Guest editorial

E-learning and blended learning during COVID-19

Since December 2019, COVID-19 has significantly affected and impacted our world on social, mental, health, cultural and economic levels. To respond to this crisis, educational organizations had to swiftly adjust by introducing online learning for all units. Academics and teachers needed to transfer their teaching, assessments and activities to online facilities by using specific platforms to allow adequate interaction between students and academics. This rapid change raised several challenges and opportunities for academics, teachers and students, from teaching delivery, students' interaction and technology use.

This special issue aims to investigate, assess and examine academics' perspectives and perceptions with regard how they have handled this challenge as well as highlighting any opportunities and challenges they have experienced during this period. This new issue will add a new theoretical and practical significance to the e-learning literature review, as currently academics are facing new challenges and opportunities by changing their teaching mode from blend teaching to pure e-learning from the COVID-19. This special issue explored the following themes, namely, teaching mode, e-learning, blended learning and collaborative technology

The special issue is comprised of eleven papers

Article 1: "Online university education is the new normal: but is face-to-face better? by Stevens, Garry; Bienz, Tobias; Wali, Nidhi; Condie, Jenna; Schismenos, Spyros". This paper compares the relative efficacy of face-to-face and online university teaching methods. Although previous research has supported a "no significant difference" position, our review of 91 comparative studies during 2000–2020 identified 37 (41%) which found online teaching was associated with better learning outcomes, 17 (18%) which favored face-to-face and 37 (41%) reporting no significant difference. Purpose-developed online content which supports "student-led" enquiry and cognitive challenge were cited as factors supporting better learning outcomes. This study adopts a predefined methodology in reviewing literature which ensures rigor in identifying relevant studies. The large sample of studies ($N = 91$) supported comparison of discrete learning modes, although high variability in key concepts and outcome variables made it difficult to directly compare some studies. A lack of methodological rigor was observed with some studies. As a result of COVID-19, online university teaching has become the "new normal" but also refocused questions regarding its efficacy. The weight of evidence from this review is that online learning is at least as effective, and often better than, face-to-face modalities in supporting learning outcomes, albeit these differences are often modest. The findings raise questions about the presumed benefits of face-to-face learning and complicate the case for a return to physical classrooms during the pandemic and beyond

Article 2: "Distance learning during COVID-19 pandemic: satisfaction, opportunities, and challenges as perceived by faculty members and students by Kaba, Abdoulaye; El Refae, Ghaleb; Eletter, Shorouq". This study investigated and assessed the first experience of faculty members and students with distance learning implemented at Al Ain University (AAU) to contain the spread of coronavirus or COVID-19. The paper attempted to understand faculty and students' satisfaction with institutional readiness for distance learning and perception towards opportunities and challenges of distance learning. The study is based on data collected in March 2020 through an online survey questionnaire from

the participants (students = 445, faculty members = 139). The Unified Theory of Acceptance and Use of Technology (UTAUT) was used in formulating a conceptual framework. The collected data were analyzed using several statistical techniques and partial least square structural equation modelling (SEM), to test and verify hypotheses. The study found that although faculty members and students expressed high satisfaction with the institutional readiness for distance learning and believed in its opportunities and advantages, they expressed concerns about the challenges facing distance learning. Findings of the study indicated a relationship between status or college of the participant and perceived opportunities and advantages of distance learning. Hypotheses testing supported the study framework and UTAUT theory by identifying and confirming the impact of perceived opportunities of distance learning on satisfaction with the institutional readiness for distance learning.

Article 3: "Faculty experiences on Emergency Remote Teaching during COVID-19: A Multicentre Qualitative Analysis by More, Bhakti; Valsaraj, Blessy Prabha; Biju, Seena; Payini, Valsaraj; Pallath, Vinod". During COVID-19 pandemic, emergency remote teaching (ERT) in higher education emerged, and faculty members had to go through a transformation in teaching-learning without being prepared. The purpose of this study is to understand the instructional delivery experiences of faculty members, explore the challenges and how they overcame these challenges during the transition from traditional classroom teaching to ERT. A qualitative research approach using phenomenology is adapted for the study. The study is conducted in selected renowned government and private universities offering professional education in India, Malaysia, Oman and United Arab Emirates. The data analysis used is NVivo, a data management software based on Ricouer's theory of interpretation. The findings identify unique challenges and opportunities in faculty experiences during ERT implementation and universities require more preparation in implementing a revised pedagogy. Therefore, addressing these unique challenges is essential in effective change management and ensuring the effectiveness of instructional delivery

Article 4: "Enriching TPACK in Mathematics Education: Using Digital Interactive Notebooks in Synchronous Online Learning Environments by Galanti, Terrie; Baker, Courtney; Morrow-Leong, Kimberly; Kraft, Tammy". In Spring 2020, educators throughout the world abruptly shifted to emergency remote teaching in response to an emerging pandemic. As instructors of a graduate-level synchronous online geometry and measurement course for practicing schoolteachers in Summer 2020, we responded by redesigning course assessments to reduce outside-of-class work and to model the integration of content, pedagogy and technology. We developed a digital interactive notebook (dINB) assignment using online presentation software, dynamic geometry tools and mathematical learning trajectories. Broader implications for dINBs as assessments in effective distance learning are presented. We completed a sequence of first-cycle coding of mid-semester surveys and second-cycle thematic categorizations of mid-semester surveys and end-of-course reflections. Descriptive categorization counts along with select quotations from open-ended participant responses provided a window on evolving participant experiences with the dINB across the course. Modifications to the digital interactive notebook design based on teacher mid-semester feedback created a flexible assessment tool aligned with the Technological Pedagogical Content Knowledge framework. The teachers also constructed their own visions for adapting the dINB for student-centered instructional technology integration in their own virtual classrooms.

Article 5: "Predicting the Determinants of Online Learning Adoption during the COVID-19 Outbreak: A two-staged hybrid SEM-neural network approach by Thongsri, Nattaporn;

Chootong, chalothon; Tripak, Orawan; Piyawanitsatian, Piyaporn; Saengae, Rungtip". This study aimed to study the adoption of online learning in higher education through the perspective of the readiness of the following factors: Self-directed learning (SDL), motivation for learning (ML), online communication self-efficacy (OCE) and learner control (LC). This was an empirical study in the context of developing countries, specifically Thailand. This research applied a quantitative study method by collecting data from 605 higher education students in autonomous government institutions. The data analysis applied a structural equation model (SEM) to identify the significant determinants that affected the adoption of online learning. Moreover, the study applied a neural network model to examine the findings from the SEM. From the data analysis using the SEM and neural network model, the results matched each other. The results of the empirical study were firm and supported that the readiness factors of students had statistical significance in the following order: SDL, ACE, LC and ML. The study results showed an operational perspective to be prepared for online teaching, both for the related department of the Ministry of Education to support the infrastructure for online learning and for universities and instructors to create learning conditions and design teaching processes consistently with the online learning context.

Article 6: "Measuring Instructors Continued Intention to Reuse Google Classroom in Iraq: A Mixed-Method Study during COVID-19 by Hussein, Mahmood; Ow, Siew Hock; Ibrahim, Ishaq; Mahmoud, Moamin". The use of Learning Management Systems (LMSs) such as Google Classroom has increased significantly in higher education institutes during the COVID-19 pandemic. However, only a few studies have investigated instructors' continued intention to reuse LMS. The goal of the current study is to investigate the factors that influence instructors' intention to reuse an LMS in higher education institutes. This study adopted a mixed-method research design. In the quantitative section, an integrated model of technology acceptance model and Information system success model is proposed to explore the effects of system quality, service quality, information quality, perceived ease of use and perceived usefulness on instructors' satisfaction, and how their satisfaction will influence their intention to reuse Google Classroom in the future. In the qualitative section, to gain more understanding, instructors were asked to identify the challenges that inhibit the adoption of e-learning technologies in public universities in Iraq and what are their recommendations to rectify them.

Article 7: "Teacher Readiness for Online Teaching-Learning during COVID −19 Outbreak: A Study of Indian Institutions of Higher Education by Paliwal, Manisha; Singh, Archana". COVID-19 outbreak has utterly disrupted the worldwide education system and compelled for an emergency immersion of unplanned and rapid online teaching-learning. The online teaching readiness would highly depend on the competencies of teachers and skills to adapt the pedagogy and new roles by the teachers. In this context, the proposed study is designed to assess higher education institutions teachers' readiness to handle online education based on online teaching readiness competencies model. A structured questionnaire has been adopted to survey and collect data from 296 teachers of HEIs across India. The questionnaire consisted of constructs. The constructs in this section were measured using a five-point Likert scale ranging. In the first step first-order confirmatory factor analysis is carried out, by using the software IBM AMOS-26. The initial model is generated for five constructs, and outcomes are used to analyze the model's goodness of fit and construct validity. In the second step, SEM is carried out to do the path analysis of the proposed model. The findings connote that the level of course design competencies, communication competencies and time management competencies is not sufficient among the teachers of HEI of India, whereas the technical competencies possessed by the teachers meet the requirements for readiness to handle online education. The research is an attempt

to provide possible explanations for the establishing relationships between the constructs and discusses the usage of information which can be further used to enhance the online teaching readiness competencies for the teachers of HEIs of India.

Article 8: "Multitasking behavior in online classrooms and academic performance: Case of university students in Ecuador during COVID-19 outbreak by Alvarez-Risco, Aldo; Estrada-Merino, Alfredo; Anderson-Seminario, María de las Mercedes; Mlodzianowska, Sabina; García-Ibarra, Verónica; Villagomez-Buele, Cesar; Carvache-Franco, Mauricio". This paper explores university students' multitasking behavior in online and face-to-face classrooms and their influence on academic performance. Also, the study examined students' opinions. A total of 302university students fulfilled an online survey. Ten questions were focused on demographic information; nine items evaluated online class behavior of students, and nine items evaluated face-to-face class behavior of students; 11 items evaluated self-efficacy, and four items measured academic performance. Multitasking behavior was found to negatively influence self-efficacy of -0.332, whereas self-efficacy showed a positive influence of 0.325 on academic performance. Cronbach's alpha and average variance extracted values were 0.780 and 0.527 (multitasking behavior), 0.875 and 0.503 (self-efficacy), 0.781 and 0.601 (academic performance). Outcomes of the bootstrapping test showed that the path coefficients are significant.

Article 9: "Effect of E-Evaluation on Work Motivation among Teachers during the Movement Control Order in COVID-19: The Mediating Role of Stress by Motevalli, Saeid; Sulaiman, Tajularipin; Ibrahim, Amalina; Kai Yan, Wong; Hakim, Muhammad". The study aims to examine the effect of e-evaluation on work motivation among teachers during the Movement Control Order in COVID-19 and determining the mediating role of stress. The study is designed using a causal research design to examine the cause-effect relationship between the study variables. The study sample consists of 595 schoolteachers selected via convenient sampling. Quantitative data are collected from an online survey through the questionnaires with demographic, stress, e-evaluation and work motivation developed by the researchers were distributed during the MCO period. To test the model, SEM was applied by using AMOS 21. The results indicated that the e-evaluation, stress and work motivation of teachers during the Movement Control Order were conducted at a moderate level. The stress relationship with work motivation of teachers was also weak and showed a negative relationship, whereas e-evaluation and work motivation showed a strong relationship. The results of the SEM analysis revealed that the model fit was achieved with RMSEA = 0.07, GFI = 0.96, CFI = 0.98, TLI = 0.97, ChiSq/df = 4.30 and p = 0.00. In addition, there was no role of stress as a mediator in the relationship between e-evaluation and work motivation, and e-evaluation contributed 54% to work motivation.

Article 10: "COVID-19 and students' perception about MOOCs" A case of Indian Higher Educational Institutions by Thongsri, Nattaporn; Chootong, chalothon; Tripak, Orawan; Piyawanitsatian, Piyaporn; Saengae, Rungtip". The purpose of this article is to understand the outcomes of MOOCs in the light of COVID-19 concerning the students of higher educational institutions in India. The COVID-19 has disrupted the normal teaching-learning role across the world and has put everyone in a nightmare. HEIs are now requesting students to take up MOOCs to explore and attain knowledge and the same is even followed by the corporate institutions. MOOCs are one of the crisis management solutions to ensure that education is continuous and not disrupted. The data included in this research has been collected from students of higher education institutions across India using a convenient sampling method. The collected data was exposed to a factor analysis using a PCA technique to reduce multiple dimensions. From the research, it is well understood that MOOCs are useful to keep oneself updated with the market and industry trends especially

when the world is focusing on business analytics, artificial intelligence and other technologically driven topics and concepts.

Article 11: "Impact of Coronavirus and Online Exam Anxiety on Self-efficacy: The moderating role of Coping Strategy by Arora, Simple; Chaudhary, Priya; Singh, Reetesh". The novel coronavirus pandemic is projected to cause an elevation in anxiety levels across the globe. With everything shifting to online mode, the teaching-learning has also gone virtual. The current study aims to a) analyze the impact of novel Coronavirus and online exam anxiety on student's self-efficacy; b) investigate the role of coping strategies as a moderator between anxiety and self-efficacy; and c) develop and validate online exam anxiety scale. The data is collected by undertaking a cross-sectional survey of 434 higher education students from international universities. For conceptualization of the construct of online exam anxiety as a multi-item construct, the principal component analysis is carried out. Thereafter, the conceptual model is validated and tested using confirmatory factor analysis and hierarchical regression analysis. The hypothesized model demonstrated good reliability and validity. The results showed that anxiety has an adverse impact on students' self-efficacy. Findings indicate that the sample in this study reported more anxiety owing to online examinations in comparison to coronavirus induced anxiety. Also, it was found that the relationship between anxiety and self-efficacy was stronger at low levels of coping strategy, whereas it got considerably weakened at high levels of coping strategy

In conclusion, this special issue aims to present the teaching challenges and opportunities during the COVID-19 pandemic. This special issue presented several practical studies from worldwide of their teaching during the pandemic. Finally, this special issue will be beneficial for the education sector, including universities, schools and colleagues, to assist the academics, researchers, education managers and others conduct their learning and teaching. Finally, we hope that you, your families and communities are keeping safe and well amid the public health concerns and pandemic emergency worldwide. We understand and are undergoing ourselves the rapid adaptation and transition to remote online and distance forms of education now required in many settings.

Tomayess Issa
School of Management, Curtin University, Perth, Australia
Pedro Isaias
Information Systems & Technology Management School,
University of New South Wales, Sydney, Australia, and
Theodora Issa
Curtin University, Perth, Australia