

EDITORIAL

Technology-Enabled Learning: OER, MOOCs, and other TEL Designs

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In a recent work, published by the Commonwealth of Learning (COL) (Panda & Mishra, 2020), we critically reflected upon the future of technology-enabled learning (TEL) and how to mainstream TEL into teaching-learning and training at all levels of education. Based on critical works of researchers and scholars, the critical reflection was structured within the lens of policy, pedagogy, and practice. It was argued that digital technologies facilitating educational and learning designs need to address the foundational concerns of collaborative, participatory, connected and creative learning.

In times to come, the next phase of research needs to concentrate on design for learning, or, for that matter, educational design. Design frameworks are still emerging, and the one analysed by Oliver (2007) on a rule-based, incident-based, strategy-based, and role-based framework could be of significant help to teachers, trainers and learning designers. The ADDIE model has been well established in contexts of learning and training design—analyse, design, develop, implement, and evaluate—so also the 7Cs learning design framework (Conole, 2013, 2014), and the first principles of instruction (Merrill, 2013). Other significant critical works which have been guiding us in consideration of education and learning design include those on distributed cognition (Hutchins, 1995; Clark, 1997), phenomenology (Heidegger, 1962; Dourish, 2001), actor-network theory (Latour, 1992), connectivism (Siemens, 2004), and culturally inclusive online learning WisCom (Gunawardena, 2020), among others.

Vis-à-vis promotion of open education and open learning as legitimate and democratic processes geared toward quality education for all, 'learning designs' play a significant role in operationalizing TEL and open educational practices (OEP). Various models in the context of open learning and OEP are emerging on its formulation and operationalization. Stracke et al (2019) analysed the OpenEd Quality Framework in which 'realisation' comprises 'learning design' at the meso-level and which further contributes to organizational development, thereby impacting the quality of student learning. In the past decades, scholars have significantly contributed to the development of innovative learning designs, which are authoritative, critical, and also progressive. Various contextual and reflective works are emerging in contemporary times—for instance, European approaches to learning design (Wasson & Kirschner, 2020), active learning in contexts of open educational practices (OEP) designed on models of constructivist and networked pedagogy (Paskevicius & Invine, 2019), to cite a few.

The central point in any learning design is understanding and designing 'activities' that learners carry out individually or collectively in the learning process. Developments in educational/information communication technologies have greatly shaped the way intra-individual and inter-individual (collective/group) activities are organised and carried out. Largely influenced by cultural-historical development of mind and mental functions (Vygotsky, 1978) and explanation of the evolution of



mind, vis-à-vis life through research on ‘activities’, the ‘activity theory’ (Leontiev, 1978) provides for scientific grounding to design activities in learning design. In the past decades, this has further been enriched by post-cognitivist theories of distributed cognition, phenomenology and hermeneutics, and actor-network theory (Kaptelinin & Nardi, 2006), specifically, the last one guiding technology-enabled activity-based learning.

In the context of mass education and open education, Massive Open Online Courses (MOOCs) have now been firmly established as a new form of online learning, though mainstreaming MOOCs awaits considerable policy and institutional interventions in many nation states. Irrespective of varieties of forms that MOOCs have taken, including cMOOCs and xMOOCs, their general quality has not been comparable to established online and blended learning globally. In a recent authoritative and comprehensive evaluation of randomly selected 76 xMOOCs and cMOOCs (Margaryan, Bianco & Littlejohn, 2015), based on the ‘first principles of instruction’ (Merrill, 2013), it was found that though most MOOCs scored higher on packaging and/or organization and presentation of course materials, their instructional/learning design was generally low. The authors remarked “Many learners are drawn to MOOCs by the ‘brand’ of the universities and academics, expecting rigour and quality traditionally associated with these institutions. Yet what learners find in MOOCs may be a mirage of quality education” (2015, p. 82).

However, the valuable contribution of MOOCs is that, on the one hand, if available free of cost, they can be counted as (and to be supporting) OER, and on the other hand can act as enablers of open education (Strake et al, 2019).

Articles in this Issue

The various articles in this issue relate to or address many of the learning design issues described above. As recommended by our reviewer scholars, we have included in this issue 14 papers which relate to the broader theme of ‘technology-enabled learning (TEL) and cover a wide range, starting from teleconferencing to MOOCs and OER. These are organized under three sections – *invited papers*, *research papers*, and *case studies*. The section on invited papers includes contributions of scholars of repute by invitation, and those who have consistently contributed to the field through research and scholarship. The first paper by Alison Buckler and colleagues from the Open University UK and from the Kyambogo University in Uganda covers a very interesting theme of perceived professional role and identity of teacher educators, and if at all OER could help change their professional role for quality teacher education. Thirty-nine teacher educators from eight teacher education colleges in Uganda, Africa participated in storytelling their perception, understanding and professional role vis-à-vis identity. Though the educators were found to be a coherent group committed professionally to teaching, their professional development (or continued professional learning) was not commensurate to that commitment. As part of the TESSA intervention globally and especially in the African continent, the TESSA-MOOC did not have much impact on Ugandan teacher educators (as much they did in other regions) due largely to lack of autonomy, existence of hierarchical structure, inadequate institutional support, and absence of a culture of sharing. Given that there is sustained professional resilience and commitment, the experiences as evidenced through teacher-educator stories shared by researchers shall be immensely handy to both planners/administrators and teacher educators in other (middle-income and low-income) countries to further reflect on professional learning of teacher educators and the role OER and MOOCs can play in supporting blended learning, combining self-learning, collaborative learning, and expert mentoring.

Our second invited paper, contributed jointly by expert officials from the Commonwealth of Learning (COL) – Dr. Tony Mays, Dr. Betty Ogange and Dr. Kirk Perris – and Professor Som Naidu, former Pro-Vice Chancellor at the University of the South Pacific and an international expert on learning design, should be of specific significance in the present context of COVID-19 pandemic and also post-COVID 19. The authors report a success story of a massive effort toward mass training of about 12,000 teachers from the two countries of Fiji, and Trinidad and Tobago moving toward online teaching at the difficult time of global pandemic. A short online course ‘OER for Online Learning: An Introduction’ (OER4OL) was urgently mounted by two collaborative organizations – The Commonwealth of Learning (COL) and the Pacific Centre for Flexible and Open Learning for Development (PACFOLD) – in response to ministry-level requests from the two countries. This is also an excellent example of largely OER-based quality online training/capacity building, developed through the Indian platform of MOOKIT (an open source LMS). Data collected through a variety of sources (including surveys, teacher guided reflections, observation of created artifacts, and forum postings) indicated appropriate achievement of the stipulated objectives, and the quality of capacity enhancement (initial learning of the nuances of using online resources/OER, learner support, and management of assessment and student feedback). Though it is difficult to provide continued one-on-one support to each learner in the case of MOOCs, the quality contribution in this MOOC was the individualized mentoring support. To further enhance the quality of online teaching-learning through MOOCs, both the participant feedback and researchers’ reflection suggest building a robust mentoring support system to enhance sustained professional intervention and the quality of student learning.

The seven *research papers* in the next section deal with diverse themes, ranging from problem solving strategies, augmented reality and authentic learning to teleconferencing and software development.

Professor Olabisi Kuboni reports the effectiveness of the instructional strategies meant for developing problem solving skills in primary school mathematics students at this crisis of the pandemic in the Trinidad and Tobago. The curriculum-based resources were to be offered on the national online platform SLMS (school learning management system), and also made available through the national television channel and on Facebook. The author followed an inductive-deductive approach to research comprising initial analysis as well as in-depth analysis to examine the video tutorials (i.e., tutor presentation, whiteboard information, and demonstration with the help of teaching aids). This is a fine example of making materials available through a variety of strategies ranging from television broadcast, through video conferencing to online learning such that both teachers and students can use the resources depending on the availability of appropriate technology. The author herself was involved in the design and deployment of the multiple-media resources, and therefore based on her experiences, she suggests that a sustained (rather than reactive) policy is needed by national governments in dealing with and/or mainstreaming TEL.

Dr Stella Hadjistassou reports the effectiveness of real-world classroom-augmented reality (AR) alongside student tasks for intercultural telecollaboration/ virtual exchange involving first-year college students in Cyprus and the UK. The author used a design-based research to design, develop and implement AR within classroom practices so as to reduce disruptive classroom behaviour through critical thinking and reflection vis-à-vis game-like experiences. Students were required to

post their reflections on the online platform ReDesign. The experiential learning derived from the teaching practices through an augmented reality-wrought environment could be effectively deployed to deal with effective intercultural education at the college level.

In the next paper, Ellen Kalinga reports the effectiveness of OOAD-lead (object oriented analysis and design) and UML-supported (united modelling language) modelling approach in teaching-learning of software development and software engineering at the post-secondary level. The author recommends identification of basic processes and also activities for each basic process to be crucial in adopting a modelling approach to teaching engineering subjects.

Maria Niari, in the next paper, reports the perceived value of collaborative learning in teleconferencing at the Hellenic Open University through a purposive-sampling based qualitative study using tutor interviews. While all the tutors converged on the positive contribution of collaborative learning in teleconferencing used for distance teaching-learning, they perceived the variables of inadequate platform, lack of faculty training, and inadequate resources as problematic in such teaching-learning contexts. There had also been the constraint of lack of student motivation. This story is no different from the contexts as obtains in many open universities and distance teaching institutions across the globe. She brings in the examples of brainstorming, Q-A, group work and case studies as methods, which can enrich teleconferencing-based collaborative learning, and also institutional policy on 'integrated' (rather than supplementary) media use and faculty training therein.

From a low technology-intensive context in Uganda, Afram Uzorka reports the communication needs of faculty and administrators in relation to their technology use in one university, by using a purposive sample of 100 subjects and qualitative interviews. The results indicated significant use of especially 'email' to communicate with students, beyond teaching, on matters relating to research information, job market information, and student feedback. Also, email had been constantly used to communicate within the organization on administrative matters, and for personal professional development through access to information on best practices. The habit of continuous technology use could be harnessed further to make an intervention in technology-enabled teaching-learning in the institution and in other educational levels in the country.

'Learning for development' begins at home and stands on the pillar of empowering the community in literacy, numeracy and communication. A case from Tanzania has been reported through a research study by Joshua Edward, through a purposive sampling of 879 elderly persons and 23 key informants (including policy makers, district health managers and social welfare officers, health workers, among others) and a questionnaire based on various indicators of health services (awareness, acceptability, adequacy). The objective was to find out if at all illiteracy was related to unpleasant experiences encountered by the elderly. While there was a mismatch between their health needs and choice of health facility, illiteracy was found to be the major impediment to their effective engagement in reaping the health benefits provided by the government. The author recommends continuous and appropriate training for health officials and workers, as also increasing the level of literacy of the community, especially the elderly.

The last paper in this research section is by Naciye Aynas and Mecit Aslan who conducted a quasi-experimental study on sixth-graders in schools in Turkey to find out if use of 'authentic learning practices' (ALP) had any influence on enhancing the problem-solving skills and attitude to science

courses. The pre-post design findings suggest that there was a positive impact of the independent variable of ALP on skills scores and attitude scores in favour of the experimental group who were exposed to authentic learning practices. The authors' recommendations should be useful to many science teachers across the globe struggling to enhance children's interest and engagement in science subjects — making teaching-learning as also assessment more 'authentic', and organizing teachers' professional development therein.

The '*case study*' section in this issue contains five research and reflection-based cases relating to multimedia, OER, TVET, free-day secondary education, and MOOCs—all reported from Africa. Samwel Gasuku in the first case study reports on the GIRLS Inspire project in Tanzania wherein adult education experts developed and implemented multimedia resource-based education and training for out-of-school girls and adult women to further empower them to take up roles and challenges more effectively. In the process, the author reports to have discovered lack of skills (and therefore the need for capacity building) in the adult education functionaries in especially multimedia resource-based learning. This case should also be useful to all those adult education functionaries struggling in many middle-income and low-income countries.

An interesting case on capacity building in OER in Kenya has been reported by Ann Kinyua, by conducting a survey of 45 schools and the school teachers therein. Given that there are problems of low infrastructure facility, lack of awareness, low competency in locating and using OER, and even the problem of electricity and connectivity, it is not surprising that only 3% of respondents could actually use OER in teaching-learning. There is a clear-cut government policy on OER in Kenya; and seizing this status, and also keeping in view that about 10% of students have access to Internet and online learning platforms, the author recommends for developing a practical plan of action for institutionalizing OER in teaching-learning in the country, and also capacity-building of teachers, students and administrators in effective use of OER in teaching-learning. Strengthening of national and institutional infrastructure is not the least of all.

Caroline Musyimi reports a case on VET in Kenya through a survey of 172 students on the modernization of teaching-learning equipment for vocational education and training in schools. Besides the modernized instruments, practical learning significantly contributed to increasing student grades, their confidence, and essential skills (especially employability skills). There had also been enhancement in skills on critical analysis, logical thinking, interpersonal skills, and ability of undertaking teamwork. The author recommends continuing the developmental activities in this direction and focusing more on establishing institutional relationships with other TVET organisations, industries and employers. The next case study, by Jorry Olang'o and colleagues from Kenya, reports if the government's Free Day Secondary Education (FDSE) policy could improve the school quality and academic performance of students. Based on a survey of 375 secondary school students, the author reports that increase in enrolment had reduced student and school performance; and also that the infrastructure and student finance facilities have not improved in the past decade. The authors suggest: enhancing the quality of teaching and reduction of class size (40:1) at the instance of increasing student enrolment due to reasonable affordability of school fees, increasing student annual capitation, improvement in physical infrastructure and facilities, and replicating the study in urban schools so as to have a comprehensive picture to act upon.

We started the first article in this issue on MOOCs and end up with our last article in this issue on MOOCs by Erkkie Haipinge and Ngepathimo Kadhila from Namibia. This case study provides an extensive analysis on the concept and status of various types of MOOCs, and a plan of action for contextualising the development and use of MOOCs in various higher education institutions in the country. The authors recommend doing away with the Westernized model of MOOCs, making them less-technology intensive, developing the digital literacy skills of teachers and students, addressing the issues of access and equity, and developing a collaborative model and specific operational framework for effective design and use of MOOCs in Africa. There is also a suggestion relating to content curation by repurposing and using OER MOOCs and using low-cost ubiquitous devices for mobile learning through MOOCs. The other recommendation of conducting practice-based research on open education in general and contextualisation of MOOCs in particular should be taken up by teacher-researchers all across the globe, especially in the Global South.

In Conclusion

I am reminded of Professor Tony Bates' works (especially Bates, 2016) including his Blog which should be guiding us on designing and implementing TEL in diverse contexts. I met Tony in 1988 at the UK Open University when I was doing a course of instruction on educational television at the BBC-OUPC and had been fascinated by the significant but practical work on mediated learning that he was engaged with. His work should be handy to the middle- and low-income countries which work in diverse technology contexts, with uses ranging from audio-visual aids to the semantic web. The various papers included in this issue represent that diversity of contexts, researches, and TEL integration (including diversity in learning designs). One should though be cautious that technology should not be construed as instrumentalism and guiding pedagogy. To quote Lovat (2019) who has analysed and cautioned how technology is misunderstood and misused: "In a word, instrumentalist pedagogy survives as a tool of political agendas and populist media, whereas values pedagogy rests on the firmest evidence from philosophical and neuroscientific research about how the mind works, the brain functions and how efficacious learning is therefore best effected" (p. 11). Addressing the foundational aspects of 'education' vis-à-vis 'learning for development' subsumes discourses on learning and technology-enabled learning. In this context, it is important to be cautioned in the use of technology in education as argued by Selwyn (2016): "The ways in which digital technology is used in education is not inevitable but is an ongoing process of debate. It is therefore important to see digital technology use in education as a matter of values, preferences and politics" (p. 107). Critical works and reflective research could guide us further. On a note for future research, Selwyn et al (2020) caution us to be critical about theorizing and investigating the linkage between technology, socio-economic inequality, and educational provision.

I take this opportunity to thank Dr Tony Mays and Dr Sanjaya Mishra, editors, and Dr David Porter (senior advisor and book review editor) and Alan Doree for their constant support and excellent editorial work for assembling again a gigantic issue of *JLAD*. There is also enhanced indexing and citing status of *JLAD*, and we are receiving more research papers and case studies (including reports from the field) each quarter. While this is providing increasing opportunities to the researchers and authors to have their work published and to have greater visibility and citation internationally, it also tests our ability to deal with diverse themes under the banner 'Learning for Development'. We shall be glad to receive more research-based papers and reflective and critical cases/ field experiences/ work

in progress on themes covered by this journal. We do hope that all the papers included in this issue shall arouse interest and motivate scholars and researchers for further reflection and undertake practice-based research.

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