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Research Paper

E-Learning as a Catalyst for the Progression of Medical Education

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ABSTRACT

Advancements in technology and the widespread availability of the Internet have transformed the landscape of education across various disciplines, and medical education is no exception. This review article explores the pivotal role of E-Learning in revolutionizing medical education and its impact on the progression of medical knowledge and practice. E-learning has emerged as a powerful tool, enabling medical educators to enhance the quality, accessibility, and efficiency of medical education. This article delves into the critical aspects of E-Learning in medical education, including its diverse modalities such as web-based platforms, virtual simulations, and online resources. E-learning platforms offer a dynamic and flexible environment for medical students, professionals, and educators, allowing them to access up-to-date information, engage in interactive learning experiences, and collaborate with peers and mentors from diverse geographic locations. One of the fundamental advantages of E-Learning in medical education is its ability to bridge geographical gaps and expand access to high-quality medical content. Medical students and practitioners in remote or underserved areas can benefit from the wealth of online resources, breaking down traditional barriers to medical education. Additionally, E-Learning allows learners to tailor their educational experiences, accommodating various learning styles and pacing. The progression of medical education through E-Learning is not without challenges, including issues related to digital literacy, technological infrastructure, and the need for effective pedagogical strategies. Nevertheless, the benefits far outweigh these challenges. E-learning has become an indispensable component of modern medical education, fostering innovation, improving educational outcomes, and preparing healthcare professionals for the evolving demands of the healthcare landscape. In conclusion, E-Learning is a catalyst for the progression of medical education, offering transformative opportunities to students, educators, and healthcare practitioners. This article highlights the significant impact of E-Learning on medical education, emphasizing its role in enhancing accessibility, promoting interactive learning, and contributing to the overall advancement of medical knowledge and practice.

Keywords: *E-Learning, Teaching, Information Technology (IT)*

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Teaching and Learning are the main aspects of academic institutions worldwide. The recent revolution in Computers and other Information Technology resources is helping academic institutions serve students in a better way. However, traditional teaching resources suffer from the cost of new techniques applied to institutes. E-learning is one of the most important components of teaching and training in any institute. E-learning currently occupies a high position in universities and academic institutes and is prioritized by departments in educational institutions. Learning management systems, also referred to as course management systems and virtual learning environments, such as Moodle and Blackboard, allow educators to deliver the same educational content electronically, instead of through traditional methods. These systems save work, energy, and time that can be used by patients (Hoegerl and John, 2010). Students use blogs, cellular telephones, e-mails, personal digital assistants, Twitter, and Wikis to communicate instantly and efficiently with peers and professors. The main functions of a teacher within the framework of e-learning training are to guide students, facilitate student Learning, motivate students, energize students, follow up, and assess and evaluate students. The teacher of an e-learning course will be in charge of organizing the agenda, sharing knowledge, and creating a stimulating environment for student participation, monitoring, answering questions, and evaluating. All these tasks may seem overwhelming, especially if you have a large number of students, but nowadays they are made easier thanks to e-learning platforms (Penson, 2012.)

E-learning is a method of distributing knowledge through various media, including CDs, E-books, and other formats. The methods of teaching and learning have drastically changed. It disregarded the conventional approach to instruction and discouraged the use of chalkboards in the classroom. The manner in which education is delivered is informed, efficient, and fruitful. The newest technological advancements in their fields are well-known to teachers. E-learning activities range from playing a five-minute digital video in the classroom to implementing a one-semester online course over the Internet. In the context of the history of human learning, e-learning is defined as the third learning system that uses various electronic techniques as its primary medium for learning (Rosenberg, 2001; Snyder, 1998; Swan, Bowman, & Holmes, 2003). There are three main categories of learning systems, based on the medium used to connect learners with learning materials. The first educational system, known as S-learning, emphasizes speech as the main teaching tool. P-learning, the second learning system that uses paper as its main learning medium, gradually took over its position as the dominant one. E-learning, regarded as the third learning system that utilizes electronic technology as its major medium for human learning, has become a pervasive and significant learning phenomenon since the 1990s.

Through distance-learning programs, e-learning has gradually taken over the role of traditional face-to-face education. Initially, it was thought of as a novel component of traditional education, in which teachers and students benefited from online resources to enhance formal education. E-learning enables students to access a wealth of material and learn whenever and wherever they want (Maeroff, 2003; Pittinsky, 2003). Owing to the numerous benefits for all stakeholders, including students, teachers, and educational institutions, there is an increasing number of higher education institutions offering distance learning and online courses. According to various research findings, the quality of e-learning must be maintained based on empirical and unbiased assessments of how closely the available instructional designs relate to educational approaches (Reyes-Fournier et al., 2020; Veletsianos & Houlden, 2019; Xing, 2019), the quality of the learning materials and interactional opportunities (Li, 2007; Kuh, 2003), and, perhaps most importantly, how

satisfactorily the learner engagement levels in e-learning (Broadbent & Poon, 2015; Kuh, 2003; Serdyukov, 2017).

Engagement in E-Learning: Attention vs. Distraction

According to previous reports, engaged students perform and produce better academic assignments, have greater accomplishment rates, and engage more cognitively and metacognitively (Krause & Coates, 2008; Kuh, 2009; Slater & Davies, 2020). However, it is difficult to create and maintain academic engagement (Martin, Stamper, & Flowers, 2020; Reyes-Fournier et al., 2020). "Attention" is one of the key elements influencing learner engagement. Due to the plethora of information available online, e-learning demands that students be able to give relevant stimuli their entire attention while ignoring irrelevant ones. These unrelated stimuli are known as distractors (Forster & Lavie, 2011). When the Internet is used for educational reasons, online distractions are always present in these learning settings. Because of the different amusing or commercial distractions available on the Internet, students may become distracted when using the Internet to perform learning assignments. These could include engaging in social media interactions, news reading, monitoring sports scores or other hobbies, such as internet gaming, and getting advertisements or emails (Lim, 2002; Thatcher et al., 2008; Wan & Chiou, 2006). As a result, for students, navigating through "abundant online learning resources" (Bonk et al., 2015) makes it challenging to stay motivated to complete their learning objectives and to maintain interest.

Importance of E-learning

E-learning enables students to complete core coursework and develop their abilities. They can do this without actually attending any additional institutions and still receive a degree certificate. This finding is significant for both educators and learners. It has benefited teachers by providing them with a plentiful source of income that allows them to teach on their own time. They do not need to physically travel anywhere to teach anyone. The use of e-learning at all levels of education improves students' ability to comprehend courses. This pedagogical approach effectively engages both the teachers and students.

Both teachers and students can improve their learning skills, which are essential for learning. One example of this growth is the production and sale of e-books. It offered online platforms and gathered them in one location. These platforms are employed for the ethical sharing of knowledge and information. Its significance has multiplied in the modern world since the 21st century, which is a time of competitiveness. Advancements in science and technology have altered every aspect of existence and sped up everything. Everyone wants to finish their work as quickly as possible. The same is true for the education sector. Both professors and students desire rapid learning and teaching. This is now possible because of e-learning. They rapidly and easily have access to all study materials via computers and the Internet. They do not need to visit libraries or educational facilities to learn.

E-learning has become an increasingly important tool in medical education as it offers several benefits to both students and educators. E-learning allows students access to learning materials anywhere and at any time. This is especially important in medical education, where students may need to balance their studies with their clinical rotations and other responsibilities. E-learning can be tailored to the individual needs and preferences of students, allowing them to learn at their own pace and on their own schedule. This can be especially helpful for students who have different learning styles or who may need to review material multiple times to fully understand it. With features such as movies, animations,

quizzes, and simulations that interest students and aid in information retention, e-learning may be dynamic. These resources can be particularly helpful in the medical field, where students may need to understand intricate concepts and techniques. Due to the potential reduction in the requirement for physical infrastructure, textbooks, and other resources, e-learning may be more cost-effective than traditional classroom-based learning. Students who use e-learning can receive rapid feedback, helping them pinpoint their weaknesses and solidify their learning. This is particularly useful in the field of medical education, where success depends on mastery of both information and abilities. Overall, e-learning is a valuable tool in medical education that can make learning more efficient, effective, and affordable. Additionally, it can assist teachers in enhancing the quality of their instruction and preparing pupils for the difficulties they will encounter in their future employment.

LITERATURE REVIEW

Advantages of E-learning

It has been observed that the first generation of e-learning programs focused on presenting physical classroom-based instructional content over the Internet, with very little attention given to the peculiar nature of this delivery program in comparison to traditional classroom lessons (Ali, 2010; Harvey, 2003). Blended learning is often associated with simply linking traditional classroom training to e-learning activities. However, the term has now evolved to encompass a much richer set of learning strategies or dimensions. It is the combination of two or more of these dimensions, which is currently referred to as blended learning (Ali, 2010; Harvey, 2003).

E-learning has been defined as having the ability to focus on the requirements of particular learners. As an example, emphasizing each person's unique needs rather than the needs of educational institutions or teachers can efficiently transmit knowledge in the digital age (Huang & Chiu, 2015). E-learning allows the quickest and easiest completion of objectives. Giving all users equal access to the material, regardless of their region, race, ethnic origin, or age, and controlling the e-learning environment has an impact on educational learning. The setting for online learning also encourages students or learners to depend on themselves, so that teachers are no longer the only source of information but rather act as mentors and advisors (Joshua et al., 2016). A range of information and communication technology (ICT) skills is needed for learning; hence, teachers must adopt cutting-edge technology throughout the educational process (Aithal and Aithal, 2016). Part-time and full-time students can take part in the chosen online degree courses from any location, making them a readily accessible resource for experience and learning for those who are traveling or relocating (Radu, Radu, and Croitoru, 2015). https://files.eric.ed.gov/fulltext/EJ1296879.pdf

The integration of e-learning into medical education can catalyze the shift toward applying adult learning theory, where educators will no longer serve mainly as distributors of content but will become more involved as facilitators of learning and assessors of competency (Ruiz, Mintzer, Michael, and Leipzig, 2006). The application of Information and Communication Technologies (ICTs) has changed the organization and delivery of higher education. Pedagogical and socioeconomic forces that have driven higher learning institutions to adopt and incorporate ICTs in teaching and learning include greater information access, greater communication, synchronous and asynchronous learning, increased cooperation and collaboration, cost-effectiveness, and pedagogical improvement (Sife, Lwoga, and Sanga, 2007). Public and private schools in the United States utilize e-learning. Some E-Learning environments take place in traditional classrooms, while others allow students to attend classes from home or other locations. Several states are utilizing cyber and virtual school

platforms for e-learning across the country, which continues to increase. Experience shows that students and faculty are mostly in favor of adopting e-learning alongside traditional learning, and the advantages far outweigh the likely discomfort associated with the adoption of this new method (Dhir, Verma, Batta, and Mishra, 2017). Traditional lecture-style teaching is associated with significantly higher student achievement (Irshad, Al-Saeed, and Begum, 2023). Lecturing enables learning in higher education to proceed in a constructivist manner, in which students see their course as a whole, rather than as an accumulation of unrelated activities and classes (Penson, 2012).

Disadvantages of E-learning

Despite the substantial benefits of e-learning, students face several difficulties that ultimately have limited or detrimental effects. In their study, Arkorful and Abaidoo (2015) discovered, for instance, that e-learning may sometimes be carried out through remote learning and reflection, which prevents student contact. Due to the lack of in-person interactions with teachers or instruction, e-learning may prove to be less effective than the modern form of education. Since exams are typically given online while using e-learning techniques, there is less chance of limiting unethical behavior such as plagiarism and cheating (Irshad, Al-Saeed, and Begum, 2023). The most obvious disadvantage of e-learning is the lack of important personal interactions between instructors and students as well as between colleagues (Islam, Beer, and Slack, 2015). There is a lack of community in the online learning environment because interactions between students are significantly less important than those between students and instructors.

Cultural boundaries are yet another important disadvantage of providing online courses. In their research, Aparicio, Bacao, and Oliveira (2016) assessed the role of cultural traits, such as individualism and collectivism, in determining how successful e-learning is seen to be. The findings of the study demonstrate that individualism and collectivism have a significant influence on organizational and individual success. Another disadvantage for online learners is maintaining interest in online courses. Students who lack drive and independence perform less well than their peers overall (Sarkar 2012). Assignments that students fail to finish on time or poorly might occasionally be the consequence of their lack of self-control. According to Sarrab, Al-Shihi, and Rehman (2013), successful students generally have more confidence in their success, better technological access and skills, a higher level of self-responsibility, and better organizational skills. Students who lack motivation may easily lose sight of their original goals, quickly become lost in the course material, and eventually drop out (Raspopovic et al., 2017). To evaluate a person's success in an online course, it is crucial to comprehend learning preferences and personal behaviors.

The psychological impact of e-learning on Students

E-learning has the potential to positively impact medical education by providing students with greater flexibility and access to educational materials (Azmi, Rizvi, & Irshad, 2013). This can lead to more self-directed learning and greater satisfaction with the educational experience. E-learning can also provide medical students with access to more educational resources and multimedia materials, which can enhance their learning experiences and improve the quality of their education. Some studies have found that e-learning can provide students with increased access to interactive simulations, virtual patient cases, and other educational materials that are unavailable through traditional in-person instruction.

However, e-learning can have a negative psychological impact. For example, e-learning can lead to feelings of isolation and lack of interaction with classmates and instructors (Azmi,

Rizvi & Irshad, 2013). This can be particularly problematic for medical students who rely heavily on collaboration and peer support to master complex materials. The lack of in-person interaction can also limit the development of important interpersonal and communication skills that are critical for the success of medical careers. In addition, e-learning can pose significant psychological challenges to students who struggle with self-discipline and time management. Without the structure and routine of traditional classroom learning, students may find it challenging to stay on track and remain motivated. Furthermore, e-learning can also increase feelings of anxiety and stress as students may feel a greater sense of pressure to keep up with coursework and meet deadlines.

Education has been especially hard hit, and much work has been done to adopt virtual platforms through online meetings, lectures, and conferences (Dwivedi, 2020). The necessity for hands-on learning, particularly in the clinical setting over the last two years of medical education (Med 3 and Med 4) has had an impact on medical education as well (Ahmed, Allaf, and Elghazaly, 2020). Therefore, the pandemic has changed medical students' academic, social, and economic experiences, which has increased their worry and stress. With the additional stress that they were experiencing in their personal, social, and academic lives, medical students displayed a range of perspectives and coping techniques. There is a lack of consistency in the literature regarding the pandemic's psychological effects on medical students. Some research has indicated that preclinical and clinical medical students experience higher levels of stress and anxiety during the COVID-19 pandemic in numerous nations (Irshad & Begum, 2021).

There has been conflicting research on the psychological effects of the pandemic on medical students in the literature. While some studies have indicated that preclinical and clinical medical students experienced higher levels of stress and worry during the COVID-19 pandemic in many countries (Abdulghani, 2020), other studies have revealed a positive response and attitude toward continuing education during the pandemic (Gupta, 2020). The latter study revealed that despite their challenges, students wished to continue receiving quality education. They believe that skipping out on education will harm their chances of becoming doctors in the future; therefore, they want the entire medical experience (Ikhlaq, 2020).

To mitigate these negative psychological impacts, it is important to design e-learning programs that promote student engagement, interaction, and support. For example, online discussions and group projects can help students connect with one another and develop interpersonal and communication skills. In addition, regular check-ins and feedback from instructors can help students stay on track and feel more connected with their coursework. However, it is important to note that e-learning should be well-designed and provide adequate support for students. It is also important to have a balance between online and in-person interactions, as well as to provide adequate support for students who may be struggling with e-learning.

DISCUSSION

Traditional teaching is suffering at the cost of newer techniques of Information Technology applied to the institutes as the advocates of newer teaching methods somehow neglect traditional teaching, perhaps because they label it as an old method. In this scenario, the question is whether the application of newer IT resources in e-learning is beneficial for students. Traditional lecture-style teaching was associated with significantly higher levels of student achievement. Traditional teaching involves a learning process in which the teacher is

at the center of the learning process. The Teacher, being human, is prone to human errors. In an E-Learning environment, the chances of error are minimized with a greater share of responsibilities on the teacher, and hence, the freedom of the teacher is compromised. Practical experience, which is an important component of medical teaching, is also compromised. E-learning facilities are available in developed and developing countries. Many institutions have successfully adopted advanced e-learning techniques. The integration of e-learning into medical education can catalyze the shift toward applying adult learning theory, where educators no longer serve mainly as distributors of content. Blended learning is associated with simply linking traditional classroom training to e-learning activities, which is a better approach for teaching and learning. This discussion is endless, as we have different approaches to teaching.

Mehlenbacher et al. (2000) warn teachers about the need for a more thorough analysis and evaluation of online learning. It is necessary to first investigate learners' learning engagement and the effects of e-learning on their performance and achievement before attempting to optimize their e-learning practices. Understanding learner experiences can help educators create and/or modify teaching and learning methods that will benefit students who are doing their coursework online. Along with instructional resources, the Internet also offers a large selection of distractions. Despite these challenges, students are required to maintain their focus on the subject at hand and refrain from procrastinating online (Lavoie & Pychyl, 2001). One of the key elements of learning flow is control over work and regulating tactics to reach academic goals (Zimmerman, 1989), which is characterized by a conscious state of intense focus on the current learning task (Chen, 2006; Thatcher et al., 2008). However, as online learning becomes more prevalent, students must adjust their motivational techniques to retain attention and manage distractions.
https://files.eric.ed.gov/fulltext/EJ1301727.pdf

To mitigate these negative psychological impacts, it is important to design e-learning programs in a way that promotes student engagement, interaction, and support. For example, online discussions and group projects can help students connect with one another and develop their interpersonal and communication skills. In addition, regular check-ins and feedback from instructors can help students stay on track and feel more connected to their coursework.

CONCLUSION

It is concluded that e-learning is a piece of artwork at any institute that greatly potentiates teaching methodologies globally. Teaching using newer e-learning techniques has advantages and disadvantages. On the other hand, traditional teaching also has its advantages and disadvantages. If both are used together according to the need of the hour, then it is beneficial only to students pursuing their studies at any institute. In this scenario, the Integration of E-Learning with traditional teaching methods [Blended Approach] into medical education at any institute can be regarded as a catalyst to educate the students. E-learning is dynamic and developing in medical education. Medical students may benefit from more flexibility, resources, and individualized learning opportunities through e-learning. However, it is crucial to balance the advantages of digital learning with the requirements of experiential learning, hands-on learning, and direct communication with peers and instructors while developing e-learning programs. By doing this, we can develop efficient and interesting online learning programs that will assist the upcoming generation of healthcare professionals.

REFERENCES

A.S. Sife, E.T. Lwoga & C. Sanga (2007). New technologies for teaching and learning: Challenges for higher learning institutions in developing countries: *Int. J. of Edu. and Development using ICT*; Vol. 3, No. 2.

Abdulghani, H. M. (2020). Association of COVID-19 pandemic with undergraduate medical students' perceived stress and coping. *Psychol Res Behav Manag*; 13:871–81.

Ahmed, H., Allaf M., Elghazaly H. (2020). COVID-19 and medical education. *Lancet Infect Dis;* 20:777–8.

Aithal, P. S., & Aithal, S. (2016). Impact of online education on higher education system. *International Journal of Engineering Research and Modern Education (IJERME),* 1(1), pp. 225-235.

Ali M. Al-Shehri (2010). E-learning in Saudi Arabia: 'To E or not to E, that is the question: *J Family Community Med*.; Sep-Dec; 17(3): 147–150.

Aparicio, M., Bacao, F., & Oliveira, T. (2016). Cultural impacts on e-learning systems' success. *The Internet and Higher Education*, 31, pp. 58-70.

Arkorful, V., & Abaidoo, N. (2015). The role of e-learning, advantages, and disadvantages of its adoption in higher education. *International Journal of Instructional Technology and Distance Learning*, 12(1), pp. 29-42.

Azmi, S., Rizvi, K., & Irshad, S. (2013). Influence of Psychological Well-Being on Academic Performance. *International Journal of Advanced Research in Behavioral Sciences*, 1 (1).

Bonk, C. J., Lee, M. M., Reeves, T. C., & Reynolds, T. H. (2015). MOOCs and open education around the world. Routledge.

Broadbent, J., & Poon, W. L. (2015). Self-regulated learning strategies & academic achievement in online higher education learning environments: A systematic review. *The Internet and Higher Education*, 27, 1–13.

Chen, H. (2006). Flow on the net—Detecting Web users' positive effects and their flow states. *Computers in Human Behavior*, 22, 221–233.

Dhir, S. K., Verma, D., Batta, M., & Mishra D. (2017). E-Learning in Medical Education in India. *Indian Pediatr*. 15; 54(10), 871-877.

Dwivedi, Y. K. (2020). Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life. *Int J Inf Manage*, 55:102211.

Forster, S., & Lavie, N. (2011). Entirely irrelevant distractors can capture and captivate attention. Psychonomic Bulletin & Review, 18(6), 1064–1070.

Gupta P. (2020). Knowledge, attitude, and practice towards coronavirus disease 2019 (COVID-19) among medical students: a cross-sectional study. *J Acute Dis*, 9:100.

Harvey, S. (2003). Building Effective Blended Learning Programs. Educational Technology, 43(6), 51-54.

Hoegerl C., & John S. (2010). E-learning in Medical Education. *J. Am. Ost. Ass*., March; 110:193-194.

Huang, Y. M., & Chiu, P. S., (2015). The effectiveness of a meaningful learning-based evaluation model for context-aware mobile learning. British Journal of Educational Technology, 46(2), pp. 437-447.

Ikhlaq A. (2020). Awareness and attitude of undergraduate medical students towards 2019-novel Coronavirus. *Pak J Med Sci*, 2;36 (COVID19-S4): S32–6.

Irshad S. & Begum N. (2021). COVID-19 and its psychological impact on working parents. *Technium Social Sciences Journal*, Vol. 24, 389-399.

Irshad S., Al-Saeed O., & Begum N. (2023). Impact of Transition from Onsite to Online Education on Students Learning and Psychological Well-being: A Cross-sectional Study of King Faisal University, KSA. *The Open Psychology Journal,* 16 (6).

Islam, N., Beer, M., & Slack, F. (2015). E-learning challenges faced by academics in higher education. *Journal of Education and Training Studies*, 3(5), pp. 102-112.

Joshua, D., Obille, K., John, E., & Shuaibu, U. (2016). E-Learning platform system for the Department of Library and Information Science, Modibbo Adama University of Technology, Yola: A Developmental plan. *Information Impact: Journal of Information and Knowledge Management*, 7(1), pp. 51-69.

Krause, K. L., & Coates, H. (2008). Students' engagement in first-year university. Assessment & Evaluation in Higher Education, 33(5), 493–505.

Kuh, G. D. (2009). What student affairs professionals need to know about student engagement. *Journal of College Student Development*, 50(6), 683–706.

Lavoie, J., & Pychyl, T. A. (2001). Cyber-slacking and the procrastination superhighway: A web-based survey of online procrastination, attitudes, and emotion. *Social Science Computer Review*, 19, 431–444.

Li, M. H. (2007). Lessons learned from web-enhanced teaching in landscape architect studios. *International Journal on E-Learning*, 6(2), 2005–2008.

Lim, V. K. G. (2002). The IT way of loafing on the job: Cyber loafing, neutralizing, and organizational justice. *Journal of Organizational Behavior*, 23, 675–694.

Maeroff, G. I. (2003). A classroom of one: How online learning is changing our schools and colleges. Palgrave MacMillan.

Martin, F., Stamper, B., & Flowers, C. (2020). Examining student perception of readiness for online learning: Importance and confidence. *Online Learning Journal*, 24(2), 38–58.

Mehlenbacher, B., Miller, C. R., Covington, J. S., & Larsen, J. S. (2000). Active and interactive learning online: a comparison of web-based and conventional writing classes. *IEEE Transactions on Professional Communication*, 43, 166–184.

Peter E. P. (2012). Lecturing: A lost art. *Currents in Pharmacy Teaching and Learning*, 4(1): 72-76.

Pittinsky, M. S. (2003). The wired tower: Perspectives on the impact of the internet on higher education. Pearson Education.

Radu, F., Radu, V., & Croitoru, G. (2011). The advantage of the new technologies in learning. In: 10th international conference on artificial intelligence, knowledge engineering and databases (pp. 150-155).

Raspopovic, M., Cvetanovic, S., Medan, I. & Ljubojevic, D. (2017). The effects of integrating social learning environment with online learning. *The International Review of Research in Open and Distributed Learning*, 18(1), pp. 141-160.

Reyes-Fournier, E., Cumella, E. J., Blackman, G., March, M. & Pedersen, J. (2020). Development and validation of the online teaching effectiveness scale. *Online Learning Journal*, 24(2), 111– 127.

Rosenberg, M. J. (2001). E-learning: Strategies for delivering knowledge in the digital age. New York: McGraw-Hill.

Ruiz, J. G., Mintzer, M. J., & Leipzig, R. M. (2006). The Impact of E-Learning in Medical Education. *Academic Medicine*, (81)3, 207-212.

Sarkar, S. (2012). The role of information and communication technology (ICT) in higher education for the 21st century. *Science*, 1(1), 30-41.

Sarrab, M., Al-Shihi, H., & Rehman, O. M. H. (2013). Exploring major challenges and benefits of m-learning adoption. *Current Journal of Applied Science and Technology*, 826-839.

Serdyukov, P. (2017). Innovation in education: what works, what doesn't, and what to do about it? *Journal of Research in Innovative Teaching & Learning*, 10(1), 4–33.

Slater, D. R., & Davies, R. (2020). Student preferences for learning resources on a land-based postgraduate online degree program. *Online Learning*, 24(1), 140–161.

Snyder, I. (Ed.) (1998). Page to Screen: Taking literacy into the electronic era. New York: Routledge.

Thatcher, A., Wretschko, G., & Fridjhon, P. (2008). Online flow experiences, problematic Internet use, and Internet procrastination. Computers in Human Behavior, 24(5), 2236-2254.

Veletsianos, G., & Houlden, S. (2019). An analysis of flexible learning and flexibility over the last 40 years of distance education. *Distance Education*, 40(4). 454–468.

Wan, C. S., & Chiou, W. B. (2006). Psychological motives and online games addiction: A test of flow theory and humanistic needs theory for Taiwanese adolescents. *CyberPsychology & Behavior*, 9, 317–324.

Xing, W. (2019). Exploring the influences of MOOC design features on student performance and persistence. *Distance Education*, 40(1), 98–113.

Zimmerman, B. J., & Schunk, D. H. (2008). Motivation and self-regulated learning: Theory, research, and application, *Lawrence Erlbaum*, (pp. 1–30).

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Conflict of Interest

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