Scientific Research
Open Access

OPEN ACCESS

Search Keywords,Title,Author,ISBN,ISSN

Home | Journals | Books | Conferences | News | About Us | Jobs

Home > Journal > Social Sciences & Humanities > CE

Indexing | View Papers | Aims & Scope | Editorial Board | Guideline | Article Processing Charges

CE > Vol.3 No.6A, October 2012

OPEN ACCESS

Applying a Constructionist Frame to Learning about Sustainability

PDF (Size:259KB) PP. 818-823 DOI: 10.4236/ce.2012.326122

Author(s)
Maria Daskolia, Chronis Kynigos

ABSTRACT
Sustainability as a concept is by nature complex and elusive and therefore difficult to address. Creative thinking is thought among the core abilities needed to be fostered for developing a more integrated understanding of sustainability issues and for achieving a more sustainable world. We argue that Constructionism offers an appropriate frame of identifying and fostering creativity by viewing learning as an experiential process of collaboratively generating new ideas and meaningful digital artefacts through the active engagement with microworlds. The study reported in this paper is based on the design and implementation of a pedagogical intervention aiming to engage students in creatively tinkering with a game microworld along with the concept of sustainability. Our analysis focuses on one group of students and examines how ideas and shared understandings of sustainability emerge and evolve along with the creation of a " sustainable city" digital game and through the students' constructive interaction with a related microworld.

KEYWORDS
Sustainability; Sustainable City; Creativity; Constructionism; Game Design; Half-Baked Microworlds

Cite this paper

References
[1]   Cobb, P., Confrey, J., Disessa, A., Lehrer, P., & Schauble, L. (2003). Design experiments in educational research. Educational Researcher, 32, 9-13. doi:10.3102/0013189X032001009

[2]   Daskolia, M., Dimos, A., & Kampylis, P. (2012). Secondary teachers' conceptions of creative thinking within the context of Environmental Education. International Journal of Environmental and Science Education, 7, 269-290.

[3]   Fernández-Cárdenas, J. M. (2008). The situated aspect of creativity in communicative events: How do children design web pages together? Thinking Skills and Creativity, 3, 203-216. doi:10.1016/j.tsc.2008.09.007

[4]   Jensen, B. B., & Schnack, K. (1997). The action competence approach in environmental education. Environmental Education Research, 3, 163-178. doi:10.1080/1350462970030205

[5]   Kafai, Y., & Resnick, M. (1996). Constructionism in practice. Hoboken, NJ: Taylor & Francis.

[6]   Kampylis, P., & Valtanen, J. (2010). Redefining creativity—Analyzing definitions, collocations and consequences. Journal of Creative Behavior, 44, 191-214. doi:10.1002/j.2162-6057.2010.tb01333.x

[7]   Kynigos, C. (2007). Half-baked logo microworlds as boundary objects in integrated design. Informatics in Education, 6, 1-24.

[8]   Kynigos, C., & Daskolia, M., (2011). Collaborative design and construction of digital games to learn about sustainable lifestyles. In L. Gómez Chova, I. Candel Torres, A. López Martínez (Eds.), Proceedings of the international technology, education, development Conference (pp. 1583-1592). Valencia.

Sponsors >>

The Conference on Information Technology in Education (CITE 2012)

[9]   Lange, H., & Meier, L. (2009). The new middle classes, globalizing lifestyles, consumerism and environmental concern. Heidelberg: Springer.

[10]   Liarakou, G., Daskolia, M., & Flogaitis, E. (2007). Investigating the associative meanings of "sustainability" among Greek kindergarten teachers. International Journal of Interdisciplinary Social Sciences, 1, 29-36.

[11]   Meggill, A. (1995). Relativism, or the different senses of objectivity. Academic Questions, 8, 33-39. doi:10.1007/BF02683217

[12]   Moran, S. (2010). Creativity in school. In K. Littleton, C. Woods, & J. K. Staarman (Eds.), International handbook of psychology in education (pp. 319-359). Bingley: Emerald Group Publishing Limited.

[13]   Papert, S. (1993). The Childrens' machine. Rethinking School in the Age of the Computer. New York: Basic Books.

[14]   Redclift, M. (1994). Reflections on the "sustainable development" debate. International Journal of Sustainable Development & World Ecology, 1, 3-21. doi:10.1080/13504509409469856

[15]   Resnick, M. (1996). Distributed constructionism. In D. C. Edelson & E. A. Domeshek (Eds.), Proceedings of the 1996 international conference on Learning sciences (pp. 280-284). International Society of the Learning Sciences.

[16]   Scott, W., & Gough, S. (2004). Sustainable development and learning. framing the issues. London: Routledge Falmer.

[17]   Siegler, R. S. (2006). Microgenetic analyses of learning. In W. Damon, R. M. Lerner, D. Kuhn, & R. S. Siegler (Eds.), Handbook of child psychology: Volume 2: Cognition, perception, and language (6th ed., pp. 464-510). Hoboken, NJ: Wiley.

[18]   Star, S. L., & Griesemer, J. R. (1989). Institutional ecology, "translations" and boundary objects: Amateurs and professionals in Berkeley's Museum of Vertebrate Zoology, 1907-1939. Social Studies of Science, 19, 387-420. doi:10.1177/030631289019003001

[19]   Wals, A. E. J. (2010a). Mirroring, Gestalt switching and transformative social learning—Stepping stones for developing sustainability competence. International Journal of Sustainability in Higher Education, 11, 380-390. doi:10.1108/14676371011077595

[20]   Wals, A. E. J. (2010b). Between knowing what is right and knowing that is it wrong to tell others what is right: On relativism, uncertainty and democracy in environmental and sustainability education. Environmental Education Research, 16, 14. doi:10.1080/13504620903504099