{tag}

{/tag}
International Journal of Computer Applications


Volume 37 - Number 1

Year of Publication: 2012

Authors:
Verónica Rodríguez

Gerardo Ayala

10.5120/4570-6535

{bibtex}pxc3876535.bib{/bibtex}

## Abstract

The interface design is one of the essential elements for building a coherent and consistent learning object. However, it is still believed that interface design relates only to providing an aesthetic appearance to the learning object. The interface should be seen as the action space where mediatic objects are presented for user interaction. In this paper we introduce a architecture for adaptability and adaptivity of learning object's interface. A learning object adapts itself to the user; it is not the user who must adapt her/himself to the learning object. This adaptation implies the design of the learning object interface, which includes the processes and structures for adaptivity and adaptability. The paper includes a discussion of the architecture, its components, and a detailed description of the sequence of actions for adaptive interaction.

## References

- Battou, A. et. al, 2010: "The granularity approach of learning objects to support adaptability in adaptive learning systems". Journal of Theoretical and Applied Information Technology, Vol. 18. No. 1, 2010 Available online at: http://www.jatit.org/volumes/eighteenth_volume_1_2010.php

- Botsios, S. and Georgiou D., 2009: "Using standards for adaptive learning objects retrieval". Journal of Knowledge and Learning, 2009. Available online at: http://utopia.duth.gr/~dgeorg/PUBLICATIONS/58.pdf
- Brusilovsky, P., 1996: "Methods and techniques of adaptive hypermedia". In P. Brusilovsky and J. Vassileva (eds.), User Modeling and User-Adapted Interaction 6 (2-3), Special Issue on Adaptive Hypertext and Hypermedia, 87-129.
- Chawla, S. and Singla R. K., 2010: "Mechanism for learning object retrieval supporting adaptivity". Journal of Telecommunications, Volume 2, Issue 2, May 2010. Available online at: http://arxiv.org/ftp/arxiv/papers/1006/1006.0861.pdf
- Friesen, N., 2004: "Three objections to learning objects. Online education using learning objects". McGreal, R. Ed. London: Routledge, pp. 59-70. Available online at: http://www.learningspaces.org/n/papers/objections.html
- Galeana, L. y Cruz, G., 2005: "Los fundamentos biológicos del aprendizaje para el diseño y aplicación de objetos de aprendizaje", Revista CEUPROMED. Available online at: http://ceupromed.ucol.mx/revista/PdfArt/1/30.pdf
- Gkatzidou, S. and Pearson, E., 2008: "A vision for truly adaptable and accessible learning objects". Proceedings ascilite Melbourne, 2008. Available online at: http://www.ascilite.org.au/conferences/melbourne08/procs/gkatzidou-poster.pdf
- Gkatzidou, S. and Pearson, E., 2010: "Exploring the development of adaptable learning objects. A practical approach". 10th IEEE International conference on advanced learning technologies ICALT 2010, in Proceedings. California: IEEE, pp. 307-309. Available online at: http://tees.openrepository.com/tees/bitstream/10149/116051/2/116051.pdf
- Instructional Design, 2009. Available online at: http://www.instructionaldesign.org/
- Ip, A., Morrison, I. and Currie, M., 2001: "What is a learning object, technically?". Web Net 2001 World Conference on the WWW and Internet, pp. 580-586. Available online at: http://users.com.au/adslfrcf/lo/learningObject(WebNet2001).pdf
- Jakobson, R., 1981. "Lingüística y poética", Madrid: Cátedra.
- Karampiperis, P. Sampson, D., 2006: "Adaptive Learning Objects Sequencing for Competence-Based Learning". Proceedings of the 6th IEEE International Conference on Advanced Learning Technologies, July 5th-7th, 2006, [http://www.ask.iti.gr/icalt/2006], Kerkrade, The Netherlands, IEEE Computer Society Press. Available online at http://dspace.learningnetworks.org
- Kobsa, A., 2004: "Adaptive Interfaces", University of California, Irvine. Available online at: http://www.ics.uci.edu/~kobsa/papers/2004-HCI-Encyclopedia-kobsa.pdf
- Koch, N., 2000: "Software Engineering for Adaptive Hypermedia Systems". PhD thesis, Ludwig-Maximilians-University Munich, Germany. Available online at: http://www.pst.informatik.unimuenchen.de/personen/kochn/PhDThesisNoraKoch.pdf
- LSTC: "Learning Technology Standards Committee". Available on line at: htt://ltsc.ieee.org/
- Magenheim, J. and Scheel, O., 2004: "Integrating learning objects into an open learning environment: evaluating of learning processes in an informatics learning lab". Proceedings of the 13th international World Wide Web Conference on Alternate Track Papers & Amp; New York, USA, May 19th – 21st WWW Alt. '04. ACM Press, pp. 450-451.
- Merril, D., 2000: "Instructional transaction theory (ITT): Instructional design base on knowledge objects", Chapter 17 in C. M. Reigeluth (Ed.), Instructional-Design Theories and Models: A New Paradigm of Instructional Theory. Mahwah, NJ: Lawrence Earlbaum Associates.

Available online at: http://cito.byuh.edu/merril/text/papers/7ReigChp.PDF

- Merril, D., 2002: "Knowledge Objects and Mental Models: The instructional use of learning objects". Wiley, D. A. ed. Instructional Use of Learning Objects: Online Version. Washington DC: Agency for Instructional Technology and Association for Educational Communications and Technology. Available online at: http://reusability.org/read/chapters/merril.doc
- Milosevic, D. and Brkovic, M., 2007: "Adaptive learning using SCOs metadata". Interdisciplinary Journal of Knowledge and Learning Objects, Volume 3, 2007. Available online at: http://ijello.org/Volume3/IJKLOv3p163-174Milo326.pdf
- Nguyen, L. and Phung, D., 2008: "Learner model in adaptive learning". World Academy of Science, Engineering and Technology, 2008. Available online at: http://www.waset.org/journals/waset/v45/v45-70.pdf
- Oppermann, R, 1997.: "Adaptability and Adaptivity in Learning Systems", GMD FIT-German National Research Center for Information Technology. Available online at: http://www.fit.fraunhofer.de/~oppi/publications/kt97_gmd.pdf
- Paredes, R. and Ayala G., 2001: "Learner model servers: personalization of web based educational applications base don digital collections". World Conference on Educational Multimedia, Hypermedia and Telecommunications (EDMEDIA), Honolulu, Hawaii, USA. ISBN 1-880094-48-7.
- Polsani, P., 2003: "Use and Abuse of Reusable Learning Objects". Journal of Digital Information, Vol. 3 Issue 4, No. 164, February 19th 2003. Arizona, USA.
- Rodríguez, V., Ayala, G., 2008: "Diseño de la Interfaz del Objeto de Aprendizaje: Asegurando la Coherencia entre los Objetos Mediáticos", Memorias de la Tercera Conferencia Latinoamericana de Tecnología de Objetos de Aprendizaje, LACLO 2008, Aguascalientes, Aguascalientes, México, pp. 269-277.
- Rodríguez, V., Ayala, G., 2009: "Adaptatividad y Adaptabilidad de la Interfaz del Objeto de Aprendizaje", Memorias de la Conferencia Conjunta Iberoamericana sobre Tecnologías para el Aprendizaje 2009, CCITA 09, Mérida, Yucatán, México, pp. 429-434.
- Rodríguez, V., Ayala, G., 2009: "Adaptivity and Adaptability in Learning Objects", Learning Technology NewsLetter (October 2009) publication of IEEE Computer Society Technical Technology (TCLT) special issue on Learning Objects and Their Supporting Technologies for Next Generation Learning, pp. 32-35. Available online at: http://www.ieeetclt.org/issues/october2009/lt_oct2009.pdf
- Shepherd, C., 2000: "Objects of interest". Available online at: http://www.fastrak-consulting.co.uk/tactix/features/objects/objects.htm
- Sicilia, M., García, E., Sánchez, S. and Rodríguez, E., 2004. "Describing Learning Object Types in Ontological Structures: Towards Specialized Pedagogical Selection". In L. Cantoni & C. McLoughlin (Eds.), Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications, pp. 2093-2097. Chesapeake, 2004. VA: AACE.
- Wiley, D., 2002: "Connecting learning objects to instructional design theory: A definition, a metaphor, and a taxonomy". Wiley, D. A. ed. Instructional Use of Learning Objects: Online Version. Washington DC: Agency for Instructional Technology and Association for Educational Communications and Technology, 2002. Available online at: http://reusability.org/read/chapters/wiley.do

## Index Terms

Computer Science Human-Computer Interaction

## Keywords

Learning object interface adaptivity adaptability mediatic object educational mediatic object
operational mediatic object

user model

instructional design

customization