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Impact of Online Learning on Student Engagement and Academic Performance

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Abstract

Studies have shown that course organization and structure, student engagement, learner interaction, and instructor presence have accounted for considerable variance in student satisfaction and perceived learning in online learning environments through a range of pathways, although no research to date has tested the mediational relationship identified. The educational institutions across the world have switched to online mode of instruction to continue to provide education. Thus, research on effectiveness of online teaching and factors affecting the student's engagement in a virtual classroom has gained importance. Students during pandemic are learning at home and lack motivation and confidence in their academic life. The present study aimed to analyse the student engagement and the factors that affect the student engagement in online learning environment.

Keywords: Online Learning, Student Engagement, Academic Performance,

INTRODUCTION

Students have long been an increasingly important segment of the university population and face many challenges when completing their degrees. As a result, universities have responded by developing innovative ways to improve their academic experiences (Bukenova, Burrola, Contrata, Di Maria, Hartmann & O'Brien, 2016; Choudaha, 2016). Online learning has evolved from an experimental novelty to an almost ubiquitous educational tool. Online courses seek to combine social networking components with professional content as online resources grow daily (Hiltz & Turoff, 2005; Lowenthal, 2010). Such approaches rely on the active participation of many learners, regardless of educational goals, abilities, previous backgrounds, and experiences (Littlejohn & Hood, 2016; McAuley, Stewart, Siemens & Cormier, 2010). The emergence of online education has provided a unique opportunity for flexible access to learning. Many countries began to offer online and distance (ODL) programs to provide better access to people who could not afford regular education or have extra responsibilities (Gaba & Li, 2015; Ghosh, 2012; Zuhairi, Raymundo & Mir, 2016). More than 77% of university institutions today offer online courses (Parker, Lenhart & Moore, 2011). It is estimated that enrollment in online learning is growing ten times faster than traditional enrollment, and 31% of all college students now take at least one online course (Allen & Seaman, 2010). Many countries worldwide have shifted to online and distance education since the outbreak of the COVID-19 pandemic. The United Arab Emirates also implemented distance learning in all UAE public and private schools and higher education institutions as a precaution to protect students from Covid -19 (Ali, 2015; Masoud & Bohra, 2016).

Online education offers several advantages over traditional education, including flexibility, convenience, control over the pace of learning, and affordability. This mode of education provides greater control over the learning environment. Students can learn quietly without distractions or in a more traditional classroom setting (Dumford & Miller, 2016; Mukhtar, Javed, Arooj & Sethi, 2015). Online learning can improve motivation and satisfaction and provide a more individualized and tailored educational experience (Al-Rahmi, Alias, Othman, Alzahrani, Alfarraj, Saged et al., 2016; Chow & Shi, 2014). Additionally, online education influences academic experiences differently and can help improve graduate students' academic achievements (Jawad & Shalash, 2014; Sarikhani, Salari & Mansouri, 2016). With this mode of education, students' learning abilities, communication skills, critical thinking, and problem-solving abilities have been improved (Lockman & Schirmer, 2015; Pei & Wu, 2015). Also, students' engagement in their learning and course participation increases as they are expected to work more collaboratively with classmates (Duderstadt, Atkins, Van Houweling, & Van Houweling, 2002; Thurmond & Wambach, 2004). Students are engaged in activities to connect with peers and instructors and create a dynamic sense of

community, enabling them to feel a sense of belonging and increase their overall well-being (Abrami, Bernard, Bures, Borokhovski & Tamim, 2012; Deng & Yang, 2016). Students also develop an enhanced sense of accountability for their learning and take responsibility for their progress. They can set their own pace and plan their study schedule around their family, work, social and other commitments (Beth, Jordan, Schallert, Reed & Kim, 2015; Yuhanna, Alexander & Kachik, 2014).

Student Engagement

Student engagement has three widely accepted dimensions: behavioral, cognitive and affective (Chapman, 2002; Fredricks et al., 2004, 2016; Mandernach, 2015). Each dimension has indicators (Fredricks et al., 2004), or facets (Coates, 2007), that manifest each dimension. Behavioral engagement refers to active responses to learning activities and is indicated by participation, persistence, and/or positive conduct. Cognitive engagement includes mental effort in learning activities and is indicated by deep learning, self-regulation, and understanding. Affective engagement is the emotional investment in learning activities and is indicated by positive reactions to the learning environment, peers, and teachers as well as a sense of belonging. A list of indicators for each dimension can be found in Bond et al. (2015). The literature also theorizes different influences for each engagement dimension. Most influencing factors are sociocultural in nature and can include the political, social, and teaching environment as well as relationships within the classroom (Kahu, 2013). In particular, social engagement with peers and instructors creates a sense of community, which is often correlated with more effective learning outcomes (Rovai and Wighting, 2005; Liu et al., 2007; Lear et al., 2010; Kendricks, 2011; 6; Chatterjee and Correia, 2016). Three key classroom interactions are often investigated when trying to understand the factors influencing student engagement: student-student interactions, student-instructor interactions, and student-content interactions (Moore, 1993).

Student-student interactions prevent boredom and isolation by creating a dynamic sense of community (Martin and Bolliger, 2015). Features that foster student-student interactions in online learning environments include group activities, peer assessment, and use of virtual communication spaces such as social media, chat forums, and discussion boards (Revere and Kovach, 2011; Tess, 2013; Banna et al., 2015). In the absence of face-to-face communication, these virtual communication spaces help build student relationships (Nicholson, 2002; Harrell, 2008). In a survey of 1,406 university students in asynchronous online courses, the students claimed to have greater satisfaction and to have learned more when more of the course grade was based on discussions, likely because discussions fostered increased student-student and student-instructor interactions (Shea et al., 2001). Interestingly, in another study, graduate students in online courses claimed that student-student interactions were the least important of the three for maintaining student engagement, but that they were more likely to be engaged if an online course had online communication tools, ice breakers, and group activities (Martin and Bolliger, 2016).

In the Martin and Bolliger (2016) study, the graduate students enrolled in online courses found student-instructor interactions to be the most important of the three interaction types, which supports prior work that found students perceive student-instructor interactions as more important than peer interactions in fostering engagement (Swan and Shih, 2005). Student-instructor interactions increased in frequency in online classes when the following practices were implemented (1) multiple open communication channels between students and instructors (Gaytan and McEwen, 2007; Dixson, 2010; Martin and Bolliger, 2014), (2) regular communication of announcements, reminders, grading rubrics, and expectations by instructors (Martin and Bolliger, 2014), (3) timely and consistent feedback provided to students (Gaytan and McEwen, 2007; Dixson, 2010; Chakraborty and Nafukho, 2014; Martin and Bolliger, 2014), and (4) instructors taking a minimal role in course discussions (Mandernach et al., 2006; Dixson, 2010).

Student-content interactions include any interaction the student has with course content. Qualities that have been shown to increase student engagement with course content include

the use of curricular materials and classroom activities that incorporate realistic scenarios, prompts that scaffold deep reflection and understanding, multimedia instructional materials, and those that allow student agency in choice of content or activity format (Abrami et al., 2012; Wimpenny and Savin-Baden, 2013; Britt et al., 2015; Martin and Bolliger, 2016). In online learning, students need to be able to use various technologies in order to be able to engage in student-content interactions, so technical barriers such as lack of access to devices or reliable internet can be a substantial issue that deprives educational opportunities especially for students from lower socioeconomic households (Means and Neisler, 2015; Reich et al., 2015; UNESCO, 2015).

Engagement in Online Learning

Bond and Bedenlier (2016) present a theoretical framework for engagement in online learning that combines the three dimensions of engagement, types of interactions that can influence the engagement dimensions, and possible short term and long term outcomes. The types of interactions are based on components present in the student's immediate surrounding or microsystem, and are largely based on Moore's three types of interactions: teachers, peers, and curriculum. However, the authors add technology and the classroom environment as influential components because they are particularly important for online learning.

Specific characteristics of each microsystem component can differentially modulate student engagement, and each component has at least one characteristic that specifically focuses on technology. Teacher presence, feedback, support, time invested, content expertise, information and communications technology skills and knowledge, technology acceptance, and use of technology all can influence the types of interactions students might have with their teachers which would then impact their engagement (Zhu, 2006; Beer et al., 2010; Zepke and Leach, 2010; Ma et al., 2015; Quin, 2017). For curriculum/activities, the quality, design, difficulty, relevance, level of required collaboration, and use of technology can influence the types of interactions a student might encounter that could impact their engagement (Zhu, 2006; Coates, 2007; Zepke and Leach, 2010; Bundick et al., 2014; Almarghani and Mijatovic, 2017; Xiao, 2017). Characteristics that can change the quantity and quality of peer interactions and thereby influence engagement include the amount of opportunities to collaborate, formation of respectful relationships, clear boundaries and expectations, being able to physically see each other, and sharing work with others and in turn respond to the work of others (Nelson Laird and Kuh, 2005; Zhu, 2006; Yildiz, 2009; Zepke and Leach, 2010). When describing influential characteristics, the authors combine classroom environment and technology because in online learning, the classroom environment inherently utilizes technology. The influential characteristics of these two components are access to technology, support in using and understanding technology, usability, design, technology choice, sense of community, and types of assessment measures. All of these characteristics demonstrably influenced engagement levels in prior literature (Zhu, 2006; Dixson, 2010; Cakir, 2013; Levin et al., 2013; Martin and Bolliger, 2016; Northey et al., 2016; Sumuer, 2016).

Online learning can take place in different formats, including fully synchronous, fully asynchronous, or blended (Fadde and Vu, 2014). Each of these formats offers different challenges and opportunities for technological ease, time management, community, and pacing. Fully asynchronous learning is time efficient, but offers less opportunity for interactions that naturally take place in person (Fadde and Vu, 2014). Instructors and students may feel underwhelmed by the lack of immediate feedback that can happen in face to face class time (Fadde and Vu, 2014). Synchronous online learning is less flexible for teachers and students and requires reliable technology, but allows for more real time engagement and feedback (Fadde and Vu, 2014). In blended learning courses, instructors have to coordinate and organize both the online and in person meetings and lessons, which is not as time efficient. Blended learning means there is some in person engagement which provides spontaneity and more natural personal relations (Fadde and Vu, 2014). In all online formats, students may feel isolated and instructors and students need to spend more time and intention

into building community (Fadde and Vu, 2014; Gillett-Swan, 2017). Often, instructors can use learning management systems and discussion boards to help facilitate student interaction and connection (Fadde and Vu, 2014). In terms of group work, engagement and participation is dependent not only on the modality of learning, but also the instructors expectations for assessment (Gillett-Swan, 2017). Given the flexibility and power of online meeting and work environments, collaborating synchronously or asynchronously are both possible and effective (Gillett-Swan, 2017). In online learning courses, especially fully asynchronous, students are more accountable for their learning, which may be challenging for students who struggle with self-regulating their work pace (Gillett-Swan, 2017). Learning from home also means there are more distractions than when students attend class on campus. At any point during class, children, pets, or work can interrupt a student's, or instructor's, remote learning or teaching (Fadde and Vu, 2014).

According to Raes et al. (2016), the flexibility of a blended -or hybrid- learning environment encourages more students to show up to class when they otherwise would have taken a sick day, or would not have been able to attend due to home demands. It also equalizes learning opportunities for underrepresented groups, and more comprehensive support with two modes of interaction. On the other hand, hybrid learning can cause more strain on the instructor who may have to adapt their teaching designs for the demands of this unique format while maintaining the same standards (Bülow, 2016). Due to the nature of class, some students can feel more distant to the instructor and to each other, and in many cases active class participation was difficult in hybrid learning environments. Although Bulow's review (2016) focused on the challenges and opportunities of designing effective hybrid learning environments for the teacher, it follows that students participating in different environments will also need to adapt to foster effective active participation environments that encompass both local and remote learners.

Online learning experience

There are many motives behind the implementation of the online learning experience. The online learning is mandatory nowadays to all audience due to COVID −19 pandemic, which forced the higher educational authorities to start the online teaching [1]. We believe that we reached a tipping point where making changes to the current learning process is inevitable for many reasons. Today learners have instant access to information through technology and the web, can manage their own acquisition of knowledge through online learning. As a result, traditional teaching and learning methods are becoming less effective at engaging students, who no longer rely exclusively on the teacher as the only source of knowledge. Indeed, 90% of the respondents use internet as their major source of information. So the teacher is new role is to be a learning facilitator, a guide for his students. He should not only help his students locate information, but more importantly question it and reflect upon it and formulate an opinion about it. Another reason for the adoption of the online learning is that higher institution did not hesitate one moment to integrate it as a primary tool of education. So, it transformed the conventional course and current learning process into e-learning concept. The integration of the online teaching into the curriculum resulted in several issues to instructors, curriculum designer and administrators, starting from the infrastructure to online teaching and assessment. Does the current IT infrastructure support this integration? What course content should the instructor teach and how it should be delivered? What effective pedagogy needs to be adopted? How learning should be assessed? What is the direct effect of the online learning on students' performance? [7].

With reference to the survey findings, the majority of students were among the staunch supporters of online learning taking into consideration the imposed COVID-19 lockdown circumstances, as they expressed their full support and confidence in computer skills to share digital content, using online learning and collaboration platforms with their peers, and expressed their satisfaction with the support of the online teaching and learning [8].

However, a small percentage of the survey respondents, expressed their below average satisfaction when higher educational institutions have invested in digital literacy and

infrastructure, as they believe they should provide more flexible delivery methods, digital platforms and modernized user-friendly curricula to both students and teachers [9]. On the same lines, the higher education authorities regard the quick and unexpected development of the UAE's higher education landscape, ICT infrastructure, and advanced online learning/teaching methods, imposed by COVID-19, have had a tremendous adverse impact on the students' culture, thus leading to students' social seclusion from their peers, imposing new social norms and behavior regarding plagiarism, affecting students' cultural ethics and learning and collaboration with their peers, when adopting the digital culture [10].

A current study emphasized the need for adoption of technology in education as a way to lessen the effects of Coronavirus pandemic lockdown in education to palliate the loss of face-to- face teaching/learning which has more beneficial aspects of learning for students than online learning as it offers more interactive learning opportunities.

We recommend that all these questions should be taken into consideration when designing a new course i.e. the e-learning strategies, the learners' and instructor's new roles, course content and pedagogy and students' performance/achievement assessment (Figure 1). In this experience, we focus only on the implementation of new learning academic objectives- how they are infused into the curriculum and how they are assessed. The ultimate objective of implementing a new learning process is to design a curriculum conveyed by a creative pedagogy and oriented towards the cultivation of a creative person yearning for the exploration of new ideas [11]. The afore-mentioned objectives lead to design a comprehensive learning experience with new learning outcomes where instructors infuse new practical skills - Critical thinking and Problem-Solving Tasks, Creativity and Innovation, Communication and Collaboration. Other skills are implicitly infused into the curriculum such as, self-independent learning, interdependence, lifelong learning, flexibility, adaptability, and assuming academic learning responsibilities. Online learning is defined as virtual learning using mobile and wireless computing technologies in a way to promote learners' learning abilities [12]. In (Figure 2), each component of the e-learning process is defined clearly below [13].

Active instructor

His role is to facilitate learning process in the virtual classroom, to engage students in the learning process, to allow them to participate in designing their own course content and to contribute to design learning assessment parameters.

Active learner

He can access course content anytime and from anywhere, engage with his peers in a collaborative environment, formulate his opinions continuously, interact with other learning communities, communicate effectively, share and publish their findings with others in online environment.

Creative pedagogy

Both instructors and learners decide on what to learn online and how it should be learned. This experience is designed to promote an inquiry and challenge-based learning models where teachers and students work together to learn about compelling issues, propose solutions to real problems and take actions [11]. The approach involves students to reflect on their learning, on the impact of their actions and to publish their solutions to a worldwide audience [14].

Flexible curriculum

A core curriculum is designed, but the facilitator has the freedom to innovate and customize course content accordingly up to the aspiration of the learners; this means that the learner's knowledge of the material will mainly come from his own online research (formal and informal content), and from his own creativity and collaboration with his peers (teamwork).

REFERENCES

1. Bao, W. (2015). COVID-19 and online teaching in higher Education: A case of Peking University. Wiley Online Library,2(2),113-115

2. Zheleva M., Tramonti M., "Use of the Virtual World for Educational Purposes", in Electronic Journal for Computer Science and Communications, n. Issue 4(2), Burgas Free University, pp. 106-125, 2015
3. Usoro, A., & Majewski, G. (2009). Measuring Quality e-Learning in Higher Education international Journal of Global Management Studies (2), 1-32
4. Rossing, J. P., Miller, W. M., Cecil, A. K., & Stamper, S. E. (2012). iLearning: The Future of Higher Education? Student Perceptions on Learning with Mobile Tablets. Journal of the Scholarship of Teaching and Learning, 12(2), 1-26
5. MacTeer, C. F. (2011). Distance education (Ser. Education in a competitive and globalizing world). Nova Science
6. Nathan, S. (2015). AL-FANAR MEDIA covering Education, Research and Culture, Retrieved from https://www.al- fanarmedia.org/2015/05/future-higher-education-go-from-here/
7. Joshi, H. (2012). Towards Transformed Teaching: Engaging Learners Anytime, Anywhere. UAE Journal of Education Technology and Learning v3, pp. 3:5
8. Onyema,E. Eucheria, N Dr. Obafemi, F. , Fyneface, S. Atonye, G. Sharma, A. Alsayed, O. (2016), Impact of Coronavirus Pandemic on Education, Journal of Education and Practice, Vol.11, No.13, 2016
9. Aristovnik, A.(2016),How Covid-19 pandemic affected higher education students' lives globally and in the United States
10. Aman, S. (2015). Flexible learning in UAE: a case for e-lessons post COVID-19 too. Gulf News
11. Hamdan, K., Al-Qirim, N., Asmar, M. (2012) The Effect of Smart Board on Students Behavior and Motivation, IEEE, 2012, pp. 162-166. International Conference on Innovations in Information Technology (IIT)
12. Carmozzino, E., Corvello, V., & Grimaldi, M. (2017). Entrepreneurial learning through online social networking in high-tech startups. International Journal of Entrepreneurial Behavior & Research, 23(3), 406-425
13. Hamdan,K and Asmar, M (2012), Improving Student Performance Using Interactive Smart Board Technology, Innovations 9TH International Conference in Information Technology, UAEU
14. O'Malley, C., Vavoula, G., Glew, J.P., Taylor, J., Sharples, M., & Lefrere, P., (2004). Guidelines for learning/teaching/tutoring in a mobile environment. [Online] Available http://www.mobilearn.org/download/results/ guidelines.pdf