Editorial

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Biographical notes: Lorna Uden is a Professor Emeritus of IT Systems in the Department of Computing at the School of Digital, Technologies and Arts at The University of Staffordshire. Her research interests include artificial intelligence, technology learning, HCI, activity theory, big data, knowledge management, web engineering, multimedia, e-business, service science and innovation, mobile computing, cloud computing, neuroscience, social media, intelligent transport systems, internet of things and problem-based learning.

Jeremiah Sullins is a Professor of Psychology and Cognitive Neuroscience at Harding University. As a cognitive psychologist, his primary interests are in the learning sciences. His research focuses on emotions with branches extending into learning/educational technologies, pedagogical strategies, tutorial dialogue/ interaction, feedback mechanisms, and question-asking.

Welcome to the V20 N2 issue of *IJLT*. This issue consists of five papers.

The first paper is titled 'Citizen science co-constructed educational practices: a teacher training course' by Manuel J. de S. Santos, Vânia Carlos and António A. Moreira. This paper details the development of citizen science learning materials designed to promote participatory citizenship through knowledge co-construction. Employing design-based research, the study involved a teacher training course and community collaboration within a Portuguese secondary school, both before and during COVID-19 lockdowns. The research highlights the effectiveness of co-creation strategies in fostering student engagement and collective awareness, as evidenced by survey data and teacher reflections. The study ultimately demonstrates the potential of citizen science to bridge formal and informal learning while enabling students to actively participate in their local communities.

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The second paper is titled 'Dynamic and collaborative learning environments: their effect on academic performance and student's motivation' by Kanika, Neha Dutta, Krishan Dutt and Roop Lal. This study investigates the impact of combining dynamic and collaborative learning environments on engineering students' academic performance and motivation. Employing a quasi-experimental design with 253 students, the research compared the effects of collaborative learning alone, dynamic learning alone, and a blend of both. Results indicated that dynamic environments significantly improved learning outcomes while collaborative learning alone did not. Notably, the integration of both dynamic and collaborative environments led to the most substantial positive impact on academic performance.

The third paper is titled 'Exploring the influence of social media information quality, and perceived usefulness on academic achievement: the mediating role of usage of social media' by Badr Saleh Al-Abdi, Abdallah M.M. Badr, Rozilah Kasim and Faisal A.M. Ali. This study investigates the impact of social media information quality and perceived usefulness on academic achievement among Saudi university students, with a focus on social media usage as a mediating factor. Utilising survey data from 445 students, the research found that information quality, perceived usefulness, and social media usage all directly influence academic achievement. Notably, social media usage was identified as a significant mediator in the relationship between information quality and perceived usefulness and academic achievement. The findings suggest that enhancing social media information quality and perceived usefulness can positively impact academic outcomes through increased and effective social media usage.

The fourth paper is titled 'Technological-pedagogical knowledge in problem-solving teaching: an exploratory study of mathematics teachers' by Astri Wahyuni, Yaya Sukjaya Kusumah, Bambang Avip Priatna Martadiputra and Agus Hendriyanto. This qualitative case study explores how experienced mathematics teachers utilise digital tools for non-routine problem-solving and solution communication. The research emphasises the importance of a strong TPACK framework, highlighting the need for teachers to understand mathematical problem-solving, effectively use digital tools, and thoughtfully select appropriate tasks. While technology offers enhancements to traditional teaching, it should complement, not replace, the teacher's role in facilitating student learning. The study underscores the necessity for teachers to adapt their strategies to address diverse student needs and ensure purposeful technology integration in mathematics education.

The fifth paper is titled 'A systematic review of the use of immersive technologies in young children's education' by Rıdvan Ata and Kasım Yıldırım. This study systematically reviewed immersive technology research in early childhood education from 2007 to 2022, analysing 32 relevant publications. The review identified key focuses like reading comprehension, spatial skills, and motivation, and revealed that augmented reality is more prevalent than virtual reality in classroom settings. Employing primarily quantitative methods, researchers used pre/post-tests and performance assessments to measure the positive cognitive, affective, and behavioural impacts of immersive interventions such as AR apps and VR environments. The findings contribute to understanding the current state and potential of immersive technologies in enhancing early childhood learning.