Editorial: Special issue "Investigating the Educational Web 2.0"

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In the past decade, the nature of the Information and Communications Technologies (ICT) and the way people access and use Web recourses has been fundamentally changed. The new generation of Web technologies, including blogs, wikis, social networking, media sharing, podcasting etc., offer enhanced learning resources and learning spaces because of their participative, user-centered, communicative and collaborative features. While not designed specifically for educational purposes, social media and Web 2.0 applications have received intense and growing educational and research interest. Current applications of Web 2.0 in educational practice include diverse learning groups, ranging from primary and secondary education, higher education, teachers' professional development and adult informal learning.

The integration of Web 2.0 tools in educational settings is expected to lead to significant educational and pedagogical outcomes and support students' development on the knowledge and skills needed to succeed in the 21st century society. It has been advocated that Web 2.0 transforms the learning context by providing multiple opportunities for shared content and resources, self-directed learning, reflective and collaborative learning, reflexive dialogue, peer and self assessment, ubiquitous and lifelong learning (Dede, 2008; McLoughlin & Lee, 2010; Jimoyiannis & Angelaina, 2012). The emerged socially based technologies, e.g. the composition of conventional ICT, mobile and smart technologies and social media allow learners' control over the learning process as a whole by extending their experiential learning spaces, both physical and virtual, beyond the walls of the classroom. In addition, they can bridge formal and informal learning spaces across school, home, and the wider community (Ravenscroft, 2009; Wegerif, 2007).

Web 2.0 based e-learning environments bring high expectations for improvement and innovations in learning and instruction (Brown & Adler, 2008). They are becoming a common element of contemporary educational institutions, allowing both educators and students to build strong learning communities around a common subject or a field of interest (Siemens, 2003). The emergent Web 2.0 technologies transform the learning context by promoting a new relationship between learners and teachers (but also learners), since the first are becoming potential authors of a new type of content. In this sense, Web 2.0 change our notion of teaching and learning environments from time and space bound classroom places to flexible, participatory, networked and extended virtual spaces.

In the Educational Web 2.0 era, the traditional, instructional model has been gradually changed from a teacher-centered model to the learner-centered model, where learners actively participate in properly designed learning activities while they collaboratively construct new knowledge. The design and the implementation of Web 2.0 based educational activities are rooted in social constructivist approaches supported by the affordances inherent to the various social media tools. As a result, personal lifelong learning, self reflection and self-regulated learning capabilities have become increasingly important.

We need, therefore, to enhance our knowledge regarding the appropriate educational and pedagogical contexts that transform Web 2.0 tools into effective, task-oriented, personal and collaborative learning spaces that shift control to the learners, extend formal learning into a more informal one, and promote learner autonomy and participation beyond the classroom and the institutional boundaries. Bringing together seven contributions from different educational contexts and cultures around the world, this special issue has the ambition to reflect current international trends regarding the research and the application of Web 2.0 tools in educational practice.

In the first paper, Bower investigates how a professional learning program impacted upon Australian teachers' capacity to effectively use technology within classroom activities. Teachers were guided through a series of four workshops designed to enhance their capacity to differentiate the curriculum using Web 2.0 technologies and Student Response Systems. As a result of the project, teachers were able to improve their understanding of what it means to differentiate the curriculum and how to use Web 2.0 technologies and Student Response Systems to accomplish this. There were also improvements in teachers' self-reported ability to differentiate the curriculum, ability to integrate technology into the classroom, and enjoyment of using technology. Considerable variance in teachers' capacity to differentiate according to student ability using technology was observed, indicating that a differentiated approach to supporting teachers' development in this area may be required.

In the second paper, Smyrnaiou, Moustaki, Yiannoutsou and Kynigos report on an EU funded project and present their investigation results of students' using a web platform for meaning generation and learning to learn together in science education. 8th grade students, working with the Metafora web platform, interacted, collaborated and expressed themselves toward meaning generation with regard to moving in 3d Newtonian spaces. The students using the Planning tool created models of motions using 3d Juggler, a web-based half-baked microworld, and communicated their ideas using the tools incorporated into the platform. After completing their learning-scientific tasks the students of a subgroup moved to the Argumentation/Discussion tool and shared values, parameters and ideas with peers in the other subgroup. The paper concludes that students' assessment and distributed leadership, included in the learning to learn processes, appeared to be interwoven with the meaning generation process.

The third paper by Mai and Lum presents an action research study using a wiki as a course platform for teaching and learning Home Economics in secondary schools, in Hong Kong. The class teacher attempted to investigate the use of a free wiki environment in order to improve traditional teaching and supplement classroom practices with online learning resources and activities. An action research approach was adopted in the study and the teacher tried to improve his strategies to enhance interactions between the participants and the learning outcomes. Furthermore, the teacher attempted to integrate assessment activities into wiki-based learning activities in order to support students' learning. The findings of the study indicated that wiki was a convenient platform for the delivery of learning resources, it promoted students' interest for the subject and peer assessment. In addition, the wiki project influenced peer interactions and student-teacher interactions.

In the fourth paper, Bratitsis reports on a comparative study examining the usage of three computer mediated communication tools, namely a blog, a wiki and a discussion forum, within collaborative learning activities in a university course. 73 undergraduate students from an Early Childhood Education Department, in Greece, participated in the research. Students' perception of collaboration aspects through the tools used and their attitudes related to performance improvement were also examined. Common students'

misconceptions and difficulties regarding the functionality of the tools were outlined and discussed. The paper concludes with proposals regarding the designing and the implementation of collaborative activities to effectively engage novice computer users.

Following, Cuthell and Preston debate on the concept of liminal space applied to ways of teachers' learning and professional development through collaborative concept mapping. The learning journey through liminal spaces encounters difficulties and misunderstandings that can be resolved as knowledge is mastered. The authors suggest the use of collaborative digital mind maps affords tools for the analysis of the stages and development of collaborative learning. Data analysis revealed a wide picture of the process of collaborative mapmaking and showed the inter-relationship of actions; particularly those of inserting, renaming and repositioning the key activities in the process of knowledge creation. Their findings suggest the potential effectiveness of collaborative concept maps in stimulating teachers' thinking, debating and supporting professional development through virtual on-line environments.

In the sixth paper, Fessakis and Zoumpatianou present a literature review tracing and studying current educational uses of Wikipedia in a manner that would be both useful and inspiring for educators and learning designers. The findings from 24 scientific publications regarding Wikipedia-based learning interventions, retrieved from research databases, were analysed around four basic dimensions, e.g. expected learning outcomes, knowledge fields and subject matter, educational level, and types of student learning tasks. The study revealed a variety of expected learning outcomes (e.g. critical thinking, collaboration competence, digital and information literacy, research and inquiry skills) in secondary and higher education contexts, and a pleiad of student-centered, constructivist learning tasks and activities. Importantly, the contribution of this paper lies on cultivating among educators the design of collaborative learning interventions that go beyond the simple and obvious use of Wikipedia as information repository.

The last paper by Jimoyiannis proposes an organizational model for designing, implementing and researching students' engagement, learning, and personal development in e-portfolio initiatives. After providing an extended literature review about e-portfolios in education, the article analyses the theoretical foundations of e-portfolio-based learning. What this paper also indicates is the need to outline a conceptual and organizational framework integrating both pedagogical and technological issues for researchers, learning designers and educators. The proposed model places construction (student constructivist actions), reflection and collaboration as the fundamental operational features of e-portfolio learning. The article presents five case studies/good practice examples implemented in various higher education and developmental programs using different tools and environments. Conclusions and suggestions are drawn for educational practice and further research regarding e-portfolios as learning and developmental tools.

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