Guest Editorial Preface

Editorial: Emerging Trends, Issues and Challenges in Online Pedagogy, Strategies, and Tools

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BACKGROUND OF SPECIAL ISSUE

Online learning has been regarded as an essential mode of teaching and learning in modern education (Blum-Smith et al., 2021). Because of advances in wireless communication technology, online learning can provide short-term instruction as well as lifelong learning. This is an advantage that meets the needs of different learners. Besides, the online learning mode has changed from a conventional virtual classroom to a blended learning model. It fulfilled the goal of student-centered learning. Also, it provided opportunities for students to experience higher-level thinking and autonomous learning (Sun et al., 2008).

The convergence of new technologies and global Internet adoption has shaped the demand for lifelong learning and cross-disciplinary competency training. Online learning has provided various modes to meet global demand. There are many terms related to online learning, including web-based learning, distance learning, and blended learning (Tallent-Runnels et al., 2006). Web-based learning refers to the activities using the Internet as a learning tool. Some of them use the Internet as a research tool, such as information seeking or web inquiry learning. Others use for taking online class, which can be an asynchronous online class or asynchronous class. The term distance learning indicates the learning that students do not physically present in the lesson. Some distance learning programs can be completely distance learning, but some combined with distance learning and conventional classroom instruction. Massive open online courses (MOOCs), which offer large-scale interactive participation and open access learning materials, are recent distance learning modes (Bozkurt et al., 2015; Shapiro et al., 2017). Blended learning combines online components with traditional, face-to-face components. This learning model has frequently been implemented in higher education. Also, the emerging of data science and artificial intelligence (AI) started to benefit online learning (Zawacki-Richter et al., 2019). With the help of AI, online learning can provide multiple sources and adaptive learning guidance for every single student. In other words, the online learning model is no more a learning platform that students can access content from it, but a learning partner that can help students to learn what they need (Perrotta & Selwyn, 2020).

Some review papers have analyzed the research trend and potential research direction for important educational issues, which also included online learning. Liyanagunawardena et al. (2013) conducted a systematic review of the MOOC research published from 2008 to 2012. They categorized the literature into several topics, such as the concept of MOOCs, case studies, the educational theory of Moocs, technology integrated into Moocs, participants' needs, and instructors' needs. Boelens et al. (2017)

analyzed the research design of blended learning and found that the opportunities for learners' social interaction generally occurred through a face-to-face meeting. Also, they argued that more attention should be paid to activities design through learners' perspectives.

Studies related to online learning are fruitful, and the research trend also acknowledged the benefit of the Internet on learning (Bozkurt et al., 2017; De Wever et al., 2006). Nevertheless, few studies have discussed the research trend and challenge of online learning since 2015. Because of innovative advances in technology, such as big data and AI, online learning has taken on a more diverse look than ever before (Saqr et al., 2017; Zawacki-Richter et al., 2019). At the same time, because of COVID-19, educators are beginning to appreciate the importance of online teaching and learning; more and more diverse content and multiple teaching models are being created (Jiang et al., 2021). More importantly, the review of the literature on online learning has mostly focused on specific topics or teaching areas, and rarely discussed online learning in a comprehensive manner. As researchers' mentioned (Boelens et al., 2017; Mellati & Khademi, 2020), some consideration of online learning can be discussed, such as the theoretical background of online learning, the flexibility of learning activities, the interaction between human and technologies, the strategies that improve students' learning, and the program for fostering learning climate.

THE PUBLISHED PAPERS OF THIS SPECIAL ISSUE

After an initial screening and double-blinded review, five research papers were accepted for publication in this special issue. The studies included in this study investigated the research trend and key factors for successful online learning.

For instance, one accepted paper identified the e-learning pedagogy through reviewing related publications. The study explored the role of information technology in e-learning and the barriers to e-learning. It revealed the future direction of e-learning, such as readiness and adaptivity.

Another accepted paper explored the influence of virtual reality (VE) in language learning. The study analyzed the published articles and summarized the effectiveness of VR in language learning.

One study analysis the students' collaborative learning and online social presence in online learning environments. One study reviewed the research trend of game-based learning in English language learning.

At last, one study investigated the participation patterns in the humanities and STEM (science, technology, engineering, and mathematics) programs in higher education. This study used CCF (cross-correlation function) and ARIMAX (multivariable autoregressive integrated moving average) models to predict the future trend. It provided a different view of education review for researchers.

CONCLUSION

As discussed in the papers included in this special issue, the success and sustainability of online learning involve many factors. Previous studies have revealed some important factors, such as the effectiveness of teaching and learning, areas of application, and modes of technology use. In the special issue, it was found that course readiness, activity design, and teaching difficulties are also worth considering. The success of a course depends not only on the efforts of the intervention of technology but also on the input of multiple experts who can revitalize the results of online learning.

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