



New Trends in Instructional Design and E-Learning

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Abstract

This paper will examine how instructional design in e-learning has changed in the past decade. Most educational institutions today are using distance learning management systems and delivering instructor-led online courses. The rise of Massive Open Online Courses (MOOCs) has changed the landscape of higher education. Although MOOCs are perceived to feature the latest innovations in instructional design methodologies, in reality, the lack of instructional design is considered to be one of the reasons behind high attrition rates of students.

Learners access online courses via different devices, and instructional designers divide course material into bite-size chunks of information to ensure an optimal viewing experience across a wide range of devices. Mobile and wearable computing devices demand different approaches in delivering information to users. Many educators understand the value of game-based learning in increasing student motivation and improving student learning. The growing field of augmented reality has opened up many possibilities for providing learners with more complex user experiences and bringing them beyond the graphical user interface.

Online course delivery technologies expanded exponentially in the last decade. This process was dubbed the “Big Bang Theory” of distance education [1]. Information overload has reached its highest point in the history of humankind. According to the University of California, a San Diego study, the average American consumes 34 gigabytes of data per day and spends about 11.8 hours absorbing mass quantities of information, multitasking in front of several screens [2].

Online learning has become a significant part of education, not just a contemporary trend that will fade away. Students will have many different occupations in their lifetime and will need to acquire new knowledge to perfect their skills. Lifelong education is vital to remain competitive in today’s ever changing and demanding market, and online education seems to be invaluable toward obtaining the required training.

Online education offers different methods of instructional delivery at any time, at any place, and makes courses accessible to students from different electronic devices. Colleges and universities offer online programs to generate additional revenue, to improve access to the course material, and to offer students better scheduling. The number of students taking at least one online course increased from 1.6 million in 2002 to 7.1 million in 2013. However, the online enrollment growth rate was only 6.1 percent in 2013, the lowest recorded by the Babson Survey Research Group reports since 2002 [3].

Today most educational institutions are using distance Learning Management Systems (LMS), and many robust LMSs have been developed, like Blackboard, Moodle, Edmodo, Schoology, Canvas, Haiku, Piazza, Desire2Learn, and Sakai. The 2013 Campus Computing Survey indicated that 62 percent of classes used the LMS, compared to 17 percent in 2000. Due to intense competition with free open-source LMSs, Blackboard share (including ANGEL and WebCT) was down to 41 percent from 71 percent in 2006 [4].

Many instructors only use the basic features of LMSs. At the State University of New York (SUNY) online courses are delivered on the ANGEL Learning Management Suite. The data mining research results indicate that the majority of courses at SUNY do not use the more advanced ANGEL features, like wikis, blogs, assessments, and games, and only a small number of instructors are utilizing many of the ANGEL features [5]. Training the faculty to incorporate the more advanced features of LMSs to their online courses should be the priority of instructional designers.

Recently, the rise of the Massive Open Online Courses (MOOCs) was the most important trend in higher education. The Google Trends searches for the term “MOOC” did not exist before 2011. The New York Times dubbed 2012 as the year of the MOOC [6]. Today there are several major platforms delivering



MOOCs: Coursera, Udacity, and EdX. The MOOC providers have many universities around the world as their global partners.

In 2014, Coursera introduced specializations, or course bundles created by the partner universities that can be completed for specialization certificates. Specializations are primarily designed for professionals to brush up their skills or gain new knowledge, and they may offer more of an incentive for students to complete online courses. Specializations in the future will provide a ground for the development of online degree-granting programs on Coursera, like an online Masters Degree in Computer Science offered by Georgia Institute of Technology on Udacity. This on-campus, instructor-led graduate degree in Computer Science is a well-regarded program at Georgia Tech and is in high demand. Now students will be able to receive the same degree online at 80 percent discount [7].

64 percent of academic leaders have concerns that “credentials for MOOC completion will cause confusion about higher education degrees” [8]. The organizations like LearningCounts.org, a subsidiary of the Council for Adult and Experiential Learning (CAEL), add to this confusion by offering students to take a free online course and receive three credits from their different partner universities. The LearningCounts.org website encourages students to develop a comprehensive portfolio based on the skills gained on the job, in business, volunteer work, online courses, military, and then receive credits for online higher educational degrees [9]. If this trend continues, the prior learning assessment will create intense competition between MOOC providers and traditional universities in the future.

Reviewing the activity of one million users of massive open online courses, a study released by The University of Pennsylvania Graduate School of Education found that, on average, about half of those who registered for a course did not watch required lectures, and only 4 percent completed the courses [10]. MOOCs have high dropout rates for many different reasons. The 2013 Instructure and Qualtrics survey results concluded that certificates or college credit would motivate students to complete online courses [11].

Many state colleges started to offer online degree-granting programs. The State University of New York (SUNY), the largest public university system in the United States, recently launched a collaborative initiative called Open SUNY. As part of this initiative, Open SUNY will develop MOOCs to support student mobility, degree completion, and accelerating graduation time at SUNY [12].

Online learning uses text, photos, illustrations, animations, audio, or video to deliver digital content via Internet, satellite broadcasting on computers, or mobile devices. In 2008, access to the Internet via mobile devices exceeded desktop computer access [13]. Instructional designers must take screen size and the functionality of the touchscreen technology into consideration when creating online courses. The new trend in the instructional design of online courses is in favor of a brain-friendly and easily accessible “bite-size” course material, divided into small chunks, interspersed with activities such as short quizzes, game-like exercises, mini-research projects, or reflective discussions. These small chunks help learners to absorb information and view course material on the screens of smart phones or tablets [14].

Video lectures became an essential part of online education. According to Anant Agarwal, the president of edX, the seven-minute long videos received the highest student engagement [15]. As more courses move to online platforms, many instructors find it necessary to improve their filming and video editing skills to produce high quality online courses.

Some MOOCs are self-study, allowing students to work at their own pace. However, most MOOCs are deadline-driven and require from students a fair amount of time, commitment, and organizational skills. Although most online courses have a linear approach, where learners progress from one unit to another, some MOOCs started offering a non-linear approach, where users are allowed to select their learning outcomes and set their own goals [16].

MOOCs require unique instructional strategies, which are different from small online courses. In 2013, Georgia Institute of Technology offered a course “Fundamentals of Online Education: Planning and Application” on Coursera. This course became an example of how poor instructional design and lack of technological knowledge can create problems and lead to suspension of the online course [17].

Instructors use more interactive collaboration tools (online discussions, forums, blogs, Facebook groups, and Twitter) in MOOCs to develop a sense of community, and this often determines whether students are going to continue with the course or drop it. However, many MOOCs have a problem with closely monitoring these tools and maintaining netiquette and overall quality of discussions.

Game-based learning introduced to classrooms the idea of badges, high scores, and leaderboards. The traditional school activities, like assignments, have been transformed into missions or quests. Games should be integrated into teaching by maintaining a balance between 'fun' and 'learning,' ensuring that the academic content is integral to the game rather than an add-on, learners are following the rules, and a respectful atmosphere is maintained [18]. The growing field of augmented reality (AR) and multi-user virtual environment (MUVE) has opened up the possibilities for more complex user experiences. However, AR and MUVE are still at early stages of their development and present "unique technological, managerial, and cognitive challenges to teaching and learning" [19]. Newly developed wearable devices, like Google Glass, a computer with an optical head-mounted display, provide additional possibilities for recording lectures and creating mini-documentaries.

In conclusion, distance learning has changed rapidly over the past decade. MOOCs revolutionized online education and encouraged many universities and colleges to rethink and expand their distance learning offerings. The variety of new learning management systems appeared on the market, and the LMS and MOOC markets began to overlap and influence each other. A unique instructional strategy is required for MOOCs and mobile learning. In this age of personal cloud-computing environments with ubiquitous mobile access to information, instructional designers favor a brain-friendly and easily accessible "bite-size" course material, which is clearly displayed on small screens and aligned with the requirements of the touchscreen technology. The highest student engagement in online courses is achieved with short videos interspersed with activities such as short quizzes, game-like exercises, and mini-research projects. Game-based learning, AR, and MUVE don't have considerable impact on online education yet. With numerous free self-paced online course offerings, most students prefer to take face-to-face or distance-learning courses taught and monitored by instructors.

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