Chapter 12
An Investigation Into the Gamification of E-Learning in Higher Education

Fenio Annansingh
City University of New York – York College, USA

ABSTRACT

The concept of gamification has gained significant attention from practitioners and academics alike. Using game mechanics and dynamics to support an e-learning platform can increase learners' motivation, engagement, and retention areas, which have been proven to be challenging in the past. This chapter proposes a conceptual gamified e-learning framework which addresses some of the issues facing such environments. Further work needs to be done to standardize the framework by testing and applying it to a gamified e-learning environment.

INTRODUCTION

Developing and using incentives to encourage students to stay interested in education is not novel. Widespread use of the Internet, social networks, and mobile phones affect the processes of education. However, with the recent incorporation of game mechanics, an incentive system to create a game layer on top of existing educational systems is revolutionary. Consequently many educators, students, marketers, and entrepreneurs are utilizing this tool. Game systems can be used to support learning in all capacity including individual, collaborative, formal and informal as well as workplace learning.

Authors such as (Tulloch, 2014; Kiryakova, Angelova, & Yordanova 2014) believe that using games as an educational tool can help motivate and engage students, increase retention as well as encourage informal learning which makes it easier for them to remember what they have learned. Motivation and engagement are two of the biggest problems with modern education and with current students being digital natives, one possible solution is to use technology and reward efforts, which will lead to increased motivation for participation and activity. Hence, implementing game elements in the learning process is logical since it facilitates training, interacting with educational content and performing specific learn-

DOI: 10.4018/978-1-5225-2665-0.ch012

ing activities. Attending to its technological nature, one of the fields where gamification may have a greater impact is e-learning (Dominguez, Saenz-de-Navarrete, de-Marcos, Fernández-Sanz & Pagés, 2014). E-learning is the use of telecommunication technology to deliver information for education and training and is now a fundamental part of the student learning experience in higher education (HE) (Sun, Tsai, Finger, Chen, & Yeh, 2008). With e-learning, educators are aiming to achieve a high degree of satisfaction, motivation, effectiveness and efficiency amongst students. However, the desired result and objectives are often not met due to non-compliance and lack of knowledge of techniques and methods necessary for the development of these environments.

Increasingly studies are claiming that the efficiency, effectiveness, motivation and engagement that students desire in an e-learning environment can be achieved by gamification as it is believed that these game training environments are more efficient than traditional face to face or online environments. Consequently, the use of gamification in the field of e-learning is growing and gaining in popularity. However, whether this reputation is merited is yet to be seen as placing pedagogy at the forefront can difficult over the terms and shape of the media.

E-LEARNING IN HIGHER EDUCATION

E-learning in higher education has been gaining in popularity since the 1990's when it was first introduced. Now nearly all institutions have a major interest in e-learning, as they have recognized the importance of e-learning for institutional growth and increased access and enrollments (Bichsel, 2013). Higher educational institutions are using e-learning to strengthen students and instructor's role for the learning community to develop new communication channels. The development of information and communication technologies (ICT) makes it possible for universities to strengthen their position in the educational landscape. They have also paved the way for lifelong learning and at the same time are increasing the reach of traditional brick and mortar universities. E-learning has transformed the learning landscape, as higher education can no longer be defined by national or regional terms. E-learning describes the ability of a system to electronically transfer, manage, support, and supervise learning and teaching materials (Normark & Cetindamar 2005). There are many electronic channels through which e-learning can be delivered. These include the internet, intranets, extranets, satellite broadcast, audio/video tape, interactive TV, and CD-ROMs. Hence according to Volery (2000) if HE institutions do not embrace eLearning technology that is readily available, they will be left behind in the pursuit for globalization as eLearning initiatives will have direct effects on the strategic and tactical levels of these institutions (Shabha, 2000). Therefore it is imperative to examine the advantages and challenges facing eLearning.

Advantages and Challenges to E-Learning

In competing for students, funding, research, and recognition within the wider society HE institutions have entered into new markets by promoting and utilizing eLearning. Using e-learning in HE has many advantages which includes:

- **Convenience and Portability:** This type of learning does not require physical attendance. It is self-paced and course material is available to students 24 hours and seven days from anywhere in the world (Kamsin, 2005).

Incorporating Physics Principles in General Biology to Promote Integrative Learning and Thinking

Tennille D. Presley, Noelle A. Harp, Latrise S. Holt, Destini Samueland Jill JoAnn Harp (2021). *International Journal of Innovative Teaching and Learning in Higher Education (pp. 1-19).*
www.irma-international.org/article/incorporating-physics-principles-in-general-biology-to-promote-integrative-learning-and-thinking/278401