Integrating Gamification into a Large Scale Open and Distance Learning System

Murat Sümer, PhD
Department of Computer Education and Instructional Technologies, Uşak University

Do you know that only 2.3% of the people registering a course at Coursera completed it? 226,652 people registered for this Duke University course, Think Again: How to Reason and Argue ran at Coursera and only 5322 (2.3%) of them completed it (Jordan, 2017). Meyer (2012) also stated that the dropout rates of MOOCs offered by prestigious universities such as Stanford, MIT, and UC Berkley were 80–95%. For example, only 7% of the 50,000 students completed who took the Coursera-UC-Berkeley course in Software Engineering. There is a similarity in the report of dropout rate in Coursera's Social Network Analysis class where only 2% of participants earned a basic certificate and 0.17% earned the higher level programming with distinction certificate (Khalil & Ebner, 2014). Also, in the report published by Research Committee for the Vice Provost for Advances in Learning at Harvard University and the Office of Digital Learning at MIT, researchers investigated the courses offered by edX from Fall 2012 to Summer 2016 and they found that 4,449,034 learners accessed the content and only 244,705 of them earn a certificate (Chuang & Ho, 2016). Last but not least, while the number of students registered a distance learning program in 2016-2017 academic year were 481,654, with a total registered student of 3,306,797, there is a number for graduates, which are 103,979 for the 2015-2016 academic year (Council of Higher Education of Turkey, 2018). Based on those numbers, it can be seen that there are more students registered new than students graduated. In other words, there is an accumulation in the open and distance learning programs in Turkey.

Gamification is one of the tools can be used to motivate learners to engage in online learning (Werbach, 2013). Gamification defined as the use of game design elements in nongame contexts or is the integration of game elements, mechanics, and frameworks into nongame situations and scenarios (Horizon Report, 2013). It, so far, has most frequently been used as a clever way to promote a business or product. Besides using gamification in business, there are also examples in education, for example, where in most real cases it is implemented only in the physical classroom. This is the easy way for teachers to integrate game elements for a small group of learners. However, to digitizing the gamification strategy or placing the related mechanisms online is very different, and such issues tend to be not discussed in many of the basic guidelines (Kuo and Chuang, Comput Hum Behav 55:16–27, 2016).

This study intended to reveal the results of a study that explored whether integrating gamification into open and distance learning systems can attract students' interest toward using and spending time in these systems. The sequential exploratory mixed method study has not only shown attractiveness but also effectiveness of integrating gamification into these open and distance learning systems.

The reporting of the findings was organized into two sections. Quantitative findings about learners' access to various learning activities in the course in pre- and post-gamification situations were summarized firstly. The average of access to the e-learning sites before the gamification was $\bar{X}$=5.83, while the average increased to $\bar{X}$=17.99 after the gamification, and this difference found statistically significant. This finding suggests that integration of gamification into the e-learning sites has a significant impact on the students to access to the e-learning sites. On the other hand, the Pearson's

Correlation Analysis has shown that there is no meaningful relationship regarding to the learners' academic performances in pre- and post-gamification situations. In the second part, the semi-structured interviews with the participation of 16 students have shown that the gamification motivated them to enter the course sites more often than before. Almost all the students mentioned that they entered the system only once during the first half of the course (first 7 weeks before the gamification intervention started) but during the second half they visited the sites at least twice in every week. Gamification did not only increase the frequency of visits but also the learners' satisfaction with the courses. Every student using the system and participating in the semi-structured interview stated that they were satisfied with the system.

As a result, we believe that gameful approaches in education have broad potential to reframe formal education, encouraging student engagement, and ultimately leading to deeper and better learning. As the momentum for gameful learning environments increases, it is crucial to develop empirically informed design principles and guidance for implementation so that this approach can be applied across multiple learning environments.