Chapter 7
Development Challenges of a Full Integrated App in Higher Education

Anabela Sousa Pereira
University of Aveiro, Portugal

António A. Moreira
University of Aveiro, Portugal

Paulo Chaló
University of Aveiro, Portugal

Luís Sancho
University of Aveiro, Portugal

Ana Varela
University of Aveiro, Portugal

Carla Oliveira
University of Aveiro, Portugal

ABSTRACT

A recent development in Higher Education reflects a growing use of digital systems and services. Younger students tend to adapt in a quicker manner than their predecessors and app use has not been an exception. This chapter's tried to reflect upon the paradigm shift in the field of HE associated with the introduction of apps like learning and health promoting apps, with particular focus on mHealth and biofeedback. The newer trend of gamification is also considered as a potential tool for increased motivation and engagement. The authors consider that the development of a coherent solution, based on a multidisciplinary approach for the promotion of students' educational success and well-being would be a worthwhile investment, leading to an innovative, integrated multidisciplinary app that might act as a promoter of HE student's adaptation, success and wellbeing.

INTRODUCTION

This chapter reviews current status of app development in some areas which appear particularly relevant for Higher Education (HE). Starting with current learning apps for a variety of subject areas, such as HE proprietary apps, team, task, time and project management apps, both for students and teachers, this chapter then consider health promoting apps as useful strategies and tools for promoting students' well-being, with a particular focus on mHealth (health supported by mobile devices) and biofeedback

(BFB) apps. New communication technologies have been expanding significantly during recent years, offering new ways in which health care, particularly mental health, can be addressed (Donker et al., 2013). According to Price et al. (2014) technology solutions offer means to overcome many barriers associated with the delivery of such health care. This approach can have a major impact in, for example, promoting wellbeing amongst young university students. Lastly, the newer trend of gamification (Kuo & Chuang, 2016) is looked at as a potential tool for added app value, in terms of increased motivation and engagement, in promoting behaviors that are conductive to greater success in HE.

Recent developments in HE reflect a growing use of digital systems and services for technology supporting learning and education, particularly using mobile devices applications (apps). Although their limit is far from reached, so is their potential in developing quality learning and other HE uses, such as more effective knowledge and skills development, but also in the promotion of healthier lifestyles and habits, as HE is a very demanding time in young people's lives, full of wonder, of possibilities and opportunities, but also of demands, challenges and risk behaviors (Keyes et al., 2011; Santos, 2011).

Younger students tend to adapt to newer developments in a quicker manner than their predecessors, having early and easy access to technology – and getting earlier and easier access (McMillan & Morrison, 2006) and app use has not been an exception (Browne et al., 2015; Gowin, Cheney, Gwin & Franklin Wann, 2015). As a result, students often show greater skill in using these technologies, often with greater competence than teachers or educators. This may lead to a paradigm shift, where both students and teachers will need to develop not only new interactions but also more fluid roles. Due to this possibility, HE institutions (HEI) may consider investments in developing new apps as warranted, both for formal and informal levels of relationships between institutions, teachers and students (Arnold, 2014).

One of the new technologies that have been growing rapidly in the market is smartphones and their software applications, or *apps*. These smartphones are essentially mobile phones with increased computing power that allow users to run software applications, connect to the internet and other data networks, resembling a computer, but in small size and with the added advantage of mobility (Luxton, McCann, Bush, Mishkind & Reger, 2011; Price et al., 2014). As to hardware, smartphones such as iPhones, tablets such as iPads, have become more integrated in classrooms, and teachers, researchers and students are looking forward to novel ways of applying them for purposes of teaching, learning, studying, researching, sharing and building knowledge (Lucas, Gunawardena & Moreira, 2014). And the same time there is an ever-growing number of applications for all these devices, for various operating systems, that can render current learning contexts (in-class or out-of-class) and processes more invisible to the user, and even allow for new ways to teach, learn, study, explore, etc., that have not even previously been thought of or foreseen.

BACKGROUND

Mobile Apps in Portuguese Higher Education

Most HEI in Portugal, when seen from the point of view of Communication Technologies, are still lagging behind what could – and should! – be a truly advocated and implemented policy for HE development and modernisation. Project TRACER (Ramos & Moreira, 2014) in this respect, made a survey of such use and

Related Content

Socio-Cultural Interpretations to the Diffusion and Use of Broadband Services in a Korean Digital Society

Dal Jin Yong (2009). *Human Computer Interaction: Concepts, Methodologies, Tools, and Applications (pp. 1200-1212).*

www.irma-international.org/chapter/socio-cultural-interpretations-diffusion-use/22309

Women Empowerment and ICTs in Developing Economies

(2013). *ICTs for Health, Education, and Socioeconomic Policies: Regional Cases (pp. 146-164).*

www.irma-international.org/chapter/women-empowerment-icts-developing-economies/74588

Coding for Unique Ideas and Ambiguity: A Method for Measuring the Effect of Convergence on the Artifact of an Ideation Activity

Victoria Badura, Aaron Read, Robert O. Briggsand Gert-Jan de Vreede (2011). *International Journal of Social and Organizational Dynamics in IT (pp. 1-17).*

www.irma-international.org/article/coding-unique-ideas-ambiguity/56117

The Extensive Communication to Hybridism and "Animaverbivocovisualidade" (AV3)

Antonio Mirandaand Elmira Luzia Simeão (2016). *Handbook of Research on Comparative Approaches to the Digital Age Revolution in Europe and the Americas (pp. 26-39).*

www.irma-international.org/chapter/the-extensive-communication-to-hybridism-and-animaverbivocovisualidade-av3/138023

Informal Education of Energy Conservation: Theory, Promotion, and Policy Implication

Wang-Kun Chen, Yih-Ruey Juang, Sheng-Hua Changand Ping Wang (2012). *International Journal of Technology and Human Interaction (pp. 16-44).*

www.irma-international.org/article/informal-education-energy-conservation/70760