
Editorial/Éditorial Volume 48 Issue 2

M. Cleveland-Innes, Athabasca University

S. Lakhai, Université de Sherbrooke

The field of education technology, and related subject areas attendant to it, welcomed millions of new participants during the COVID-19 pandemic. According to UNESCO, the education experiences of more than 1.4 billion students were disrupted in ways that will impact them, and those around them, for years to come. This journal has a significant role to play for documenting these experiences and the research that followed. Evidence about the use of learning technologies for learning in many new education spaces and geographic places is now available. Interest in the topic of technology-enabled learning has increased exponentially and submissions documenting these new experiences, insights, research findings, and practice applications have continued to grow. Our journal supports scholars long involved in, or new to the topic of, technology-enabled learning design and delivery.

In this issue's Notes Section, we are privileged to present this invited publication written by **Dr. Sarah Eaton**, faculty member at the University of Calgary: *The Academic Integrity Technological Arms Race and its Impact on Learning, Teaching, and Assessment*. For Dr. Eaton, well-known for her expertise on academic integrity, a technological arms race has developed in response to academic cheating. The three technological advances that impact academic integrity are identified and assessed: a) text-matching software, b) online exam proctoring software, and c) artificial intelligence and Large Language Models (LLMs). I know you will find value in Dr. Eaton's suggestion that there is no "silver bullet" for preventing or investigating academic misconduct. Instead, she submits, our ethical obligations for learning, teaching, and assessment must include a human focus and promotion of student success.

Research-based articles in this issue focus on technology usage, teaching, and learning. Article one, titled *Using Technology for Learning: Generalizable Lessons from on Educational Technology Integration in Kenya*, is presented by **Adeela Arshad-Ayaz** and **M. Ayaz Naseem** of Concordia University, Montreal, Canada and **Justus O. Inyega** from the University of Nairobi, Kenya. All important lessons learned on the integration of technology in the Kenyan education system from a multi-year partnership project are revealed. As recently suggested by UNESCO, global partnerships are the key to creating a new social contract between education and society. Also important is the academic rigor required to assess such activities. In this paper, research using methodological strategies on the

intersections of critical discourse analysis and critical ethnography describes the integration of technology in this Kenyan case. Included are examples and evidence about the pedagogical and societal successes and challenges during technology integration. In support of the need for change, lessons from qualitative findings are presented.

Article two presents results that emerged from using inquiry-based pedagogical practices.

Student-Generated Questions Fostering Sustainable and Productive Knowledge Building Discourse is written by **Gaoxia Zhu**, **Ahmad Khanlari**, and **Monica Resendes** of the University of Toronto in Canada. These scholars examined student-generated questions in the process of Knowledge Building discourse. The role of questions in student learning is a common but controversial issue: who is best responsible for question posing and topic? For some, teachers should generate questions to ensure the questions are of high-quality. Others emphasize student agency and the need for relevant questions. Comparing question threads, findings indicate that questions posted by students generated sustainable and progressive discourses. Content analysis also revealed that the threads starting with questions were more likely to end up with productive threads than the non-question threads.

What factors, beyond access to technology, impact equitable use of computers in schools?

Fernando Fraga-Varela of University of Santiago de Compostela and **Almudena Alonso-Ferreiro** from the University of Vigo in Spain provide case study data in article three, ***Digital Competence in Primary Education and the Limits of 1:1 Computing***. What are the effects of technology on the lives of children in situations of socio-cultural and economic exclusion? Findings from three case studies, using ethnographic in-depth interviews and participant observation, are presented. Data suggest that family context and digital competence is heavily dependent on the opportunities provided at school. However, where advanced learning experiences with information and communication technology are not provided at school, school policies are needed to address this gap. Those leading the transformation through education **with** digital technology and education **about** digital technology will find this consideration valuable.

Beyond one's context, individual differences also impact the quality of virtual education experiences. In article four, ***University Learners' Motivation and Experiences in Using Virtual Laboratories in a Physics Course*** are examined by **Gülgün Afacan Adanır** at Ankara University, Turkey with **Azat Akmatbekova** and **Gulshat Muhametjanova** of Kyrgyz-Turkish Manas University, Kyrgyzstan. This study measured learners' use of virtual laboratories in a university-level physics course. Over three-hundred undergraduate students participated in one of three groups: two different virtual laboratory platforms or a face-to-face lab. Quantitative data results demonstrated differences across groups concerning individual motivation and experience. In addition, learners' physics laboratory attitudes differed across gender and grade point average (GPA).

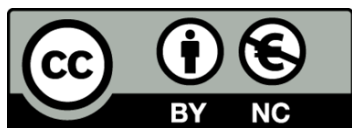
Where is the balance point between the technology supporting digitalization and the theory supporting pedagogicalization? For **Jeremy Dennis** of St. Louis Community College, USA, advancements in technology continue to outpace the Scholarship of Teaching and Learning (SoTL) with technology. In a more macro-level discussion of the need for high education change, ***(Re)Framing Our Frames: Architectonics, Intertextuality, and the Scholarship of Integration in Online Education***

calls for a reconsideration of Ernest Boyer's ideas. Boyer suggested a need for the appreciation of integration as convergence or *intertextuality* in combination with its digital correlate or *hypertextuality* to operationalize online education. With the addition of disciplinarity to this yet unachieved convergence, Dennis' meta-synthesis offers Peircean architectonics as the paradigm that reframes our understanding of convergence and illuminates its actualization of online education theory. This provides online educators with a common discourse and interdisciplinary framework that will advance the scholarship of integration in online education.

The Canadian Journal of Learning and Technology publishes articles in English and French that illuminate the role, the scope, and the complexity of technology-enabled learning in theory and practice. The COVID-19 pandemic caused vast amounts of experience with technology-enabled learning as a process of safe distancing, an amount of experience that could not have been predicted or generated in any other way. This reality has renewed our commitment to reporting research on technology that bridges required distances, adds quality, and offers ideas about new ways of doing the business of education. We are in this together. Wherever you are, geographically and educationally, we wish you well in the continued research and development of techno-pedagogical forms for education.

We take this opportunity to thank Dr. Sawsen Lakhali, CJLT's Éditrice en Français of the last three years, for her dedication and commitment to bilingual dissemination of results in our journal. Dr. Lakhali is stepping away to address other critical projects in her education scholarship. As a result, we are in search of another bilingual education scholar willing to adopt this role. If interested, please contact CJLT's Managing Editor Ms. Carmen Jensen-Tebb at cjlt@ualberta.ca, or me at martic@athabascau.ca.

Please share your views about and suggestions for CJLT with us. We look forward to receiving future submissions from you as education researchers and practitioners of all types from all places in the world.



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