An Overview and Study on the Use of Games, Simulations, and Gamification in Higher Education

Bradley E Wiggins, Webster University, Vienna, Austria

ABSTRACT

This article examines the use of both game-based learning (GBL) and gamification in tertiary education. This study focuses specifically on the use of games and/or simulations as well as familiarity with gamification strategies by communication faculty. Research questions concentrate on the rate, frequency, and usage of digital and non-digital games and/or simulations in communication courses, as well as instructor familiarity with gamification. A survey was constructed with questions emerging from the game-based learning and gamification literature. It was distributed to communication faculty at public institutions of higher education in a southern state. In this context, the author argues that while the term gamification is novel, the approach is not. Based on the results, current gamification strategies appear to be a repackaging of traditional instructional strategies.

KEYWORDS

Game-based Learning, Game-design Elements, Gamification, Higher Education, Simulations

INTRODUCTION

Two main perspectives on the use of games in higher education permeate the literature: game-based learning in which actual games are used in the classroom to enhance learning and teaching, and gamification which advocates the use of game-design elements in non-game contexts. Specifically, game-design elements include rewards, leader boards, badges, levels, trophies, among others (Dominguez et al., 2013; Kapp, 2012). The purpose of bringing both views together in this article is to accomplish a thorough understanding of the uses of both game-based learning and gamification in tertiary education.

Following a literature-based definition of both game-based learning and gamification, each term is treated separately with respect to the current themes expressed in the literature but with specific emphasis on the use of each within higher education. A series of research questions seek to demystify the current use of games and game-design elements at institutions of higher education. This study focuses specifically on the use of games and/or simulations as well as familiarity with gamification strategies by communication faculty at public institutions of higher education in Arkansas, United States. The impetus for this article stems from the lack of knowledge on the practical use of games and gamification in higher education. It is important to note that many studies have focused on game-based learning in primary education (Buckingham, 2007; Fengfeng, 2008; Huizenga, Admiraal, Akkerman, & Dam, 2009; Kolovou & Heuvel-Panhuizen, 2010; Miller & Robertson, 2011) and secondary education (Arnab et al., 2013; Annetta, Minogue, Holmes, & Cheng, 2009; Bourgonjon, Valcke, Soetaert, & Schellens, 2010; Papastergiou; 2009) but few have researched the post-secondary level.
Gamification and Game-Based Learning

Arguing for the need to define gamification and to describe it as “the use of game design elements in non-game contexts” (Deterding, Dixon, Khaled, & Nacke, 2011b, p. 10), researchers have proposed a direction for gamification as it pertains to the educational experience and also acknowledge the dearth of academic investigation in the conceptual development of gamification as an element of human-computer interaction (Deterding, O’Hara, Sicart, Dixon, & Nacke 2011a). In order to provide semantic justification of the term Deterding et al. (2011a) demarcate play and game in a dichotomy similar to Caillois’ terms paidia and ludus whereby paidia is a loose formalization of play (in terms of rules, expectations, etc.) and ludus signifies games as expressed in common language (Mäyra, 2012). Borrowing from McGonigal (2011), Deterding et al. (2011b) underline the helpful quality of the term gamefulness as a proper complement to playfulness. Thus, gamefulness is the “experiential and behavioral quality” of a game, ostensibly as an independent form or medium (p. 11). Zicherman (2010) called gamification a process in which people make use of the thinking and mechanics behind games for problem solving and audience engagement. Kapp (2012) defined gamification in nearly the same way as Zicherman but emphasized the importance of game aesthetics and the power of gamification to motivate people. These definitions differ from the use of actual games in education which is commonly called game-based learning.

Game-based learning is the intentional use of digital or non-digital games or simulations for the purpose of fulfilling one or more specific learning objectives. Games in this definition refer to off-the-shelf as well as user-generated games. However, this definition has a slight problem: it assumes that individuals active in game-based learning do not also use game-design elements in their curricular design. Accordingly, with the increase of perspectives about games and education it seems that one of two possible developments is currently underway. In the first scenario gamification may be subsumed under the greater topic of game-based learning. In that situation gamification may actually reveal itself to be a reimagining of traditional educational strategies used to instill stronger extrinsic and intrinsic motivation within the learner (Kapp, 2012, p. 12; 55-57) as opposed to something altogether novel. In the alternate scenario game-based learning and gamification are distinct areas with the former defined as the use of actual games (digital or non-digital) in educational contexts as a part of a given learning objective (Epper, Derryberry, & Jackson, 2012; Perotta, Featherstone, Aston, & Houghton, 2013; Squire, 2005; Van Eck, 2006) and the latter defined as the use of game-design elements in non-game contexts (Deterding, Dixon, Khaled, & Nacke, 2011; Zichermann, 2010; Kapp, 2012; Zichermann & Cunningham, 2011).

Several authors use gamification and game-based learning interchangeably. Callaghan, McCusker, Losada, Harkin, and Wilson (2013, p. 579) use the terms gamification and game-based learning to capture the same concept (as opposed to distinguish between the terms) in their discussion of teaching electrical engineering in virtual worlds. Epper, Derryberry, and Jackson (2012, p. 10) do not differentiate between game-based learning and gamification.

Game-Based Learning in Education

Digital games remain an option for enhancing educational curricula in the interest of attracting and maintaining attention and to increase retained knowledge. Squire (2005) claims that the inclusion of games in e-learning represents a new stage of instructional development and design, also echoed by Clark and Mayer (2011, p.369). Green and McNeese (2007) suggest that teacher reluctance to incorporate games into curriculum is incongruent with the influx of high school and college students who grew up with games. Perrotta, Featherstone, Aston, and Houghton, (2013, p. 10) found in a review of game-based learning that the “literature was split on the extent to which video games can
Understanding Computational Thinking before Programming: Developing Guidelines for the Design of Games to Learn Introductory Programming through Game-Play
[www.igi-global.com/article/understanding-computational-thinking-before-programming/56313?camid=4v1a](www.igi-global.com/article/understanding-computational-thinking-before-programming/56313?camid=4v1a)

Security Management
[www.igi-global.com/chapter/security-management/30740?camid=4v1a](www.igi-global.com/chapter/security-management/30740?camid=4v1a)

Multi-Cultural E-Learning Teamwork: Social and Cultural Characteristics and Influence
[www.igi-global.com/chapter/multi-cultural-learning-teamwork/19308?camid=4v1a](www.igi-global.com/chapter/multi-cultural-learning-teamwork/19308?camid=4v1a)