Journal of Organizational and End User Computing
Volume 31 • Issue 1 • January-March 2019

An Empirical Study of Gamification Frameworks

Patrick Buckley, University of Limerick, Limerick, Ireland
Seamus Noonan, University of Limerick, Limerick, Ireland
Conor Geary, University of Limerick, Limerick, Ireland
Thomas Mackessy, University of Limerick, Limerick, Ireland
Eoghan Nagle, University of Limerick, Limerick, Ireland

ABSTRACT

Gamification is a relatively novel concept which is attracting interest from academics and practitioners as a method of mediating individual behaviour. It is increasingly being used in a wide range of social and business contexts across a range of diverse activities such as education, health care and personal productivity. In this article, the components used to implement gamification are catalogued. Using a standardised rubric, a sample of gamified activities is studied to measure the prevalence of the various components used to implement gamification. This research provides an empirically validated catalogue of specific components used to implement gamification, which can serve to guide the work of academics and practitioners. It demonstrates variance in the use of the different types of component, indicating that the utility of gamification components may differ. Finally, by contrasting the utilization of components in the individual and group contexts, this research identifies the contextual sensitivity of gamification.

KEYWORDS

Components Of Gamification, Gamification Components, Gamification Contexts, Gamification, Gamified Activities

INTRODUCTION

Human beings are hardwired to play. Games are an integral part of our personal, social and cultural identity. Scientists and researchers are discovering deep, complex relationships between our brains, learning and game play (Zichermann & Cunningham, 2011). These discoveries have aroused increased interest in gamification across a diverse range of contexts such as education, personal productivity and business management.

Gamification is the use of elements traditionally associated with games, such as structured rules, points and competition, to prompt desired behaviours in individuals. It can be seen as a suite of techniques and psychological prompts connected by their association with games and play. It is operationalised using specific, atomic components such as points or badges.

DOI: 10.4018/JOEUC.2019010102

Copyright © 2019, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited.

This paper investigates the components that are being used in gamified activities and processes. A catalogue of gamification components, derived from both the literature on gamification and an analysis of extant gamified activities is developed. This catalogue is used to analyse a sample of gamified activities. When aggregated, these data record the number of times each individual component is used across the sample and so provides a rich data set that can be analysed to provide a number of contributions.

First, the paper empirically validates existing theoretical derivations of the components used in gamification. This analysis also identifies extant mechanics that are in practical use but absent from the literature. A third contribution arises from quantifying the frequency with which different components are used to gamify activities. This analysis answers calls in the literature for empirical validation of gamification frameworks (Seaborn & Fels, 2015). This data is used to analyse the relative frequency of the various component that are used to implement gamification, which can serve as both a guide to practitioners and also a roadmap to guide further research in the area. Finally, by quantifying the elements of gamification used in different contexts, the paper demonstrates that the utility of specific gamification elements varies in individual and group activities. This demonstrates the importance of context in gamification, and serves to highlight the need for a more subtle understanding of the applicability and effectiveness of gamification in different contexts.

LITERATURE REVIEW

Introduction to Gamification

The notion of using game mechanics to solve real-world problems is far from original. Notable examples of processes that share at least some of the elements and characteristics associated with gamification include military training simulations, airline frequent flyer miles programs and collectible cards included with consumer products. The first use of the term gamification in its modern sense was by Nick Pelling, who used it to describe techniques used to promote consumer products and services (Werbach & Hunter, 2012). Modern interest in gamification has been prompted by the rise of consumer video games and the observation that these artefacts have a powerful effect on behaviour (Simões, Redondo, & Vilas, 2013). Notwithstanding this link, it is important to distinguish between gamification and the use of games. Particularly in contexts such as education, games are often used to achieve real world goals. For example, games such as *Civilization*, *Transport Tycoon* and *World of Warcraft* have been used as learning tools in a range of disciplines (Squire, 2005). However, as a concept, gamification does not necessarily involve the use of an actual game or information technology. Rather, it involves the integration of design elements or activity patterns traditionally found in games into other contexts.

Academic and practitioner interest in gamification is prompted by the idea that it can be used to effectively influence behaviour. Motivation is described in the literature as being a key antecedent to action in humans, whereby "to be motivated means to be moved to do something" (Ryan & Deci, 2000, p. 54). Motivation is used to explain the initiation, direction, intensity, persistence and quality of behaviour (Maehr & Meyer, 1997). It is contextual, multi-dimensional and variable in both the magnitude of motivation an individual has and in the type of motivation experienced (Ryan & Deci, 2000). It is used as a dependent or mediating variable to explain a vast range of human behaviours across varying contexts and environments. Games provoke powerful emotional responses, such as curiosity, frustration and joy (McGonigal, 2011). The idea that gamified activities can affect motivation and thereby mediate behaviour provides the rationale for current academic and practitioner interest in gamification. Gamification uses familiar metaphors and design constructs to align individual's behaviours with those of the designer of the gamified activity.

Gamification is the subject of increasing interest from both practitioners and academics. For example, the Gartner Group suggests that by 2020 more than 50% of organisations managing

15 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/article/an-empirical-study-of-gamification-frameworks/216970

Related Content

Knowledge Transfer in Conceptual Modeling by End Users
Laku Chidambaram (1999). *Journal of End User Computing (pp. 40-51).*
www.irma-international.org/article/knowledge-transfer-conceptual-modeling-end/55766

PDAs as Mobile-Based Health Information Deployment Platforms for Ambulatory Care: Clinician-Centric End-User Considerations
Jason Sargent, Carole Alcock, Lois Burgess, Joan Cooperand Damian Ryan (2008). *End-User Computing: Concepts, Methodologies, Tools, and Applications (pp. 1022-1039).*
www.irma-international.org/chapter/pdas-mobile-based-health-information/18238

Deciphering Conflicts of Affordances Through a Design-Based Approach
Phil Tietjenand Mahir Akgun (2018). *End-User Considerations in Educational Technology Design (pp. 263-290).*
www.irma-international.org/chapter/deciphering-conflicts-of-affordances-through-a-design-based-approach/183023

Developing Critical Understanding of Computing With the Raspberry Pi
Amanda Banks Gatenby (2017). *International Journal of People-Oriented Programming (pp. 1-19).*
www.irma-international.org/article/developing-critical-understanding-of-computing-with-the-raspberry-pi/197772

Expert and Novice End-User Spreadsheet Debugging: A Comparative Study of Performance and Behaviour
Brian Bishopand Kevin McDaid (2011). *Journal of Organizational and End User Computing (pp. 57-80).*
www.irma-international.org/article/expert-novice-end-user-spreadsheet/52813