

a background of a theory of Motivation, based on which the levels of engagement and motivation can be measured. This theoretical research proposes an enhancement of ARCS model (Keller, 1979) in a gamified learning environment using the characteristics of Project Based Learning. The ARCS model of motivation combines four theories; Bandura's Theory of Self-Efficacy, Berlyne's Theory of Curiosity and Arousal, Maslow's Needs Hierarchy and Rotter's Locus of Control and consists of four core components; Attention, Relevance, Confidence and Satisfaction (Keller, 1983). The approach of Project Based Learning is very strong match with the ARCS Model, as this model can be used with many models of instructional design (Keller, 1987a, 1999, 2000a; Keller & Suzuki, 2004). Project based learning is a teaching methodology that promotes authentic learning experiences through real world problem solving and investigation. Having learners create projects allows them to engage in more active learning rather than absorbing material in an isolated learning environment. Besides, the eight characteristics of Project Based Learning (PBL) play a complementary role to the ARCS motivational model, since each component links to each characteristic of PBL. Having developed two gamified learning management systems (LMS) for the purposes of adult and primary education, the next step is to improve them with the contribution of the characteristics of Project Based Learning to the Arcs model's components integrated in the gamified online learning environment. The PBL characteristics consist of authenticity and relevance, freedom of choice, self-reflection, public presentation, 21st century skills and problem solving, which are perfectly aligned with the motivational model of Keller and promotes each component of the model.

Keywords: gamification, project based learning, ARCS model, motivation theories, learning management systems, LMS

Digital Literacy and Undergraduates' Values

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Abstract: Digital literacy has been in the spotlight at all levels of education and society in general. It has been treated and analysed within various dimensions and perspectives, namely dimensions associated with information,

communication and technology, and perspectives related to technical and cognitive aspects. However, emphasis has seldom been laid on social values when handling digital literacy and particularly the Internet. It is important that digital literacy is not anchored in technology for the sake of technology only, but in the society's coherent development, which cannot exclude the culture of consolidated social values and the construction of new values which enable the harmonious evolution of society in an era characterised by innovation, interconnection and knowledge. This study, conducted in the academic year of 2016/2017, involved a sample of 724 undergraduates attending two public higher education institutions, a Spanish one and a Portuguese one. Among the results obtained, we highlight that the majority of the undergraduates have been using the Internet for over 10 years and spend more than 30 hours a week searching for information predominantly related to academic life and current affairs. Most of the communications they establish online are with friends, relatives and colleagues. They give more attention to values when communicating online with friends and relatives than when communicating with colleagues. The identification of counter-values is higher in the communications established with colleagues than in those established with friends, and it is also higher in the communication with these latter than in the communication with relatives.

Keywords: digital literacy, internet access, internet values, higher education

Teaching Aspects of Cybersecurity through a Movie

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Abstract: This paper describes a pioneer effort of displaying a commercial movie in a Cybersecurity course. The purpose of this effort was to check whether the students were able to identify several cybersecurity attacks in practice on the one hand, as well as, to enlighten the human aspects of cybersecurity on the other hand. The results were assessed by a questionnaire plus interviews. The students were able to identify most of the cyber-attacks relating to the technical background given in the course, while they missed some of the frauds committed by the actors, relating to the psycho-social and legal dimensions which are not covered in the syllabus. The students had the opportunity to get some insight about the latter while enjoying the movie. The whole experiment was evaluated positively. In this way, it became clear to the students that cybersecurity has also a psycho-social dimension which should not be underestimated. This study made the following conclusions: (a) Psycho-social and socio-cultural dimensions are