

Editorial: Knowledge, Social Media and Technologies for a Learning Society

It is well recognized that education and life-long learning are essential for the well-being of the society and go beyond school and university education. Today, traditional education systems need to cope with the new challenges generated by new technologies and new learning methods. Social media driven by people linked through communication networks, new ways of knowledge creation and innovation have revolutionized the way learning processes are taking place. This creates a need to shape learning processes with new approaches inspired from various disciplines ranging from cultural, social, and engineering to psychological science. The specification of new Innovative Learning models must focus on a transdisciplinary approach. The latter will contribute to shed a new light by combining expertise, perspectives and knowledge from academics, practitioners, business and governmental bodies.

With the emergence of social media and innovative information technologies, learners and teachers can collaborate, communicate and exchange knowledge anywhere and anytime. However, despite these new learning opportunities, it is also commonly recognized that this new generation of internet-based social media and technologies have drastically grown, become more complex, and are increasingly driven by commercial interests. Therefore, there is a need to further explore resources on learning processes based on a transdisciplinary approach in order to reach a shared vision in education for a better society. This special issue aims to look into the future of education by considering those transdisciplinary factors. The papers of this issue present research findings on the investigation of new teaching methods or social technologies enhancing the learning process.

New approaches in using different technologies for fostering learning experiences need to be further investigated as students born in the digital and mobile age are constructing and sharing knowledge in new ways. The usage of mobile devices such as smartphones is getting more and more popular amongst the students as a means to access email, send information and socialize with others through social networks. However, questions remain such as how the usage of mobile devices can shed a new light on the learning process. How students are using smartphones for collective learning?

The paper titled "Adapting smartphones as learning technology in a Korean University" by Juseuk Kim, Lynn Ilon, Jörn Altmann focuses on exploring how smartphones can create an effective learning environment at a university. The authors emphasize the use of innovative technology and experiments as a better solution for learning compared to the traditional classroom model for learning. The paper describes a study of smartphone usage for learning among students at Seoul National University (SNU). This research aims at investigating how learning was defined via smartphone usage and how intensely and for what purpose smartphone apps were used and by whom. The adopted research methodology focuses mainly on a qualitative approach such as interviews. Forty graduate students were chosen from a purposive random sample of students from the Engineering College and Education College at Seoul National University. Analysis of the data shows that smartphones were used extensively by all students as part of their learning process. A set of apps that were considered useful for learning purposes was specified and categorized. The paper demonstrates that using smartphones in Korean University as a tool for learning is perceived as a positive fact. However, the usage of smartphones for learning more complex

subjects such as introductory programming courses might be less appropriate and should not replace traditional learning management and programming learning systems.

The paper entitled “Facilitate teaching and learning capabilities in a social learning management system: challenges, issues and implications for design” by Eli Hustad and Aurélie Aurilla Bechina Arntzen identifies the issues, challenges, and opportunities related to utilizing Learning Management Systems in higher Education. Learning Management Systems (LMS) have existed for a while and have been important in terms of digitizing instructional materials and for interaction between students and faculty. However, the sudden increase in available online teaching and learning materials on campus has raised other types of challenges and requirements. The authors seek to identify the appropriate LMS functionalities that encourage more collaboration and interaction between students and the faculty staff. They claim that there has been a shift from a teacher-centric paradigm to a student-centric approach. The paper discusses how LMSes would benefit from being embedded in Web 2.0. The paper describes an illustrative study that reports on experiences of using these systems among students and teachers. The findings of this paper have implications for an academic context and suggest requirements for an integrated platform encompassing the functionalities of both Learning Management System and Social Network Technologies. The analysis of the empirical evidence and the literature review provides the basis for assumptions, propositions, and implications taking the organizational, social, and technical issues of Learning Management System and Social Network Technologies into account. The paper outlines the requirements for an integrated learning platform, a social learning management system SLMS integrating both Learning Management System and SocialWeb2.0.

Yet, the use of Web 2.0 or mobile applications to promote new ways of teaching and learning is not prevalent in higher education and might not be suitable for all of the topics taught. For instance, learning computer programming concepts and theories have proved to be quite challenging due the requirement of simultaneous understanding of various topics including logic, mathematics, language concepts, syntax, and algorithms. The learner assimilating all these concepts could easily be frustrated or experience a high level of stress that is often due to a cognitive load.

The paper “Managing cognitive load in introductory programming courses: a cognitive aware scaffolding tool” by John Stachel, Daniela Marghitu, Taha ben Brahim, Roderick Sims, Larry Reynolds and Vernon Czelusniak presents a very interesting approach to improve the learning experience by managing cognitive load. This paper discusses the effect of scaffold usage on cognitive load in both face-to-face and in online settings. An extensive and in depth literature review of e-learning concepts is presented. The data collection was based on a quantitative approach and was divided into two phases. Participants were asked to subjectively evaluate their cognitive load as they completed laboratory assignments throughout the course. The data analysis highlighted that students working with the Scaffolding Tool, experienced lower levels of cognitive load and obtained higher laboratory and course scores than the students learning without Scaffolding.

Recent technological advances have paved new ways on how knowledge is acquired, allowing people to choose to learn at any stage of their lives in order to achieve their goals. Lifelong learning (LLL) has been promoted by the facility today to learn anytime, anywhere and from different social intensive online environments such as Forum, Twitter, YouTube and so forth. Today the vast amount of information sources has generated various issues on selecting the best learning channels that will satisfy the goal and the need of the learner. The paper titled “Semantic recommendation of information sources for lifelong learning“ by Hamda Binghubash Almarri, Tanjina Rahman, Radmila Juric and Dimitris Parapadakis highlights the problem of recommending the best possible learning sources for the purpose of creating an instance of a lifelong learning environment. This study intends to enable semantic recommendations that allow a learner to select the best possible information source by taking into account the learner’s goal and the purpose of functionalities or services offered by information sources found. An illustrative case study in the healthcare domain is presented. The authors argue that pervasive healthcare has enabled environments that empower both patients and healthcare professionals in terms of disseminating information, experiences and knowledge on a daily basis. The paper introduces a model of an instance of a Life Long Learning environment in healthcare. A meaningful recommendation of information sources

based on the Ontology Web Language, the Semantic Web Rule Language and on ontological reasoning is presented.

Increased competitive pressure on enterprises and organizations forces them to foster the creativity of their employees and provide continuous opportunities to learn and thus enable them to push ahead innovations. Technology achieves a leading role in the promotion of creativity and innovation. Knowledge and its effective application have become crucial competitive factors for commercial enterprises, institutions and individuals. We are observing the rapid development of social networks in the Internet that are creating new knowledge, new products, and new social bonds. Collective intelligence has become an attractive subject of interest, both to academia and industry. It refers to the purposeful and concerted effort of the members of a possibly geographically dispersed community to create new knowledge or innovative solutions to a given problem. Collaboration within social networks or knowledge communities has triggered unexpected innovation processes that can serve both economic purposes and societal goals including: counteracting loneliness, forming social networks for providing assistance, organizing on-demand and lifelong learning or developing special competencies.

Developing new pedagogical methods based on social technologies or other innovative teaching approaches requires an open mind set from both the academic and business world. More exploratory research that goes beyond the traditional education domain is needed. In publishing this special issue, we would like to raise awareness of the need to encourage more research in overcoming challenges generated by new technologies and new learning methods.

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