ABSTRACT

Our economies and societies are changing, with significant effects on each individual, as they have to cope with increasingly complex and unpredictable working lives. Therefore, innovative digital learning applications that respond to their end user’s needs and desires become inevitable. Whilst relying on user-centered design structures, the participatory design methodology provides a promising approach towards the creation of such a new generation of digital learning applications. After thoroughly outlining the research undertaking’s rationale and following to a theoretical discussion, the author gives insights into the results of problem-centered interviews with digital learning and user experience experts that build the basis for the creation for a prototypical participatory design process. These findings primarily confirm the recent literature and provide, complemented by the created process, a sound basis for further theory-oriented, scientific discussions but application in practice as well.

LEARNING IN THE 21ST CENTURY

We are living in the 21st-century, the so-called Information Age which is characterized by transformations towards information societies and their accompanying knowledge-based economies (Korucu & Alkan, 2011, p. 1925; Becla, 2012, p. 125; Pârgaru, Gherghina, & Duca, 2009, p. 646). As the unprecedented technological advancement particularly in the field of information and communication-technology (ICT) causes this transformation (Rana, Singh, & Lal, 2014, p. 20; Akilli, 2007, p. 2), it is still in its early development, as Becla (2012) outlines thoroughly (p. 125). Technical, economical, and societal change thereby dominates our society and leads continuously to ever-changing, increasingly more complex, unpredictable challenges for corporations but any individual as well. Thus, the transformation affects
our lives in all its different facets and shapes the way of how people live and think (Pârgaru et al., 2009, p. 646; Galarneau & Zibit 2007, p. 62; Rana et al., 2014, p. 20).

In an information society, knowledge (which is in this notion represented by information) becomes a factor of economic and social development (Vali, 2013, pp. 388-389). It is, i.a., the dominating production factor, connected to innovation and thereby competition, and (as the importance of knowledge-based work and the service sector gains importance) the biggest contributor to the gross national product (Becla, 2012, p. 126). This requires individuals to acquire the latest knowledge, to build up new skills and competences, to be mentally agile, and to be willing to try out new ways of doing things (Galarneau & Zibit, 2007, pp. 61, 82). Otherwise, they could not adapt continuously and successfully to the demands of the society/economy. The term ‘21st-century skills’ summarizes such skills that are inevitable to succeed in an ever-changing knowledge-based economy, including critical thinking, teamwork and collaboration, problem solving, facility with technology, information literacy, communication, and others (Galarneau & Zibit, 2007, p. 61; Schrader & McCreery, 2012, p. 11). Moreover, the individual’s creative potential, its ability to build-up knowledge, and its utilization to innovation is as important for the individuals and corporations to stay successful like it has never been before (Pârgaru et al., 2009, pp. 646, 648).

Therefore, a society’s educational system becomes a key component of change and its quality becomes a prerequisite of cultural and economic success (Pârgaru et al., 2009, pp. 646-648). Here, Barik and Karforma (2012) outline that “technology has changed the current scenario of education system drastically” (p. 51). However, according to Akilli (2007) “The field of education is not an exception in the permeation of technology. On the contrary, education has always been considered as potentially one of the most productive breeding-grounds for technology, where it would perhaps find its finest resonances and lead to revolutionary effects.” (p. 2). Thus, for the one, technological advancement is a catalyst for change and requires us to face demanding challenges. Contrastingly, it is a hotbed for technology-solutions that help us to master the continuing transformation process, and to utilize it for realizing economic growth and social development. Solutions that make use of the advancements on the field of ICT to address the aforementioned educational needs are thereby of utmost importance. This reasons why modern e-learning systems gain importance and popularity (Rana et al., 2014, p. 20). Blumschein & Fischer acknowledged already in 2006: “e-learning acquired a tremendous educational potential” (p. 39), but also that “e-learning is not a panacea for all existing problems” (p. 39). Given the technological advancement of the recent years, these statements are valid like they have never been before.

‘E-learning’ refers according to Arnold, Kilian, Thillosen, & Zimmer (2011) to a polymorphic, objective, and organizationally arrangement of electronic respectively digital media, used for individual or collaborative learning, competence development, and other education purposes (p. 18). This term, however, seems to be outdated meanwhile. Given the variety of possibilities to use digital media for educational purposes with all of them covered by the term of ‘e-learning’, there is no clearly distinguishable definition of this term anymore (Kerres, 2016, pp. 1, 7). Against the background of the pervasive digitalization of the whole educational system, penetrating all processes, places, and formats of educational work, it therefore makes sense to use the much broader term of ‘digital learning’ (p. 9). ‘Digital learning application’ thereby takes a broader variety either of learning arrangements and formats (e.g. web-based trainings, serious games, …) or technical systems that support educational processes (e.g. course management, document upload) into account, whilst ‘e-learning’ originally refers to the concrete learning and teaching processes, supported by electronic or digital media, only.

Nowadays, as technology is not a limiting factor even for the development of innovative approaches anymore (Pechuel & Beutner, 2013, p. 931), there is a vast amount of digital learning applications for
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