TSJLD Vol. 2, No.1 (Jan-Jun 2017), 1-10

ThaiSim Journal: Learning Development (TSJLD)
ISSN 2158-5539
http://www.thaisim.org/tsjld/

The Satisfaction of Learners towards the Interactive Simulation and Virtual Reality Museum: Tradition of Chonburi Province

Settachai Chaisanit
Apichai Tra-ngansri
Laddawan Meeanan
Chiraphorn Chomyim

School of Information Technology, Sripatum University-Chonburi Campus, Thailand

Abstract *According to core competency of 21st century skills and rapid development of technologies provides a new technology platform for teaching and learning. Accordingly, this study discussed the design theory and incorporation of teaching and learning along with interactive simulation and virtual reality environment of education technologies giving priority to learning styles, significant technology, satisfaction of learner and other relative issues. Thus, this research was to study the satisfaction of learner towards the interactive simulation and virtual reality museum: tradition of Chonburi province. The sampling group of this study were 40 learners. The sample was obtained by using the purposive sampling method. Research methods were applied to collect quantitative data using interviews and questionnaires for participant and non-participant observations, as well as documentary studies. The process and product research tools were evaluated by five experts revealing an Index of Item Objective Congruence (IOC) of 0.50. The study found that the satisfaction of platform and multimedia on the interactive simulation and virtual reality museum, the mean was 4.53 with the standard deviation was 0.57. The satisfaction of usability and quality on the interactive simulation and virtual reality museum, the mean was 4.43 with the standard deviation was 0.65. The satisfaction of interactive and content on the interactive simulation and virtual*

reality museum, the mean was 4.54 with the standard deviation was 0.54. Finally, the students would like to use interactive simulation and virtual reality museum for their recess, learning and need to increase variety and number of interactive simulation and virtual reality museum.

Keywords: Virtual Reality, interactive simulation environment, Satisfaction

Introduction

The virtual reality systems is an education system based on the Virtual Reality technology that models conventional real-world education by integrating a set of equivalent virtual concepts for virtual homework, virtual classes, virtual tests, virtual classrooms, virtual museums, virtual library and other external academic resources (Dillenbourg, 2000). Immersion in VR is achieved with the disappearance of an artificial interface, replaced by natural every day's actions present in the real world. This is one of the key aspects of VR that brings together many researchers to support it. Some other advantages of immersion are not so obvious, but very important for justifying the use of VR in education, such as: VR enables first person experiences, which are natural, unreflect and personal, generating direct, subjective and personal knowledge. VR provides a less symbolic interaction with the environment. Any description of an experience or action is usually transmitted through of symbols, conventions and formalisms, meaning that traditional learning of a concept requires previous knowledge. VR have the potential to allow learners to discover and experience objects and phenomena in ways that they cannot do in real life (Brooks Jr., 1999) (Davis and Wehmeyer, 2002).

The main objective of this study was to satisfaction of learner towards the interactive simulation and virtual reality museum: tradition of Chonburi province. Therefore, the result of this study used to annex the quality of interactive simulation and virtual reality museum and creating a society of participatory learner and a wide sharing of knowledge.

The interactive simulation and virtual reality museum: tradition of Chonburi province

This system was designed to support the creation of high quality models, with the techniques necessary for achieving interactivity. Researchers investigate the full scope of 3D then create interactive simulation environment and we demonstrate how best to virtual illustrate simulation can be exploited to achieve interactivity in 3D models use as virtual worlds. And Do testing on real sample how they are reacting with tool. The interactive simulation is an integrated environment for creating professional-quality 3D models. Photo-realistic still images and film-quality animations can be created on a PC using these models. It supports the construction of various kinds of 3D objects. Landscapes of any type can be created from these objects and characters. All of these objects can be arranged in settings and environments. These environments form the basis of the scenes. The characters and objects can be animated - setting them in motion. Then - the whole virtual world can be captured as a film sequence. The interactive simulation was a rich modeling environment that supports a wide range of modeling techniques from low polygon modeling to modeling with compound objects to mesh modeling – all the way to NURBS modeling. Once our basic models have been constructed, we can assign different textures to improve the user's perception of realism. To complete the scene, different light sources can be added to illuminate the scene. Cameras can be added to capture other parts of the scene at different time intervals. In our projects, the geometry was created first. Texture maps and materials were then assigned to this geometry. In the case of interactive simulation environment for learning, materials for objects were acquired from digital pictures of actual objects. Finally, lights and cameras were added to construct a full scene.

In the interactive simulation and virtual reality museum, more objects were used and this makes the scene far more complex. Buildings were created using elementary shapes such as boxes, cylinders and spheres. For some objects, live photographs were used as textures. In such cases, researcher tried to use less detail of model objects in order to achieve fast active on web browser. To match up with the new trends in core competency of 21st century skills and constructivist theory. The interactive

simulation and virtual reality museum: tradition of Chonburi province can be published as a computer based platform to let learner's carry on his/her local PC and web browser. Conventional restrictions of time and space are no longer issues of today. The concept of an interactive simulation and virtual reality museum aims at simplifying the constructivist learning process. The main content of learning application includes Thai culture, norms and values based on constructivist theory, as see Figure 1.

Figure 1. The interactive simulation and virtual reality museum: tradition of Chonburi province

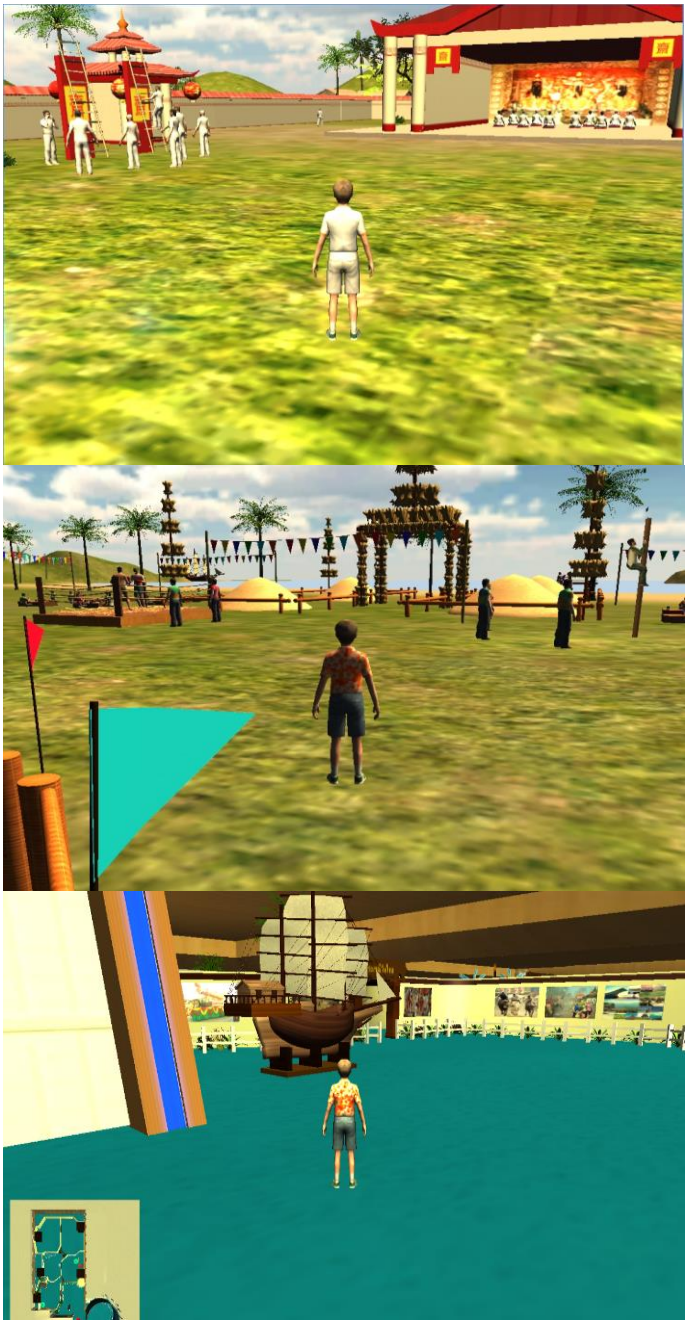

Figure 1. (Cont.)

Research Methodology

Population and Sample

- Population of this study was composed of learners who are study in Chonburi Thailand.
- Sampling group was composed of 40 students in Sripalothai School Chonburi, Thailand by purposive sampling method.

Instruments

The data was collected by using questionnaires addressing the satisfaction of learner towards the interactive simulation and virtual reality museum: tradition of Chonburi province**.** The instrument used the six stages of development created by Chaisanit and Suksakulchai (2009) which consist of 1) Literature Review, 2) Stakeholder interviews, 3) Development, 4) Expert Review, 5**)** Improvement, and 6) Implementation (Chaisanit and Suksakulchai, 2009).

The researcher studied 40 learners. Researcher used the ethnographic technique (field observations, interviews and questionnaire). The Instruments divided into 2 parts; in part 1 for the demographic of Stakeholders and parts 2 with three studied-areas: 1) platform and multimedia, 2) usability and quality, and 3) interactive and content. The observations, interviews and questionnaire focused on satisfaction of learner towards the interactive simulation and virtual reality museum: tradition of Chonburi province. It was evaluated by five experts, and the Index of item Objective Congruence (IOC) is .50.

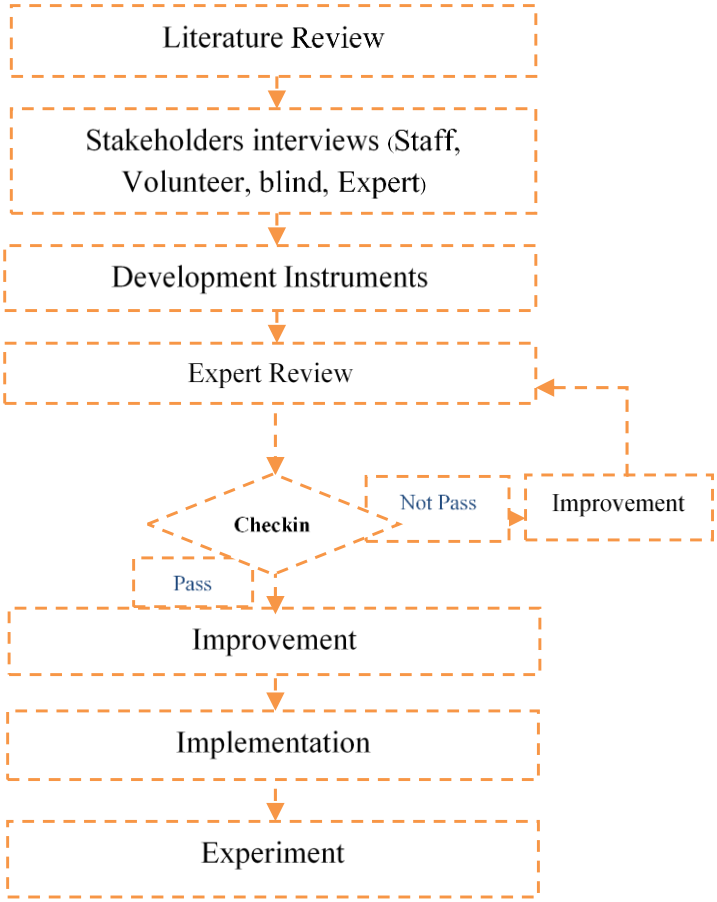

Figure 2. The Instrument Develop Flowchart

Experimental Results

An initial study was conducted at Chonburi in Thailand. The survey was on a 5-point Likert-type scale. Data collection was done by questionnaires then the questionnaires were analyzed to find out the conclusion. Data analysis was done using SPSS/FW (Statistic Package for Social Science/for Windows) software. The part with selection items was analyzed using frequency and percentage. The part with five scales was analyzed using mean ($\bar{x}$) and standard deviation (S.D.). The levels of agreement from respondents were as follows:

Average score:
4.50 – 5.00 means definitely agree
3.50 – 4.49 means strongly agree
2.50 – 3.49 means quite agree
1.50 – 2.49 means quite disagree
1.00 – 1.49 means strongly disagree

Table 1. Evaluation of the BASE business Game

Details	$\bar{x}$	S.D.	Illustrate
Platform and multimedia	4.53	0.57	definitely agree
- Accessibility and Presentation styles	4.65	0.53	definitely agree
- Navigation	4.30	0.56	strongly agree
- Design	4.58	0.55	definitely agree
- Multimedia	4.60	0.63	definitely agree
Usability and Quality	4.43	0.65	strongly agree
- Audio Quality	4.53	0.64	definitely agree
- Usability Control and Synchronization	4.33	0.66	strongly agree
Interactive and Content	4.54	0.54	definitely agree
- Efficiency	4.53	0.51	definitely agree
- Navigation	4.45	0.71	strongly agree
- Ease of understanding	4.55	0.50	definitely agree
- Interactively	4.50	0.55	strongly agree
- Content Multimedia	4.55	0.55	definitely agree
- Elicit Response	4.60	0.50	definitely agree
- Motivation	4.63	0.49	definitely agree
Total	4.52	0.57	definitely agree

The overall satisfaction of learners towards the interactive simulation and virtual reality museum: tradition of Chonburi province was also conducted to identify a way of evaluating the quality of users. The level of satisfaction was determined through

three categories: platform and multimedia, usability and quality, and interactive and content. These showed means of 4.53 (SD = 0.57), 4.43 (SD = 0.65), and 4.54 (SD = 0.54), respectively (table 1). The overall satisfaction of learners was estimated as definitely agree, and the degree of clarity of system was rated higher than target levels.

Conclusion

The satisfaction of learners towards the interactive simulation and virtual reality museum: tradition of Chonburi province was estimated as definitely agree, and the degree of clarity of system was rated higher than target levels. Therefore, the research results supported the idea that interactive simulation and virtual reality museum was suitable for learners. The main result of this study used to annex the quality of interactive simulation and virtual reality museum and creating a society of participatory learner and a wide sharing of knowledge.

Acknowledgements

This work has been done exceptional thanks to committee of Sripatum University-Chonburi Campus. Without their guidance and support, this study would not have taken its current form, nor would it have come to completion. Foremost, I must thank to Dr. Tau-Tong Puangsuwan for providing a great research opportunity. I would also like to thank the people in the School of Information Technology for their support and making some useful comments on both the concept of the evolutionary approach and a draft of the paper.

References

Chaisanit, S., and Surachai, S. (2009). A Study of Problems Need and Tendency of Digital Talking Book Production System for the Blind. *SPU Research Journal* 6(1): 64-72.

Dillenbourg, P. (2000). Virtual learning environments. *EUN Conference 2000: Learning in the new millennium: Building new education strategies for schools*.

Brooks Jr., F. P. (1999). What's Real About Virtual Reality?, *IEEE Computer Graphics And Applications*, 19(6): 16

Davis, D. K., Stock, S. E., and Wehmeyer, M. L. (2002). Enhancing independent time-management skills of individualswith mental retardation using a palmtop personal computer. *Mental Retardation* 358-365.

About the authors

Settachai Chaisanit, Ph.D. is a professor at School of Information Technology, Sripatum University-Chonburi Campus (SPUC), Thailand. With his educational and professional background in information technology, computer and education, he is currently working as a specialist in Learning Innovation in Technology, and as Campus Dean for School of information technology, at SPUC. His main research interests include computer multimedia, computer education, information security, mobile application and business intelligence.

Apichai Tra-ngansri is a professor at School of Information Technology, SPUC, Thailand. The research areas of her interest include information technology, computer and education, life-long learning, and business intelligence.

Laddawan Meeanan is a professor at School of Information Technology, SPUC, Thailand. The research areas of her interest include information technology, computer and education, life-long learning, and business intelligence.

Chiraphorn Chomyim is a professor at School of Information Technology, SPUC, Thailand. The research areas of her interest include information technology, computer and education, life-long learning, and business intelligence.