

SHIFTING THE TRADITIONAL PARADIGM IN EDUCATION – FROM LOOKING DIGITAL TO BEING DIGITAL

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Abstract: *Over the last decade, technology has reorganized the way we live, the way we communicate and especially the way we learn. The revolutionary breakthroughs in digital technology have deeply changed the traditional educational practice, facilitating the use of modern teaching, learning and evaluation tools. The aim of this paper is to analyse current information with respect to the usage of technologies in education and to answer three main questions, such as (a) What are the contemporary demands for learners and teachers in the 21st century? (b) What are the current trends and opportunities in using technology in education? (c) What are the benefits of modern technologies in education? Without fully understanding these issues, it is practically unfeasible to approach any subject related to technologies utilization in education.*

Keywords: *Educational Technology, Mobile Learning, Social Media, Gamification, Micro-Learning, Digital Difference*

INTRODUCTION

The rapid development and growth of modern technologies has led to a shift from traditional society to the information society, also known as the knowledge-based society. As a key element of the knowledge-based society, Information and Communication Technology (ICT) has deeply changed all aspects of social organization, including economics, education, health and governance. In fact, the main consequence of the technological revolution consists in changing the needed conditions for information processing and knowledge generation, focusing on the use of information technologies. Simultaneously, with the major changes specific to the knowledge-based society, the perspective on educational practices has benefited from new approaches. Over time, technological transformations have strongly influenced the educational processes, facilitating the transition from the traditional learning and teaching culture to instruments and activities backed by modern means and devices.

The specific instruments for learning have progressively become powerful and extremely widespread. At the same time, barriers in using technology have consistently decreased. Nowadays, the knowledge and information are available in many forms including, but not limited to, e-books, games, websites, videos and Social Media, while the learning landscape comprises of an overwhelming number of tools, from affordable handheld devices and personal

computers, to digital video cameras, interactive whiteboards and a continuously expanding suite of Web 2.0 devices.

Although the majority of educational institutions have already recognized the crucial need for using technology-enhanced learning (TEL) in order to remain relevant on the competitive market and to fulfil learners' needs and wants, just few understand how fast the shift needs to occur, or how the transformation ought to be. The new generation of digital technologies, aimed to improve, rather than replace, the collaborative, cognitive and the physical abilities of users, provides new opportunities in moving the educational practice from "looking digital" to "being digital" - or what we call the "digital difference". The first step towards achieving this goal is, in our view, a review of the main requirements of the 21st century, followed by an analysis of the most important aspects related to the existing and further trends of technology usage in education. The correct understanding of this trends will lead to the development and implementation of proper tools upholding the efficiency and effectiveness of education.

CONTEMPORARY DEMANDS FOR LEARNERS AND TEACHERS

Sustaining educational development in the 21st century implies new demands on both learners and teachers, meant to build their capacity of using technology to access, examine, and organize information. In 2016, the International Society for Technology in Education (ISTE) updated its National Educational Technology Standards for Students (NETS) in order to better portray the skills required by learners in an increasingly connected, digital world. The ISTE Standards for Students (ISTE, 2017) now emphasize seven qualities and skills needed for students: empowered learner, digital citizen, knowledge constructor, innovative designer, computational thinker, creative communicator, global collaborator.

The Partnership for 21st Century Skills (P21, 2017) stated a similar vision in its framework, considering that, in order to be effective in the 21st century, learners must develop essential skills, such as problem solving, critical thinking, communication and collaboration, abilities related to information, media and technology. On the other hand, teachers must develop new understanding to capitalize on the learning potential of technology. From the early beginnings of using technology in education, outlining a long-term vision, Means pointed out that technology training should go beyond focusing on the process of acquiring of technical skills, sustaining the instructional strategies required to infuse technological skills into the learning process, affirmation whose correctness is preserved even today (Means, 1994).

Keeping in mind the aspects mentioned above, we can strongly affirm that, in order to sustain learners' development of 21st century skills, educational institutions need to create and maintain knowledge-building environments. Learners need education structures and processes aimed to help them develop analytical and critical thinking, teamwork and collaborative skills, the ability to produce, share ideas and learn through the medium of social networks, and ICT literacy.

THE STATE OF MODERN EDUCATION: TRENDS AND EMERGING OPPORTUNITIES

The shift that should be happening in the educational institutions towards technology and online based education and the need for change is still accelerating. Over the last decade, the specialty literature identified and examined diverse trends of technology usage in education. Functioning in a social environment sustained by learning conversation among peers, peers and teachers and other involved parties, today's technology tools support what experts stated over time about the social nature of learning. The notion of social learning has benefited from various approaches of researchers in the field, being associated with the theory of social constructivism since the 1960s. The basic principle of this type of learning is that students learn most effectively when they are engaged in problem solving activities, carefully selected under the close supervision of the instructors (Vygotsky, 1978). Collaboration represents the most important feature of social learning. While instructors facilitate group interactions, learners have the autonomy to select the resources and educational materials they need to gain a better understanding of the problem.

Following the various studies conducted over time, collaborative learning has been found to be more effective than individual learning, amplifying motivation, and significantly contributing to increasing results and achieving positive social outcomes (Slavin, 1995; Johnson, et al., 2000; Snowman, et al., 2009). Adapting to the new digital era, Siemens and Downes have proposed the theory of connectivism, according to which social learning integrates with Social Media technologies (Siemens, 2005; Downes, 2007). Supporting the theory of connectivism, in the world of Social Media proliferation, learning is no longer an internal, individualistic activity. Learners acquire knowledge predominantly through the interchange of information with other subjects, content that often takes the form of analyzes, comments, labels, messages and updates, sometimes called "micro-content".

Social Media opens new opportunities for taking education at a new level. Along with mobile learning, digital gaming, micro-learning and simulations, social networking offers opportunities to transmit concepts in modern ways that would certainly not be possible, effective or efficient through traditional educational processes.

MOBILE LEARNING

The proliferation of mobile devices has changed the way people interact, becoming a necessity in modern society. The revolutionary development of the mobile devices industry and their immense capability to increase the availability and accessibility of materials have resulted in the inevitable emergence of the concept of "mobile learning", often considered a natural extension of e-learning. In 2008, Norris and Soloway stated that the use of mobile devices allows learners to establish their autonomy and take responsibility in the learning process, therefore being able to act to support and enhance student-centered learning environments (Norris & Soloway, 2008). In addition, according to Schrand, learners show higher levels of involvement and acquire a greater degree of knowledge when using interactive technologies (Schrand, 2008).

Other researches on mobile learning have indicated that innovation (Sharples, 2010; Parsons, 2013), inclusion (Attewell, et al., 2009; Traxler, 2010) and transformation (Lindsay,

2015) represent important advantages of using mobile learning. Additionally, taking into account the explosive evolution of mobile devices and the almost unlimited Internet connection, Cook and Santos (Cook & Santos, 2016) highlighted the following features and aspects of mobile learning that are possible both now and in the near future:

- Integrating mobile learning with Social Media tools and applications, facilitating the creation of new practice models based on connection, socialization, learning and teamwork;
- Transforming mobile learning through an increasing focus on content and contexts generated by users/learners.

MICRO-LEARNING

In the expansive field of e-learning tools, micro-learning represents a new direction of development. This responds to the necessity to pay more attention to e-learning tools and methods from an educational point of view and not simply from a technological point of view. Thus, referring to short learning activities through reduced content, micro-learning supports the preference of modern society to have quick access to useful information and content. Recent studies (Kapp, et al., 2015), indicate that short content may increase the retention of information by 20%. Sixteen chapters of educational materials were used to carry out this research and students were divided into three groups, as follows: the first group answered one question after reading each of the sixteen chapters; the second group answered four questions after reading each group of four chapters; the third group received eight questions after each half of the original text. In the second stage of the research, the students held the same test with several options covering the entire course material. The results showed that the first group of students (on which micro-learning was applied) performed 22.2% better than the last group and 8.4% better than the second group. The first group, having the “micro” content and frequent evaluation questions, had better outcomes than both competing groups. Furthermore, another study developed by Jomah et al. (Jomah, et al., 2016), found that micro-learning concepts, based on mobile web learning, lead to a modernized education system, while also providing a higher level of flexibility for learners.

SOCIAL LEARNING

Despite the limited use of Social Media in the academic world, the last few year’s research supports the theory of connectivism, highlighting the benefits of integrating this way of learning into the educational process. For example, Mazer et al. (Mazer, et al., 2009) examined the effects of Facebook’s social networking use by instructors on the perceived credibility of university students. The results revealed that students’ tendency was to attribute higher levels of credibility to instructors who willingly share more information on Facebook compared to the perception of instructors who do not use such platforms. Analyzing the impact of using Social Media in university education, other research results (Larsson & Alterman, 2009; Ertmer, et al., 2011) reported the positive influence of Social Media on the learning process, the use of such platforms determining better performance among students. Junco et al. (Junco, et al., 2011) examined the use of Twitter and blogs, while Novak et al. (Novak, et al., 2012) investigated the use of several types of social environments. All of the above-mentioned research reveals that

Social Media tools play a positive role in enhancing student performance and encourages active learning through collaboration.

GAMIFICATION

The studies developed over time proved that games have the potential to sustain education in a variety of circumstances, starting from primary and secondary schools (Bottino & Ott, 2006; Suh, et al., 2010; Watson, et al., 2011), to higher education institutions (Ebner & Holzinger, 2007; Whitton & Hollins, 2008) and even adult education (Kambouri, et al., 2006). Assuming the use of game-specific design elements, gamification makes the educational process much more dynamic than the traditional one. According to Kapp, this phenomenon is characterized by the use of gaming-based mechanisms with friendly interface and attractive scenario. Thus, participants in educational activities are more attracted, motivated, and better involved in solving problems and exercises (Kapp, 2012). On the other hand, the abstracted reality of a game offers some advantages over real life. The games make it easy to understand the connections between the events. In the educational process, they reduce and simplify the complexity of taught concepts and integrate them into the game world. Thus, learners can more easily identify cause and effect, as times do not separate cause of effect, as is the case in the real world.

TRENDS VALIDATION STATISTICS

The increased accessibility of mobile devices clearly suggests the need to include them in the educational processes. Regarding the number of people who own and use mobile devices, the findings reveal the continued growth of mobile devices usage. According to the eMarketerstatistics (eMarketer, 2017), globally, by the end of 2017 there will be 2.73 billion mobile users with Internet access, accounting for 36.9% of the world's population and 78.9% of all Internet users. In addition, based on a report by Google (Google, 2016), more and more users are only using mobile devices (27% of Internet users), in detriment of desktop computers (16% of Internet users). Moreover, 80% of the users surveyed use a smartphone, while the use of computers accounts only 67%. On the other hand, the large number of social network users highlights the preference of new generations for this environment and the need to develop appropriate learning tools. According to information provided by Statista (Statista, n.d.), in 2017, 71% (2.46 billion) of Internet users worldwide were users of social networks. It is estimated that these figures will increase, reaching the threshold of 3,02 billion in 2021. Moreover, among the social networking users worldwide, over the second quarter of 2017 (June 30, 2017), there were over 2.01 billion monthly active Facebook users, up 17% over the precedent year (Facebook, 2017), the platform being considered the most popular at the moment. The Global Games Market Report released on April 20, 2017, showed that there are approximately 2.2 billion worldwide gamers which are expected to generate \$108.9 billion in game revenue by the end of 2017. This represents an increase of 7.8% from the previous year, which unquestionably highlights the increased preference of the users for this field (Newzoo, 2017). All these recent statistics validate the trends identified and examined in the previous section, strengthening the view that the need for developing appropriate tools to support the efficient use of highly developed digital

technologies in education, in accordance to the users' needs and wants, became a compulsory requirement in the 21st century.

CONCLUSIONS

Although developments in the field of educational technology are significant, and we can mention here platforms such as Blackboard Academic Suite, IBM LOTUS Learning Management System Solution, Hyperwave, Ilias, Metacoon, Moodle, social networks have a low degree of integration in formal learning environments. The course management system (CMS) is the most widely used learning technology in traditional higher education. The conventional CMS environment offers limited opportunities to participate in online interactions, such as forums and chats. These interaction activities are typically limited to a particular class or group of learners. Despite the fact that some of the specific Social Media features have begun to be integrated into newer versions of CMS platforms, these functionalities cannot be fully implemented due to security or privacy restrictions. For example, CMS wikis cannot be shared with non-institutional users, and learning portfolios cannot be maintained for long periods of time. Consequently, the degree of connectivity is reduced in the current formal learning environment, given the lack of access to external social opportunities.

In our opinion, the use of Social Media as learning tools, along with the other identified trends, could facilitate the connection of informal learning to formal education. These instruments can connect learners with communities, industry experts, and colleagues around the world. They also facilitate student-student, student-instructor and student-content interactions in multimedia formats. This environment of engagement and creativity allows users to get more involved in learning and encourages them to collaborate on various projects. Thus, technologies that enable students to connect to educational contexts in new ways beyond the traditional classroom environment have the potential to unlock the line between formal and informal learning and could certainly contribute to the improvement of educational processes and learners' development.

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