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Editorial: Access to and Utilization of Technology, Technology Integration, Game Based Designs and using AI to Transform Education Systems

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Greetings and welcome to Issue 1, 2021. We are publishing outside of our cycle due to our inability to publish our December 2020 Issue. It is a new year, but we continue to experience the "new normal" in HEIs and our respective education systems. Our narratives have continued to evolve and while we roll out the strategies needed to sustain our institutions, at least in the medium term, we are also heeding the call to provide support at all levels to quality assure remote instruction and online teaching and learning.

In this Issue we present articles from or about Nigeria, Uganda, Botswana, Iran, India, Vietnam, Kenya, Amsterdam, Tanzania, and the USA. Among the themes covered, the articles in this Issue focus on Competency Based Education; integration of mobile devices in teaching and learning; using game-based response systems to enhance learning' micro learning platforms; usefulness of learning management systems; computer aided instruction; and the potential of artificial intelligence for transformation of the education system.

In our first refereed article**, Correlational Studies Between Secondary School Teachers' Access to and Utilization of Internet Facilities for Instruction in Ilorin, Nigeria,** Aderogba, Onojah & Olumorin discuss the Internet facilities available for secondary school teachers and their utilization. In their study of the relationship between access to and utilization of Internet facilities to teach in Ilorin, they randomly selected a sample across eighteen secondary schools in Ilorin and found a positive significant relationship between teachers' access and utilization of Internet facilities for instruction. The authors concluded that secondary school teachers effectively utilizing Internet facilities, where available, aids instruction and they argue for provision of Internet facilities in secondary schools to enhance the effectiveness of instruction.

Continuing the theme of technology use, in the article **Level of integration of mobile device technology in teaching and learning in universities in Botswana,** Rudhumbu, Dziva & Plessis present the results of their investigation into the level of integration of mobile device technology in teaching and learning in Botswana universities. The results of their study showed that negative attitudes of lecturers towards the integration of technology continue to be one of the major contributory factors in the low levels of technology integration in teaching and learning in universities in Botswana. The study also revealed that high Internet costs, as well as slow Internet connectivity are some of the main challenges contributing to the slow pace of technology integration.

In an article on **College Students' Perceived Self-efficacy and Use of Information and Communication Technologies in EFL Learning,** Ngo & Eichelberger examine Vietnamese, non-English major college students' perceived self-efficacy and their comfort in using Information and Communication Technologies (ICTs) in learning English as a foreign language. Inferential statistics analysis found students' perceived self-efficacy differed by their comfort levels in using ICTs - those with a high to very high comfort level were more self-efficacious in their learning of English compared to those with an average or low level. The authors note the potential of their findings for explaining limited proficiency in EFL learning among non-English major college students in Vietnam and recommend further investigation to clarify the relationship between technology comfort levels and self-efficacy among EFL learners.

University Students' Perception on the Usefulness of Learning Management System Features in Promoting Self-Regulated Learning in Online Learning: In this article Araka, Maina, Gitonga Oboko & Kihoro. examine the literature on how the features of LMS are being utilized by students in promoting Self-Regulated learning and provide findings from a structured survey among University students in Kenya. Their study findings suggest that the features of Learning Management Systems are underutilized by students and they face several challenges that obstruct them from being actively involved in online learning. The study provides insights for educators and researchers on the areas of focus that can be prioritized towards offering support to students in improving their Self-Regulated learning in online learning environments.

Ghasia and Rutatola in **Contextualizing Micro-learning Deployment: An evaluation report of platforms for the higher education institutions in Tanzania,** evaluate platforms for micro-learning deployment in higher learning institutions (HEIs). The paper is influenced by the Design Science Research approach and the Critical Theory of Technologies. The authors use a stage-based methodology for their evaluation and propose eleven platforms that are considered to be generically relevant for the Tanzanian context. The proposed platforms are considered affordable, customizable, and functionally able to offer quality micro-learning services. The paper adds knowledge to the micro-learning deployment domain as well as offers practical guidance to those intending to deploy micro-learning services.

In the context of developing models to aid learning outcomes, in this study on **Computer-assisted instruction tools: A model to guide use in low- and middle-income countries,** Kaye and Ehren note that education practitioners in low- and lower-middle-income countries (LMICs) are searching for innovative ways to rapidly strengthen learning outcomes. Adopting a realist-informed methodology, the authors used the results of their analysis to develop a model that outlines key trends that facilitate and/or impede the deployment of computer-assisted instruction (CAI) tools in LMICs. They identified key factors that should be considered when designing CAI interventions including the operating environment; stakeholder engagement; infrastructure; technological trust; CAI tool design; content curation/creation; student engagement; classroom integration; teacher capacity; student capacity; and data collection and use. The authors propose their model as a foundation that can guide future research.

Bashir Kishabale in a study on, **Theorising and Modeling Interface Design Quality and its Predictive Influence on Learners' Post Adoption Behaviour in E-Learning Course Environments,** assessed interface design quality, and its predictive ability on E-learners' post-adoption behavior in E-learning course environments. Using DeLone and McLean's Information Systems Success Model, Khan's E-learning Framework, and Bhattacherjee's Information System Continuance Model for theoretical underpinning of the study, the discusses a four-factor structure of interface design quality that were found to be statistically significant predictors of E-learners' satisfaction, in turn, impacting learning agility. The article provides insights for E-learning stakeholders interested in evidence-based pedagogical and design decisions for the successful implementation and continued use of digital learning solutions in higher education contexts.

Winning Together: Using Game-Based Response Systems to Boost Perception of Learning: In this article the authors note the integration of game-based techniques, Internet, and mobile phone technology in teaching and learning. Ashtari and Taylor explore game-based technological tools and its potential to make the learning environment more appealing for students and increase their learning perception and level of engagement. Their study findings suggest that the ability, motivation, and trigger capabilities of the Game Based Response System (GCRS) were the most important predictors for the participating students' perception of learning in the courses sampled.

Potential of Artificial Intelligence for transformation of the education system in India: In this article Jaiswal & Arun explore the use of Artificial Intelligence (AI) in developing new teaching-learning solutions in schools in India. The authors discuss the shift from conventional methods of teaching to smart education, designed to enhance the learning experiences of students. Within the emerging country context of India, the authors present the views on AI from the perspective of educational technology firms and experts, respectively. The authors conclude that there is potential for AI in advancing the work of educational technology firms in their future applications. The study has practical implications for consideration by decision-makers seeking to transform the education system in emerging countries.

In this topical article that has global applicability, Tajik and Vahedi in a study on **Quarantine and education: an assessment of Iranian formal education during the COVID-19 outbreak and school closures,** explored the different types of platforms being used most during school closures associated with the COVID-19 pandemic in Iran. The authors conducted student and teacher surveys and the results indicated that social media was the platform used, more so by older students for educational purposes. The reasons advanced by the authors include culture and accessibility of technology.

The Role of IT Professional Certifications in IT Instructors' Teaching Quality: In this article Mbise investigates the role of information technology (IT) professional certifications in IT instructors' teaching quality in higher education institutions (HEIs) in Tanzania. The results of the study suggest that IT professional certifications play an important role in IT instructors' quality of teaching and the certifications improved teaching quality, raised self-confidence, kept professional skills updated, improved preparation of lesson plans and instructional materials, enhanced delivery techniques, and improved setting of competency-based learning activities. The results also suggest that the availability of certified IT instructors could have an impact on improved students' performance in courses.

In an interesting article from the field on **Perception of Veterinarians towards "DIAREX-K"- A need based Expert System for Dairy Cattle Disease Diagnosis,** we examine an application of simple and effective design for continuing education. Ramasamy, Rajeev TS, George & Jiji RS**,** in an interesting article that **discusses** the development of an IT based expert system on dairy cattle diseases for Continuing Veterinary Education (CVE) of veterinarians. To assess the effectiveness of the system the author utilized a stratified proportionate random sampling strategy to identify participants who then completed a structured questionnaire. The study findings indicate high satisfaction ratings for the expert system, and top ranking for its simplicity and design aspects. The authors concluded that it is essential for veterinary professionals to use computer-assisted aids such as the expert system as part of their CVE program to improve their clinical and diagnostic practices.

In our second article from the field, Hadullo in a study of an **Online Competency Based Education Framework using Moodle LMS. A Case of HEIs in Kenya,** explores the process toward development of a Framework that can be used to implement an online Competency-based Education (CBE) program for HEIs via a Learning Management system such as Moodle. The study advances theoretical perspectives on CBE and highlights the role of planning; design; improvement and achieving as the most influential factors in determining the successful implementation of an Online CBE program in HEIs.

A special thank you to all of our authors for your patience during the long delays, while our peer review panels and our journal managers juggled tasks in an environment of changing responsibilities in response to the COVID-19 pandemic, and its impact on our respective institutions. Here at IJEDICT, we continue in service to you our valued stakeholders, and we look forward to learning about and doing more to share best practices.

We take the opportunity once again to remind potential authors of our journal guidelines that should be observed when submitting articles for publication. Your attention to the author guidelines at: http://ijedict.dec.uwi.edu/submissions.php#guidelines will enhance our review process and improve the time to completion by our review panels.

Our continued best in 2021.

Stay Safe and Well!

Denise Gaspard-Richards
Chief Editor, IJEDICT
