

# From E-Learning to Games-Based E-Learning

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## INTRODUCTION

The emergence of the Internet has had a significant impact on higher education where we have seen e-learning evolve from a marginal form of education to a commonly accepted and increasingly popular alternative to traditional face-to-face education. While e-learning has many advantages, there have been problems identified, such as lack of contact leading to feelings of isolation; the need for a motivated, self-disciplined, and mature learner; the monotonous nature of some e-learning materials; and increased drop out rates. If e-learning has developed a reputation for being 'boring and mindless,' games have developed the reputation for being engaging and challenging. In recent years, a new form of learning has been developing, namely games-based e-learning, which builds on the successes of e-learning while providing a more stimulating and relevant learning environment for younger people who have been brought up in an environment of powerful home PCs, graphic-rich multiplayer Internet gaming, and mobile phones with ever-increasing functionality. This article will explore the concept of games-based e-learning, discuss some of its pedagogic underpinnings, and examine barriers that may limit the uptake and development of this relatively new approach to learning.

## BACKGROUND

The emergence of the Internet as a new resource and communication medium has significantly changed many aspects of society, and, expectedly, it is having a similar impact on higher education (HE). Globalization has led to a blurring of national educational boundaries leading to a globalization of education, with many educational institutions searching for new markets that previously were unobtainable. The demand for higher

education is significantly expanding throughout the world, a situation widely attributed to the changing nature of employment, where a job for life is no longer the norm, and to the arrival of the 'knowledge-driven society.' As a result of globalization and the push for mass higher education from both government and society, and to meet the growing needs of higher education in responding to demands for flexibility, widening participation, continuing education, and lifelong learning, institutions across the world are under pressure to integrate new technologies into teaching and learning (Connolly, Stansfield, MacArthur, & McLellen, 2007). With increased student numbers and increased pressure on HE resources, there is a drive to improve efficiency and management of the administrative elements of learning, teaching, and assessment. Virtual learning environments (VLEs) and online assessment systems integrated into other management information systems are regarded as being capable of improving efficiency and decreasing some costs.

In the last few years, we have seen e-learning evolve from a marginal form of education to a commonly accepted and increasingly popular alternative to traditional face-to-face education. Some faculty members are strong proponents of online learning and believe online courses can provide educational opportunities to learners who would otherwise have to do without. They also believe that the quality of these courses can be comparable to traditional place-bound courses. However, there are also many faculty members who are suspicious of such courses and have significant reservations about the loss of face-to-face contact between instructor and learner. While not entirely rejecting this medium, many of these faculty members use a 'blended approach' to learning (a 'middle ground').

However, e-learning has been termed 'boring and mindless' because of its current lack of interactivity (Aldrich, 2003). It can have potentially high drop-out rates, and some view it as an isolated and generally

uninspiring learning experience. On the other hand, modern computer games are recognized as the industry standard for the design of engagement, interactivity, immersion, and collaboration, and give educators an insight into how e-learning can be enhanced to provide a more engaging and challenging learning experience.

In this article, we describe a teaching approach motivated by principles found in the constructivist epistemology and a particular form of constructivist learning environment based on computer games. Many researchers have expressed their hope that constructivism will lead to better educational software and better learning (for example, Jonassen, 1994). They emphasize the need for open-ended exploratory authentic learning environments in which learners can develop personally meaningful and transferable knowledge and understanding. Games-based e-learning is a constructivist learning environment in which learners are invited to actively solve problems (Leemkuil, de Jong, de Hoog, & Christoph, 2003).

## **E-LEARNING AND GAMES-BASED E-LEARNING**

### **What is E-Learning?**

The term *e-learning* has been used to describe an educational setting in which teaching and learning take place within an Internet-based environment (Berge & Collins, 1995) and as “the use of digital technologies and media to deliver, support and enhance teaching, learning, assessment and evaluation” (LTSN, 2003, p. 6). Some authors also distinguish between ‘online learning’ and ‘e-learning,’ where *online learning* is used to represent any class that offers its entire curriculum via the Internet, thereby allowing learners to participate regardless of geographic location (place-independent), theoretically 24 hours a day (time-independent). This is in contrast to the traditional classroom instruction, which is time and place bound, face-to-face, typically conducted in an educational setting and consisting primarily of a lecture/note-taking model and *blended learning*, which is a combination of online learning and traditional classroom instruction. The term *e-learning* can be used as a generic term to encompass both (fully) online learning and blended learning.

The research literature cites many advantages of an e-learning environment, particularly the convenience

and flexibility offered by the (asynchronous) ‘anytime, anywhere, any pace’ and the individualized and learner focused approaches enabled by the innovative use of e-learning technologies. However, e-learning is not without its disadvantages; for example:

- Costs may initially exceed more traditional methods;
- More responsibility is placed on the learner who has to be self-disciplined and motivated (this is particularly true for e-learning that consists simply of repurposed face-to-face material, with minimal or no interactivity, which can be unengaging);
- Some learners lack access to a PC/Internet or have difficulty with the technology;
- Increased workload (Connolly et al., 2007);
- Non-involvement in the virtual community may lead to feelings of loneliness, low self-esteem, isolation, and low motivation to learn, which in turn can lead to low achievement and drop-out (Rovai, 2002);
- It has developed a reputation for being ‘boring and mindless’; games have developed the reputation for being engaging and challenging (Aldrich, 2003).
- Drop-out rates tend to be higher in e-learning programs than in traditional face-to-face programs, often 10 to 20 percentage points higher (Carr, 2000).

Perhaps one of the most damaging criticisms is that some e-learning simply replicates the social organization of traditional education and that the potential benefits of e-learning (that is, of personalized and accessible learning experiences) are missed. For many years, the technology (the ‘e’ part of e-learning) seemed to dominate the development of e-learning, and it is only recently that there has been a wider recognition that the learning is more important: “creating technology-enhanced experiences designed to change future understanding and performance” (Squire, 2005). There is also significant debate about whether online learners perform as well as traditional face-to-face learners with some researchers suggesting that much of the media comparison studies are flawed in a variety of ways that render establishing cause-and-effect relationships or generalizations questionable (Joy & Garcia, 2000).

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