# EDITORIAL

# Researching Technology-Enabled Teaching, Learning, and Training

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## Discourses on TEL Research

In a recent publication, Mishra and Panda (2020) reasserted 'policy-capacity-technology' as a theory of change model in effective implementation of technology-enabled learning (TEL), and at the same time underlined "to engage in capacity building in institutions and focus on our collective understanding of 'learning' in a 'networked' society, making use of resource-based learning within and beyond the Commonwealth in the broader sense as well as in the contexts of socio-cultural and educational ecologies" (p. 237). In this change model, research on TEL assumes considerable significance. The current focus on provisions and mechanisms notwithstanding, we need to go beyond to address if at all *and* how technology facilitates teachers' teaching and learners' learning (Kirkwood & Price, 2013).

In an earlier paper, Mishra (2019) presented an excellent analysis of the implementation of TEL in (Indian) universities through a three-phase framework: preparation, development, and maturation. Though evaluation and benchmarking were included in the phase-3 of implementation of TEL, there is a need for the specific inclusion of the discourse on 'research' (and R&D) in the context of technology and education, as also technology-enabled learning. As an extension, following a design-based research perspective, Scanlon et al (2019) underlined that research in TEL requires interdisciplinary collaboration across disciplines, and, that use of technology in-context as also how teachers and students as co-explorers are using technology to create their learning practices assume considerable significance. Arguing a case for research-based research in TEL, Price et al (2015) noted that though research on learning has advanced at a fast pace, there is less serious engagement with modelling the inter-related factors associated with learning, teaching, and technology; and that there is a need for the researchers of TEL to get into appreciating the existing research studies on teaching and learning in varied contexts, and 'narrow the gap between research and practice'.

In the recent past, multiple voices have been expressed on the relationship between education, technology and human life. One side of the critical voice records TEL as a reductive discourse serving other demands rather than that of pedagogical need (Bayne, 2014), that TEL must not be considered outside the everyday world and life (Selwyn, 2014), that TEL as disruptive innovation creates more markets than learning opportunities and transformation (Goodchild & Speed, 2019), and that there is always a downside to use of technology by students resulting in negative engagements (Selwyn, 2016). The other side of the voice considers how TEL can be understood and implemented to create more self-directed and collaborative learning in-context; and most research on TEL has pursued this strand. Another critical issue in TEL has been provision for learner voices on learning and learning environment in the learning space (Temple, 2008) by addressing physical and technological affordances and challenges, and by encouraging collaborative group work, self-directed learning, and collaborative learning (Verdonck et al, 2019).

Besides the critical discourses, it is also to be seen how technology is understood and used in our day-to-day living in our socio-cultural contexts, and how this can be harnessed in the context of teaching and learning (unless one can argue otherwise that 'technology' and 'life' can run parallel to each other!). In a recent work, Selwyn et al (2020) critically analysed six hot takes for educational technology vis-à-vis TEL, suggesting that technology needs to address the broader socio-cultural contexts including the neo-liberal ideology and inequality in society. The authors underlined: "It is time to better theorise the links between developments in technology and inequality in education, while also striving to actively design technologies that facilitate more equitable futures for all" (p. 2). They also distinguished between 'classrooms on platforms' and 'platforms in classrooms' (the former unfortunately being emphasized more by many), and that educational data so essential for deep learning, machine learning, learning analytics and the like, need to be safeguarded against the hegemony of monopolists through data brokers of educational platforms. Further, machines must not dictate what is meaningful learning, and how human beings should learn.

While underlining the importance of engagement with technology with thirteen conditions of success, Henderson et al (2015) noted: "…to better establish TEL principles and practices in the collective consciousness of students and staff, not just the 'usual suspects', 'early adopters' and the 'already converted'" (p. 140). Policy makers, researchers and practitioners need to critically analyse successful enabling factors for TEL through research, and the practitioners need to be facilitated for successful implementation of TEL. In a recent study on students (Henderson, Selwyn & Aston, 2017), the factors with higher percentages for student acceptance of TEL practices included: organization and management of logistics, flexibility of place and location, time-saving, replay and review, and information research. This and other research should guide us how to proceed with technology design for education. In this context, we should not forget that the provisions, perceptions, and practices for TEL vary considerably across the globe. The contexts of the developing and low-income countries do not obviously match with those of the developed; and there is always a need to discover TEL conditions, facilitative mechanisms, and contributions to education and learning through more research studies. The present issue of *JL4D* contains peer-reviewed reflective and research-based papers, case studies, and reports from the field which could additionally inform our policy and practice on 'technology-enabled learning for development'.

## Papers in the Current *Journal* Issue

The *invited paper* by Mark Brown and colleagues on micro-credentialing should be of interest to educational leaders and teachers across the globe. With Web 4.0, we are moving toward more short course- or module-based learning within a blended learning context, where learners have the freedom to choose such courses or modules either as part of a full certification or as stand-alone or even for self-learning/training. The invited authors present an analysis of global developments in micro-credentials, and based on European case studies, discuss how micro-credentials, which are generally confined to national borders, could cut across national boundaries (maybe through forms of various MOOCs, etc.) so that partnerships and networked learning across borders can be augmented.

Our *research papers* section opens with a critical review paper by Virginia Clinton-Lisell on open pedagogy (OP). There have been, in recent times, a few reflective reviews on open pedagogy and open

educational practices. This review has a distinct focus on open pedagogy research from the viewpoint of faculty and student perceptions, beyond the usual understanding in the use of open educational resources and open licensing. This is the lead paper in the research section, and the review analysis on OP should be a recent contribution to the limited reviews available in this area (also included in the analysis by the author herself).

The research paper by Sutapa Bose presents the findings of a learning design research in the context of a distance learning secondary teacher education programme at the Indira Gandhi National Open University, India. The learning design went beyond the normal teaching-learning based on self-learning materials (print and electronic) and study centre-based academic counseling (generally considered as behaviourist) to include student-teachers' active engagement through debates, critical discussions, and problem solving (generally considered a constructivist approach) within a framework of 'study-discussion-collaboration-presentation'. It is the active engagement in tasks, alongside the self-learning resources, which promoted critical reflection. One significant implication that we all need to grapple with is how to transfer this engaged kind of learning to the actual school education contexts when the student-teachers take over the role of full-time teachers in schools. Also, as suggested by the researcher, the impact of the new learning design on the performance of student-teachers needs to be studied in the future.

Student perception of e-portfolio in open and distance learning is the next research paper presented by Mphoentle Modise from the University of South Africa, Pretoria. E-portfolio formed part of a postgraduate diploma in tertiary education as a formative 'learning' tool as also as a summative 'assessment' tool. The results showed that above seventy percent of the students actually used the e-portfolio, and they showed positive attitude toward it, and also reported various facilitative mechanisms, though there was lack of support from family and friends and IT support from the university. The author appropriately suggests considered institutional policy and faculty professional development for full integration of e-portfolio into online learning.

The next article by Ruchika Kuba presents the research findings on the perceived effectiveness of technology-enabled delivery of distance learning geriatric medicine for training medical doctors at the Indira Gandhi National Open University, India through a distance learning postgraduate programme, especially at the time of COVID-19 and compulsory remote teaching/ learning from home. While the majority of the students could use the specially designed Web support, most of them preferred hard copies of learning materials, communication through social networking sites, a Web portal for accessing the resources, and recorded resources of Web conferencing. The researcher recommends a blended delivery model comprising Web-based resources and other support, social network-based interaction, and live demonstration of practical skills at designated medical colleges and also district-level hospitals (i.e., skill development centres). This model could be further examined for offering continuing medical education during and especially in the post-Covid era.

Owo and Udoka, in the next paper, report the findings of a research study on perception of lecturers and students of two universities in Nigeria toward using e-learning in instructional delivery, obtained through a questionnaire comprising 25 items (12 for ICT facilities in universities, and 13 for ICT skills of faculty and students). The results of the study (which are similar in many institutions around the

globe) showed that while universities did not have adequate digital facilities for e-teaching, the faculty and students also lacked core digital skills for e-learning. These concerns need to be adequately addressed for effective implementation of technology-enabled learning (which further confirms the policy-capacity-technology change model advocated by COL—see Mishra & Panda, 2020).

Pullenayegem, De Silva and Jayatilleke applied activity theory to interaction of students in the online component of a writing skills course, from the diploma in English language and literature, offered by the Open University of Sri Lanka. Online log reports and semi-structured interviews were used to collect data on contradictions in interaction. The results showed that no single participant could confirm to all the four rules due especially to lack of peer group participation, that some rules were reported as restrictive, and that conformity was also restricted due to delay in obtaining comments on their submissions from the peers. Contradictions were also observed among the activity triangles. Since online learning is a collaborative exercise of self, peer and mentor collaboration, any constraint from one partner shall affect the other partners as also the quality of interaction and learning.

Based on a global evaluation of regional centres of COL in 2019 and subsequent collection of data on activities and growth of partnerships, Perris and McGreal present an analysis of the outcomes on the growth of partnerships in ODL in the Commonwealth. The results show achievement of stipulated targets and also positive impact of the regional activities of COL. The three regional centres expressed satisfaction in respect of alignment of regional activities with COL's strategic plan, and also continued and consistent support of COL in achieving regional objectives. Capacity building, advocacy, networking, and regional expansion have been suggested to further intensify the activities in the future.

The final paper in the research section by Tanyanyiwa and Madobi deals with a qualitative study on the challenges faced by students and tutors at the Zimbabwe Open University in offering geography and environmental studies through open and distance e-learning (ODeL). The findings suggest significant constraints relating to inability to access online learning resources, absenteeism of local part-time tutors, difficulty in integrating field studies and practicums with e-learning, extended assignment turn-around time, sporadic Internet access, inadequate computer literacy by the faculty, among others. The researchers suggest for the open university to have proper institutional planning and management, adequate ICT infrastructure and Internet connectivity, and consistent advocacy for establishing parity of esteem.

We present four papers in the *case study* section, dealing largely with technology-enabled higher education, agricultural extension, work-based learning, and farmer empowerment. In the first case study, Mtebe, Fulgence and Gallagher report on the experience of TEL at the University of Dar es Salaam in Tanzania during COVID-19. The university adopted a blended mode of teaching with due preparedness relating to ICT infrastructure, instructor training, and the information management system, and the authors suggest to continue the blended mode during post-Covid as the most effective mode to offer higher education programmes. In the second case study, De Silva and Wijeratne report a mobile application app, Bimmal Govi, in blending with other ICT applications, facilitated mushroom farmers in Sri Lanka to scale-up production, improved the skill to produce mushrooms, enhanced environmental sustainability by designing environment-friendly experiments,

and by refurbishing the packaging for marketing. The technology-enabled lifelong learning for farmers (L3F) programme has helped farmers become promising future entrepreneurs.

An interesting case study on digital freelancing work-based learning (WBL) during COVID-19 has been presented by Namjoshi, Deshpande and Ranade from the prestigious Maharashtra Knowledge Corporation Ltd (MKCL) in India. In the absence of any contiguous contact due to the pandemic, MKCL (which is credited to be one of the leaders in technology-enabled learning globally) designed for successful digital-based virtual workplaces and livelihoods for students of diverse backgrounds. The implications have been further discussed by the authors for successful WBL in the future. In the last case study, Kalibwani and colleagues present the intervention of the lifelong learning for farmers (L3F) programme in empowering the small holder farmers in Uganda, the results of which show positive impact of the programme on empowerment, crop, and household income, especially of women farmers.

Two papers are included in the section on *reports from the field*. In the first one, Cathy Toquero discusses the successful experiences and challenges in offering emergency online teaching by one university in the Philippines at the time of the pandemic. In the second one, Sin Ng and Chin Ng report a successful intervention programme 'innovation for love and care' in the STEAM (science, technology, engineering, arts, and mathematics) education in a secondary school in Hong Kong at this time of COVID-19. These two reports should contribute to the ongoing research and experience-sharing on TEL during the pandemic.

We are fortunate to have two book reviews in this issue, reviewed by two distinguished scholars — one on 'virtual reality in curriculum and pedagogy' by Terry Neal, and the other on 'introduction to distance education' by David Porter. These reviews shall also inform us further in areas relating to technology and distance education.

## Conclusion

We need to engage with research in technology-enabled learning more critically, and go beyond the contemporary focus on provisions, mechanisms, and impacts. Methodologically, TEL research requires a balance between the scientific rigour of the positivist methodology and also the contexualised and experiential interpretivist methodology, and that design-based research, in consideration of the two research paradigms, could contribute to theory building in technology-enabled learning (McDowell & McDowell, 2020). Researchers need to critically engage with application of theories in TEL research, and also align TEL theoretically with other academic fields of enquiry (Bligh, 2020). Arguing the case for a strong theoretical grounding for TEL research, Sclater and Lally (2016) underlined the use of language, history, scope and power to engage with the researchers and practitioners of the critical TEL community.

We hope, the above discussion as well as the fifteen papers and cases of this July, 2021 issue of *JL4D* shall induce researchers for further critical reflection and more of public-facing (Selwyn, 2012), considered, grounded, and quality research on technology-enabled teaching, learning, and training.

## References

Bayne, S. (2014). What is the matter with 'technology enhanced learning'? *Learning, Media and Technology, 40*(1), 5-20.

Bligh, B. (2020). Theory disputes and the development of the field of technology enhanced learning research field. *Studies in Technology Enhanced Learning*, *1*(1), 115-169.

Goodchild, T., & Speed, E. (2019). Technology enhanced learning as transformative innovation: A note on the enduring myth of TEL. *Teaching in Higher Education*, *24*(8), 948-963.

Henderson, M., Selwyn, N. & Aston, R. (2017). What works and why? Student perceptions of 'useful' digital technology in university teaching and learning. *Studies in Higher Education, 42*(8), 1567-1579.

Henderson, M. et al. (2015). Conditions for successful technology enabled learning. In T. Reiners, et al. (Eds.), *Globally connected, digitally enabled.* Proceedings ASCILITE 2015, Perth.

Kirkwood, A., & Price, L. (2013). Missing: Evidence of a scholarly approach to teaching and learning with technology in higher education. *Teaching in Higher Education, 18*(3), 327-337.

McDowell, J. A., & McDowell, J. B. (2020). A tale of two studies: TEL research and the theory-practice nexus. *Studies in Technology Enhanced Learning*, *1*(1), 171-190.

Mishra, S. (2019). Implementing technology-enabled learning in Indian universities. *University News, 57*(34), 7-11.

Mishra, S., & Panda, S. (Eds.), *Technology-enabled learning: policy, pedagogy and practice.* The Commonwealth of Learning.

Price, L. et al. (2015). Mind the gap: The chasm between research and practice in teaching and learning with technology. In J. M. Case & J. Huisman (Eds.), *Researching higher education*. Routledge.

Scanlon, E. et al. (2019). Interdisciplinary working methods: Reflections based on technology-enhanced learning (TEL). *Frontiers in Education*, 4, 134.

Sclater, M., & Lally, V. (2016). Critical TEL: The importance of theory and theorization. In S. Cranmer, N. B. Dohn, M. de Laat, T. Ryberg & J. A. Sime (Eds.), *Proceedings of the 10th International Conference on Networked Learning,* 56-64.

Selwyn, N. (2016). Digital downsides: exploring university students' negative engagements with digital technology. *Teaching in Higher Education, 21*(8), 1006-1021.

Selwyn, N. (2014). *Distrusting educational technology: Critical questions for changing times*. (1st ed.) Routledge. https://doi.org/10.4324/9781315886350

Selwyn, N. (2012). Ten suggestions for improving academic research in education and technology. *Learning, Media and Technology*, *37*(3), 213-219.

Selwyn, N. et al. (2020). What's next for Ed-Tech? Critical hopes and concerns for the 2020s. *Learning, Media and Technology*, *45*(1), 1-6.

Temple, P. (2008). Learning spaces in higher education: an under-researched topic. *London Review of Education*, 6, 229-241.

Verdonck, M. et al. (2019). Student experiences of learning in a technology-enabled learning space. *Innovations in Education and Teaching International, 56*(3), 270-281.

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