THE USE OF LEARNING OBJECT IN 3D CHARACTER MODELING LESSON: A PERCEPTION STUDY AMONG DIGITAL ARTS STUDENT

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ABSTRAK

Pada masa sekarang, pembelajaran menggunakan "learning object" telah memimpin dunia pendidikan dengan teknologi pembelajaran yang lebih berkesan dalam meningkatkan lagi pembangunan instruksional, reka bentuk dan penyampaian kandungan sesebuah pembelajaran. Ini telah membawa paradigma baru dalam kaedah pengajaran dan pembelajaran. Fokus kajian ini adalah untuk melakukan kajian persepsi penerimaan di kalangan pelajar seni digital Politeknik Tuanku Syed Sirajuddin Polythenic (PTSS), Perlis terhadap penggunaan "learning object" dalam pelajaran bagi penghasilan watak 3D Modeling. Tujuan dari aplikasi ini adalah untuk membantu pelajar sebagai panduan bagi mereka untuk melakukan dan menyelesaikan tugasan mereka dan juga untuk meningkatkan dan memahirkan lagi kemahiran 3D Modeling pelajar. Metodologi Rekabentuk Penyelidikan (GMDR) oleh Vaishnavi dan Kuechler (2004) digunakan untuk membangunkan dan menilai aplikasi. Penilaian terhadap penerimaan dan peningkatan pembelajaran selepas menggunakan aplikasi di kalangan pelajar dilakukan. Pada akhir kajian ini, penggunaan "learning object" di dalam pembelajaran bagi menghasilkan watak 3D berpotensi digunakan dalam kaedah mengajar dan proses pembelajaran pelajar di dalam kelas.

ABSTRACT

Currently learning object leads education worlds with the instructional technology towards more effective instructional design, development and delivery of learning content. It has brought new paradigms in the way people teach and learn. The focus of this research is to conduct a perception study among digital arts students of Polythenic Tuanku Syed Sirajuddin (PTSS), Perlis towards the use of learning object in 3D Character Modeling lesson. The purpose of this application is to help student as guidance for them to do and finish their assessment and also to enhance and improve their 3D skills. Methodology of Design Research (GMDR) by Vaishnavi and Kuechler (2004) was used to develop and evaluate the application. An evaluation on the acceptance and learn ability of the application among the students carried out. At the end of this study, the potential use of learning object in 3D Character Modeling in the teaching and learning process can be made.

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LIST OF ABBREVIATION

Acronym	Meaning
3D	Three Dimensional
Los	Learning Objects
SPSS	Statistical Package for the Social Science
PTSS	Polythenic Tuanku Syed Sirajuddin
GMDR	General Methodology of Design Research
E-Learning	Electronic Learning
WWW	World Wide Web

CHAPTER 1

INTRODUCTION

This purpose of this study is to determine the perception among the digital arts student's of Polytechnic Tuanku Syed Sirajuddin (PTSS) in Perlis towards the use of learning object for 3D character modelling lesson. This chapter briefly explains the background of the study by providing an overview of learning objects and the use. Besides that, problem statement, objectives, significance and scope of the study will also be introduced in this chapter.

1.1 Background

Nowadays, a process of teaching and learning had grown rapidly together with the technological improvement from time to time. Educators need to adapt with the existing modern technology and computer science curriculum to support 21st century learning. Modern students learn differently from those in the past and aware of the growth of technology in their daily live. When student learning styles are matched with instructional strategies, student achievement is

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REFERENCES

Adobe Presenter and Camtasia Studio: *compare and contrast.* Retrieved from: http://telic.wordpress.com/2009/07/24/adobe-presenter-and-camtasia-studio-compare-and-contrast/

Adrien, C., Nicolas, L., & Damien, M. (2005). CD-ROM interactif pour decouvrir le rugby. *Unpublished Project de Multimedia*, Universite de Marne- la-Vallee, Cite Descartes.

Almekhafi, A. G. (2006). The Effect of Computer Assisted Language Learning (CALL) on United Arab Emirates English as a Foreign Language (EFL) Scholl Students. *Journal of Interactive Learning Research.*

Ballone, L.M., & Czerniak, C.M. (2001). *Teacher's beliefs about accommodating students' learning styles in science classrooms.* Bowling Green State University, Bowling Green, OH 43402, Electronic Journal of Science Education, 6 (2), 1-41.

Barritt, C. & Alderman Jr., F. L. (2004). *Creating a reusable learning objects strategy.* San Francisco:Pfeiffer.

Brown, A., Luterbach, K. & Sugar, W. (2009). The Current State of Screencast Technology and What is Known About its Instructional Effectiveness. In I. Gibson et al. (Eds.). *Proceedings of Society for Information Technology & Teacher Education International Conference 2009* (pp. 1748-1753). Chesapeake, VA: AACE.

Carr, A.A., & Bromley, H. (1997). Technology and Change: *Preservice Perceptions on Agency. Journal of Teaching Education*, 8(2), 15-22.

Chou, S. W., & Liu, C. H. (2005). Learning effectiveness in a web-based virtual learning environment: A learner control perspective. *Journal of Computer Assisted Learning, 21*, 65-76.

Christiansen, J. A. & Anderson, T. (2004). Feasibility of course development based on learning objects: Research analysis of three case studies. *International Journal of Instructional Technology and Distance Learning.* March 2004. http://www.itdl.org/Journal/Mar_04/article02.htm[viewed 22 Sep 2005, verified 13 Sep 2008].

Collis, B., & Strijker, A. (2003). Re-usable learning objects in context. I*nternational Journal on E-Learning*, 2(4), 5-17.

Davidson, G.V., Savenye, W.C., & Orr, K.B. (1992). How do learning styles relate to performance in a computer applications course? *Journal of Research on Computing in Education*, 24, 348-358.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use and user acceptance of information technology. *Journal of Human-Computer Interaction*, 3(13). 319-340.

Davis, F. D. (1993). User acceptance of information technology: System Characteristics, user perceptions and behavioral impacts. *Journal of International Journal of Man- machine Studies*, 38(3), 475-487.

Dennis, S.(2008). How to design a questionnaire/survey

Downes, S. (2008). Learning objects. Retrieved from http://www.downes.ca/files/Learning_Objects.html

Dunn, R.S., Denig, S.J., & Lovelace, M.K. (2001). Two sides of the same coin or different strokes for different folks? *Teacher Librarian*, 28(3), 9-16.

Eli, B. C. & Malgorzata, N. (2006). Learning Objects and E-Learning: an informing Science Perspective. *Interdisciplinary Journal of Knowledge and Learning Objects*. Vol 2, 2006.

Elliott, K. & Sweeney, K. (2008). Quantifying the reuse of learning objects. Australasian. *Journal of Educational Technology*. 24(2). 137-142. http://www.ascilite.org.au/ajet/ajet24/elliott.html

Espinor, D. (2010). *Enhancing Learning with Flexible Content Capture Software for On-Demand Access to Course Materials*. Seattle Pacific University.

Glaser, W., & Hardin, C. (1999). Creating new standards for higher education: Effecting pedagogical change in the undergraduate curriculum through the integration of technology. *Dissertation Abstracts International, 59*(12), 4321. (UMI No.9915121).

Gregorc, A.F. (1979). Learning styles: *Differences which profession must address.* In C. Vacca and J. Maegher (Ed), Reading through content. pp. 232-235. Storrs, CT: University of Connecticut press.

Hall, G. E., & Hord, S. M. (2001). *Implementing change: Patterns, principles and potholes.* Boston: Allyn and Bacon.

Hatcher, L. (1994). A step-by-step approach to using the SAS(R) system for factor analysis and structural equation modeling. Cary, NC: SAS Institute.

Hitch, C. J., & McKean, R. N. (1960). *The economics of defence in the nuclear age*: Harvard University Press.

Hoffer, J. A., George, J. F., & Valacich, J. S. (1999). Modern systems analysis and design: Addison-Wesley Reading Mass.

Jacobson, I., Christerson, M., Jonsson, P., & Overgaard, G. (1992). A use case driven approach: Addison-Wesley Pub.

Kothari, C. (1985), Research Methodology: Methods and Techniques, Wiley Eastern, New Delhi.

Kozma, R. (2003). Innovative practices from around the world: *Integrating technology into the classroom.* Leading and Learning, 21(9), 6-9, 52-54.

Krauss, F. & Ally, M. (2005). A study of the design and evaluation of a learning object and implications for content development. *Interdisciplinary Journal of Knowledge and Learning Objects, 1(1).*

Kulik, J. A., Bangert, R. L., & Williams, G. W. (1983). Effects of Computer-Based Teaching on Secondary School Students. *Journal of Educational Psychology*, 75(1), 19-26.

Lee, J.W., Pradhan, S. & Dalgarno, B. (2008). The Effectiveness of Screencasts and Cognitive Tools as Scaffolding for Novice Object-Oriented Programmers. *Journal of Information Technology Education*, Vol 7 (2008).

Learning Technology Standards Committee (2002). Standard for Learning Object Metadata. Institute of Electrical and Electronics Engineers.

Leggett, W. (1998). Faculty and required student use of internet technologies in preservice teacher preparation programs in Oklahoma: *Current availability, current frequency of use, dominant obstacles to implementation or increased* use. Dissertation Abstracts International, 60(04), 1087. (UMI No. 9927740)

Leggett, W. P. & Persichitte, K. A. (1998). Blood, sweat, and TEARS: 50 years of technology implementation obstacles. *TechTrends, 43*(3), 33-36.

Manville, B. (2003). Organizing Enterprise-Wide eLearning and Human Capital Management. Chief Learning Officer, May, 2004.

Marsh, T. (1999). Evaluation of Virtual Reality Systems for Usability. Doctoral Consortium, 61-62.

Massy, W. F. & Zemsky, R. (1996). Information technology and academic productivity. *Educom Review, 31*(1), 12-14.

McCoy, A. H. (1999). Integration of technology into higher education teacher preparation programs. *Society for Information Technology and Teacher Education International Conference*, San Antonio, TX. (ERIC Document Reproduction Service No. ED 432 272).

McGreal, R. (Ed.) (2004). Online education using learning objects. London: Routledge/Falmer.

McGreal, R. 2004. Learning Objects: A Practical Definition. International Journal Of Instructional Technology And Distance Learning. 1(9): 23-36.

Mejias, U. A. and Shoemaker, D. 2005. "Learning Molecules Model." Learning Circuits, May 2005. Virginia: American Society for Training & Development. Retrieved from: www.learningcircuits.org/2005/may2005/shoemaker.html

Moreno, R., Mayer, R. E., Spires, H. A., & Lester, J. C. (2001). The Case for Social Agency in Computer-Based Teaching: Do Student Learn More Deeply When They Interact With Animated Pedagogical Agent? *Journal of Cognition and Instruction, 19(2),177-213*

Nielsen, J. (1993). Usability Engineering. San Diego: Morgan Kaufmann Publisher.

Norman, S. and Porter, D. (2007). Designing Learning Objects for Online Learning. Retrieved from: *http://www.nwrel.org/planning/reports/self-direct/index.php*

Northwest Regional Educational Laboratory (2004). Developing Self-Directed Learners. Retrieved from: http://www.nwrel.org/planning/reports/self- direct/index.php.

Nunnaly, J. (1978). Psychometric theory. New York: McGraw-Hill.

Paul, M. (2010). Screencast and education by Paul MgGovern. Retrieved from http://blogs.telestream.net/screenflow/2010/07/screencasts-and-education-by-paul-mcgovern/

Persichitte, K. A., Caffarella, E. P., & Tharp, D. D. (1999). Technology integration in teacher preparation: A qualitative research study. *Journal of Technology and Teacher Education, 7*(3), 219-233.

Peterson, E. Incorporating Screencasts In Online Teaching. *The International Review of Research in Open and Distance Learning*, Vol 8, No 3 (2007), ISSN: 1492-3831

Pival, P.R. (2006). Show and Tell the Easy Way: *An Introduction to Screencasting.* Retrieved from http://distlib.blogs.com/screencasts/SDIScreencasting-Pival.ppt

Powell, E.T. (1998). Questionnaire Design: *Asking question with a purpose.* Texas: University of Wisconsin Extension.

Reigeluth, C.M., & Nelson, L.M. (1997). A new paradigm of ISD? In R.C.Branch & B.B. Minor (Eds.), *Educational media and technology yearbook* (Vol. 22, pp. 24-35). Englewood, Cliffs, NJ: Libraries Unlimited.

Rice, M. L. & Miller, M. T. (2001). Faculty involvement in planning for the use and integration of instructional and administrative technologies. *Journal of Research on Computing in Education, 33*(3), 328-336.

Robin M., Chris P. Martin W. (2005). A Learning Object Success Story. *Journal of Asynchronous Learning Networkd.* JALN Volume 9, Issue 1, 97-105.

Robyler, M. D., & Edwards, J. (2000). Integrating educational technology into teaching. (2nd ed.). Upper Saddle River, NJ: Prentice-Hall.

Ropp, M., & Brown, J. (2000). Beyond applications to the essential processes of technology integration: Designing an educational technology course to reflect ISTE standards and to model best practices for the future. *Society for Information Technology and Teacher Education International Conference, 2000*(1), 335-338.

Rosenberg, M. (2001). *e-Learning: Strategies for Delivering Knowledge in the Digital Age. New York: McGraw-Hill, p28.*

Santos, J. R. A. (1999). Cronbach Alpha: A tool for assessing the reliability of scales. Journal of Extension, US. Cooperative Extension System, 37 (2). Retrieved from: http://www.joe.org/joe/1999april/tt3.html

Schmidt, D. A. (1996). Use and integration of computer-related technology in teaching by preservice teacher education faculty. Dissertation Abstracts International, 56(12), 1255. (UMI No. 9610982)

Schnackenberg, H. L., Luik, K., Nisan, Y. C., & Servant, C. (2001). A Case Study of Needs Assessment in Teacher In-Service Development. *Journal of Educational Research and Evaluation*, 7(2),137-160.

Shepherd, C. (2000, December). Objects of interest. TACTIX. Retrieved. February 13, 2006, from http://www.fastrak-consulting.co.uk/ tactix/ features/objects/objects.htm#Objects%20defined

Sheridan. S. (2000). MAYA 2 Character Animation. New Riders Publishing, Indianapolis.

Smith, S. P. And Willans,j. S. (2006). "Virtual object specification for usable virtual environments". Proceedings of the 18th Australia Conference on Computer-Human interaction: Design: Activities, Artefacts and Environments, Sydney, Australia. Vol. 206. ACM, New York, NY, pp. 183-190.

Susan E. M. (2002). Learning Object in Higher Education. *Research Bulletin Volume* 2002, Issue 19 October 2002. EDUCAUSE

Thornton, T. L. (1998). The use of benchmarking to measure indicators of hightechnology performance in a K-12 international school. Dissertation Abstracts International.

Udell, J. (2005). What is Screencasting. Digital Media. Retrieved from: http://www.oreillynet.com/pub/a/oreilly/digitalmedia/2005/11/16/what-is-screencasting.html

Vaishnavi, V. K., & W. Kuechler (2004). Design Science Research Methods and Patterns: *Improving and Innovating and Communicating Technology*. New York: Auerbach Publications.

Vannatta, R. A. (2000). Evaluation to planning: Technology integration in a school of education. *Journal of Technology and Teacher Education, 8*(3), 231-246.

Wel, W. S., Halimatolhanim, M. K., Mansor. F., (2009). Development of Intercative Learning Objects with Just In Time Tutorials Self Assessment for Open and Distance Learning Education, Open Universiti Malaysia. ICI9-International Conference on Information, Kuala Lumpur 12-13 ogos 2009.

Wiley, D.A. (2002). Learning objects need instructional design theory. In A. Rossett (Ed.), *The ASTD e-learning handbook* (pp. 115-126). New York: McGraw-Hill.

Wiley, D. A. (Ed.) (2002). *The instructional use of learning objects*. Bloomington, IN: Agency for Instructional Technology and the Association for Educational Communications and Technology. http://www.reusability.org/read/

Winterbottom, S. (2007) Virtual lecturing: Delivering lectures using screen casting and pod casting technology. Planet 18, World Conference on Educational Multimedia, Hypermedia and Telecommunications, Montreal.

Xiao, L., & Dasgupta, S., (2002). Measurement of User Satisfaction with Web-based Information Systems: *an Empirical Study*. Paper presented at the American Conference on Information Systems, America.

Yong Su Ting, (2009). Using screencasting technology to learn application software. Retrieved from: http://www.slideshare.net/citehku/learning-application-software-conventional-versus-screencasts-approach.