, we will develop the Thai RPG and then evaluate the quality of the RPG and the users' satisfaction and their understanding about the leading story. We hope that this study will be the first step for educators in Thailand to develop a new media that might be used to support learning and match the life style of young people in this information age.

Method

Participants

There are forty students participate in this study. All of them are senior students majoring in Applied Computer Science-Multimedia, Faculty of Industrial Education and Technology, King Mongkut's University of Technology Thonburi, Bangkok, Thailand.

Instrument

There are 4 instruments in this study as followed:

1. The Role Playing Game on mobile phone. The development processes are described on the next section.

2. The questionnaire for evaluating the quality of the RPG. The multimedia and game developer specialists evaluated the RPG in the quality aspects such as: the ease of use, the speed of the program processing, the robustness and completeness, the attractive of characters and scenes, the movement while walking and fighting, the story are followed by the literature "Sudsakorn", the effects and sound that use in game is suitable, the RPG is creative and innovative.

3. The questionnaire for evaluating users' satisfaction. The users' satisfactions are evaluated by the following items, such as all commands are clear and ease of use, the necessary information are provided, improved the understanding about the literature, the effects and sound used in games are suitable, and making learning fun. Both of the questionnaires were rated by respondents on a 5-item Likert scales as: not appropriate at all, not appropriate, neutral, appropriate, and very appropriate. The items were scored as: 1, 2, 3, 4, and 5 correspondently.

4. The pre and post test, each consisted of 15 items multiple choice based on the literature "Sudsakorn". Pre and post test were conducted on paper-based.

Procedure

There are two phases in procedure. The first phase was to develop Role Playing Game on mobile phone using Java script. We divided the process into 4 steps as: step 1, design and planning, the scenario is written first and then create storyboard to see a clear picture. The characteristic of all characters are designed. Step 2, game art, in this step we develop a Pixel Art to draw two dimensional graphic of all objects that used in game include characters, scenes, background, menu and various effects. Then test the movement while walking and fighting. Step 3, object composition that is setting the position of each objects in the game to match the surrounding area. And the last step, game programming, to implement game programming and then connect the program to the selected game engine.

After the RPG development process, the second phase was to evaluate the RPG quality and users' satisfaction and their understanding about the story. Three multimedia and game developer specialists rated the quality items on questionnaire (instrument no.2). The next step was to collect data from participants. Before playing the RPG, participants

were asked to complete the pre-test. After that, the participants were allowed to load and play the RPG for a week. After one week, the participants were given post-test to evaluate their understanding about the story. Then they filled out satisfaction questionnaires (instrument no.3). The questionnaires collected from specialists and participants were separately analyzed using mean and standard deviation. The criteria used to interpret the result were 4.50-5.0 meant very appropriate, 3.50-4.49 meant appropriate, 2.50-3.49 meant neutral, 1.50-2.49 meant not appropriate, and 1.00-1.49 meant not appropriate at all. The pre and post test scores also calculated mean and standard deviation to compare between pre and post test scores.

Results

The results from this study can be divided into 4 parts as follows:

1. The "Sudsakorn" Role Playing Game on mobile phone that we developed. This RPG was different from other RPG because we embedded the learning systems into the game. Each character in this RPG had a different set of condition to control the weapon. For example, Sudsakorn taught Thai proverb, Praruesee taught math (add and subtract), and the water monster taught everyday science. When playing game, before attack enemies, each character needed to answer the questions, if answer was wrong, it would take turn to another character. Besides this, all characters and scenes in this RPG were designed based on Thai culture such as Thai house in the village as shown in Figure 1.

Fig.1: Some screenshots from the RPG

2. The quality of the Role Playing Game that evaluated by specialists. The scores on the questionnaires from all specialists were used to calculate mean and standard deviations and then interpreted the results with the criteria that have set. The results were provided in Table 1.

appropriate Table 1: The results from the specialists in aspect of quality

Evaluated Items	$\bar{X}$	SD	Quaity
1. Game playing style is appropriate	4.67	0.57	very appropriate
2. Characters and scenes are attractive	4.33	0.57	appropriate
3. The story is followed by the literature	4.67	0.57	very appropriate
4. The continuity in games	4.33	0.57	appropriate
5. The interactive systems is appropriate appropriate	4.33	0.57	
6. All command are clear and ease of use	4.33	0.57	appropriate
7. Speed of processing is appropriate	4.00	0.00	appropriate
8. The robustness and completeness	4.00	0.00	appropriate
9. The RPG is creative and innovative	3.67	0.57	appropriate
10. The movement is smooth	4.00	0.00	appropriate
11. The effects used is interesting	4.00	0.00	appropriate
12. Sound and music is appropriate	4.33	0.57	appropriate

We found that the quality items that very appropriate were game playing style and the story that followed by the literature while another items are all appropriate. The total mean from table 1 = 4.22, these could be described that the overall quality of this RPG evaluated by multimedia and game developer specialists was good enough to use as a tool to support learning about Thai ancient literature "Sudsakorn". 3. The users' satisfaction evaluated by participants. The scores on the questionnaires from all participants were used to calculate mean and standard deviations and then interpreted the results with the criteria that we have set. the results are provided in Table 2.

Table 2: The results from the users' satisfaction evaluation questionnaires

Evaluated Items	¯X	SD	Quaity
1. Game playing style is appropriate	4.40	0.72	appropriate
2. Characters and scenes are attractive	4.62	0.81	very appropriate
3. The story is followed by the literature	4.50	0.41	very appropriate
4. The continuity in games	4.40	0.56	appropriate
5. The interactive systems is appropriate appropriate	4.17	0.42	
6. All command are clear and ease of use	4.20	0.81	appropriate
7. Making learning fun	4.80	0.68	very appropriate
8. The movement is smooth	4.23	0.63	appropriate
9. The RPG is creative and innovative	4.37	0.49	appropriate
10. Sound and music is appropriate	4.07	0.64	appropriate

From table 2, the total mean = 4.38. These could be interpreted that the users were all satisfied. Consider the items that users rated very appropriate that were characters and scenes are attractive, the understanding about the story and making learning fun, could be explained that user feel they can play and learn in the same time. If the content can be delivered from the teacher to the learner in this manner, it will gain the most effectiveness.

4. The results from pre and post test scores. The pre and post test scores from participants were used to calculate mean and standard deviation. We found that post test mean scores was higher than pre test mean scores (post test mean =13.8 SD=0.81, pre test mean=7.4, SD=0.67). This could be concluded that participants also improved their understanding about the literature after they have played the RPG.

Conclusion

Nowadays, new generation grow within the environment that fulfill with technology. It is our responsibility to know how they learn. Thus, we should select the most appropriate way to support learning. The current study is to develop a new tool to transfer Thai literature to young generation to sustain Thai culture. This new tool must be suitable with the technology age. As we know, game and mobile phone are the common media in everyday life for the young generation. Therefore, we develop "Sudsakorn" role playing game on mobile phone. We use RPG because this kind of game will be lead by a story and the players will act a role as a character in the story. From the story, we can include so many knowledge and content that need to transfer to the players while they playing game. The players as a learner can play and learn in the same time. When evaluate the users' satisfaction, we found that users are very satisfied with the learning system embedded in the game. But before we use this new tool, the experts have evaluated the quality of the tool and found that the quality is also good. These can be concluded that "Sudsakorn" role playing game on mobile phone is an interesting mobile game that can be used to pass on Thai culture through entertainment channels and attracting the young generation in Thailand to concern on our culture. Lastly, we hope that this study will stimulate more potential of technology-based learning in Thailand.

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