

Blending Innovative Pedagogy and Technology for Capacity Development of Educators during the Pandemic

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Abstract: The increased use of digital learning environments augments the adoption of open practices in education which contributes to SDG4. The COVID-19 pandemic has compelled an accelerated move towards technology-enhanced learning, prompting educators to re-think and re-design learning environments grounded in innovative pedagogy and technology. In the current scenario it is imperative that educators are offered capacity development opportunities to meaningfully engage in digital and open practices. This paper presents a case study of an online capacity development intervention in OER-integrated technology-enhanced learning (TEL) material creation, implemented with a group of 15 educators selected using the purposive sampling method. It focused on the design, development, implementation, and evaluation of OER-integrated TEL materials by the educators. The intervention comprised a carefully designed learning experience with intensive hands-on activities in a Moodle online learning environment, supplemented with a series of ZOOM-based interactive workshops. The study explored the design strategies that enhanced the creation of OER-integrated TEL materials by the educators, challenges encountered by them and how those were managed, and the effects of the intervention on changing their thinking and practices. Multiple data gathering occurred via questionnaires, discussion forums, reflective journals, and focus group interviews. Primarily, an in-depth content analysis of the qualitative data gathered was conducted. The findings revealed that the systematic learning experience design, which adopted a ‘learning by designing’ approach harnessing the affordances of both technology and pedagogy, empowered educators to become active creators of OER-integrated TEL materials and to take leadership in integrating digital and open practices into teaching-learning processes.

Keywords: technology-enhanced learning, innovative pedagogy, learning experience design, capacity development, learning by designing, digital practices, open practices.

Introduction

As envisioned by the Global Report of the International Commission on the Futures of Education (UNESCO, 2021) a radical rethinking is desired on the role of education, learning, and knowledge via a new social contract for education towards reimagining our shared and interdependent futures. Two basic principles — assuring the right to quality education throughout life; and strengthening education as a public endeavour and a common good — help empower future generations to reimagine their futures (UNESCO, 2021). The 2030 Agenda for Sustainable Development recognises students as global citizens who require the competencies to build sustainable futures in an increasingly interdependent world (UNESCO, 2015). Hence, the development of learner qualities, including skills to manage the complex challenges of the future, is essential (OECD, 2018).



The Sustainable Development Goal 4 (SDG4) aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (UNESCO, 2015). The increased use of digital environments in teaching and learning augments the adoption of open practices in education, thus, contributing to SDG4. The concept of Open Educational Resources (OER) also contributes to SDG4 via promotion of free and open access to educational materials, advocating the use, creation and sharing of resources, and enhancing a culture of creative, cooperative, and participatory learning (Cape Town Open Education Declaration, 2007).

The COVID-19 pandemic has compelled an accelerated move towards technology-enhanced learning, prompting educators to re-think and re-design learning environments grounded in innovative pedagogy and technology. In the current scenario it is imperative that educators are offered capacity development opportunities to meaningfully engage in digital and open practices. This paper presents a case study of an online capacity development intervention on OER-integrated technology-enhanced learning (TEL) material creation, implemented with a group of educators studying for their master's degrees in teacher education.

Literature Review and Conceptual Framework

Teaching is a 'design science' (Laurillard, 2012). Teachers engage in designing meaningful learning experiences and productive learning environments for their students. As emphasised by the constructivist theory, meaningful learning will take place through a blend of active, constructive, cooperative, authentic, and intentional learning (Jonassen et al., 1999). Further, meaningful learning occurs when learners are actively engaged in knowledge construction through learning activities which are 'situated' or contextualised (Brown et al., 1989), and when learners are challenged with solving real-world problems (Merrill, 2018). Integration of technologies also enhances the teaching-learning process. However, meaningful learning with technology will occur only if the focus is on learning with technology, using them as 'cognitive tools', rather than as mere delivery tools (Jonassen et al., 2008). Re-imagining and re-designing learning environments, harnessing the affordances of both pedagogy and technology, based on learning theory and practical design frameworks is thus vital.

Learning experience design is a creative process in which innovative pedagogy and novel technology play a significant role. The core of innovative pedagogy is to bridge the gap between the educational context and working life, through developing teaching-learning processes for competency development of students enabling their personal and professional growth, to apply gained knowledge in practical contexts (Penttilä, 2016). Pedagogical innovations promote the development of competencies often referred to as '21st century skills' including critical thinking, collaboration, communication, and creativity. Engagement in meaningful learning with technology also supports development of these higher order cognitive skills, empowering learners to function as productive individuals of the 21st century. The affordances of web technologies and an increased range of digital tools available provide numerous opportunities for teachers to create innovative learning experiences for their students. Nevertheless, enduring transformations in teaching and learning will be possible through pedagogical improvements along with the technological integrations (Sharples, 2019).

As emphasised in the constructionist theory (Papert, 1980) learning can be fostered through a creative process of construction. When learners are enabled to function as designers and creators, they engage in meaning making for themselves through a process of construction, which creates a rich context for

learning. Such a 'learning by design' approach values the process of learning as well as its outcomes (Paniagua & Istance, 2018). Integration of digital technologies in teacher professional development supports teachers to design innovative technology-enhanced learning (Laurillard, et al., 2018). Capacity development programmes incorporating learning by designing opportunities will empower and encourage teachers to become innovative designers of technology-enhanced learning experiences for their students.

Professional development initiatives designed for educators essentially require an appropriate blend among the subject matter content, pedagogical approaches, and technology integrations. The Technological Pedagogical Content Knowledge (TPACK) framework (Koehler & Mishra, 2009) presents different forms of knowledge required by educators to be effective in technology-enhanced teaching-learning processes. It highlights three broad knowledge bases: Content Knowledge (CK), Pedagogical Knowledge (PK), and Technological Knowledge (TK); as well as their various interactions: Pedagogical Content Knowledge (PCK); Technological Pedagogical Knowledge (TPK); Technological Content Knowledge (TCK); and the synthesised knowledge on all these (TPACK) (Koehler & Mishra, 2009). (See Figure 1).

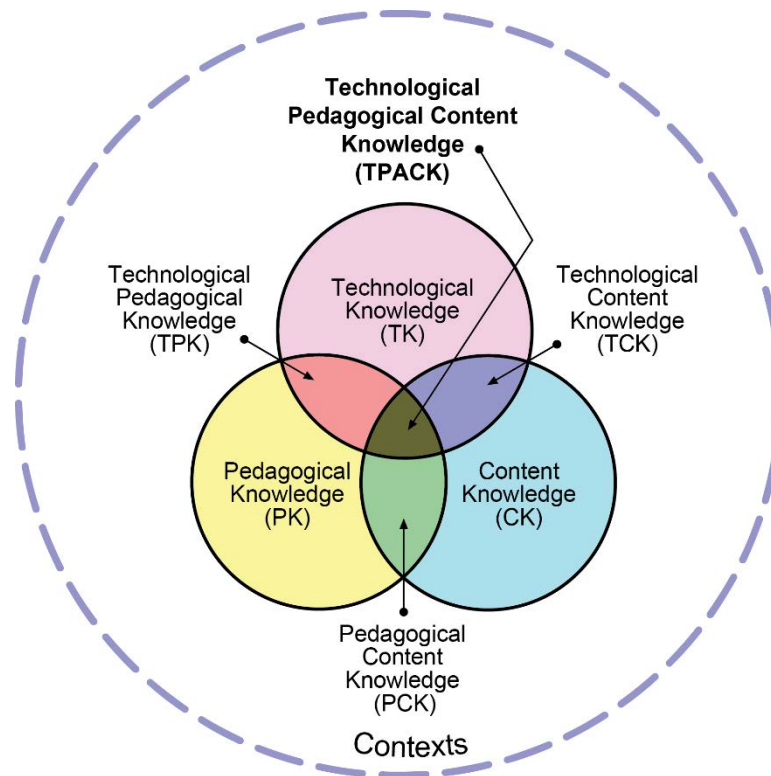


Figure 1: TPACK Framework (Source: <http://tpack.org>)

The TPACK framework offers useful direction for educators on how technology can be effectively integrated into the teaching-learning process, addressing the pedagogical requirements to teach the subject matter content in specific contexts (Koehler & Mishra, 2009; Mishra & Koehler, 2006). An effective merge of technology, pedagogy and content in the teaching-learning process is achievable only by the effective design of learning experiences. When educators function as 'designers' they can

apply the synthesised knowledge via TPACK into practice by designing appropriate learning experiences for their students (Koehler et al., 2016). However, learning experience design needs careful thought about the intersections of subject matter content, pedagogical approaches, and technological affordances (Naidu, 2016). The TPACK framework guided the conceptualisation of the current study in which a fully online professional development intervention for educators in OER-integrated TEL material creation was designed and implemented.

Research Questions

The following research questions guided the inquiry:

1. What design strategies of the intervention enhanced the creation of OER-integrated TEL materials by educators?
2. What challenges were encountered by the educators during the intervention and how were those managed?
3. What are the effects of the intervention on changing educators' thinking and practices?

Methods

Research Design

The research adopted a case study design, which is an in-depth investigation of a contemporary phenomenon within its real-world context (Yin, 2014). In the current study context, an initiative of a redesigned fully online learning environment, blending innovative pedagogy and technology, was implemented as an intervention to manage the unanticipated educational issues caused during the COVID-19 pandemic. Since the case study approach generates a multi-faceted understanding of a complex phenomenon, it proved to be an appropriate method to evaluate the innovative initiative by capturing its various aspects, especially the effects of the design strategies adopted. It allowed a detailed investigation of the phenomenon in context through an integral and iterative process, using rigorous methodology.

Participants

The participants of the study were selected using the purposive sampling method. They included fifteen (15) educators who were enrolled in the course "Teacher Educator as an Educational Technologist" in English medium, in the Master of Teacher Education (MTE) study programme. The participants comprised 12 female and three male participants, all within the age group of 31-50 years. Professional experience varied between 6-20 years among a majority, while five had more than 20 years of experience in the field of education. Accordingly, the participants comprised a group of mature and experienced teacher educators, who were pursuing a postgraduate degree for their professional development.

Course Design

The course, "Teacher educator as an educational technologist" is one of the compulsory courses in the MTE programme. It focuses on developing the competencies of educators in the design, development, implementation, and evaluation of technology-enhanced learning (TEL) materials. It was originally designed as a blended course containing face-to-face contact sessions supported with an online learning environment in the Moodle LMS. Addressing the sudden compelling need to move totally

into the online mode of course delivery due to the pandemic, this course was redesigned as a fully online intervention with intensive hands-on learning experiences in the Moodle LMS, supplemented with a series of ZOOM-based interactive workshops.

From its initiation this course had adopted an innovative pedagogical design – Scenario-based learning (Naidu et al., 2007; Karunanayaka & Naidu, 2009). The students are situated in authentic learning scenarios, and they engage in a series of learning activities and assessment tasks linked with their real-life practices, supported with learning resources. They are assessed through inter-linked assignments in the form of three mini projects during the process, instead of a traditional final examination. The redesigning of the course involved addition of further innovative design features carefully merging content, pedagogy, and technology as appropriate, to be implemented in a fully online learning environment using various features of the ZOOM platform and the Moodle LMS (see Tables 1 and Table 2).

Table 1: Key Design Features of the Course Merging Content, Pedagogy, and Technology

Course: Teacher Educator as an Educational Technologist			
Key competency: Ability to design, develop, and evaluate a technology-enhanced learning material			
Learning outcomes	Content	Pedagogy	Technology
1. Explore strategies to make teaching and learning an effective communication process	Teaching-Learning Methods and Techniques Communication Methods	Learning Scenario A - "What shall I do?" Learning Scenario B - "A Trigger!"	Online quizzes ZOOM polls Online discussion forum Online reflective journal
2. Plan a technology-enhanced learning material applying the Technological Pedagogical Content Knowledge (TPACK) framework	TPACK Framework Integrating content, pedagogy, and technology	Learning Scenario C - "Facing the Challenge" Concept mapping	Videos on TPACK ZOOM breakout rooms Online discussion forum Online reflective journal
3. Design meaningful learning experiences for the technology-enhanced learning material with appropriate integration of multimedia	Instructional Design Models; Interactive Multimedia; Digital tools; Designing Meaningful Learning Experiences Open Educational Resources (OER)	Learning Scenario D - "Moving Forward" Constructive alignment Learning experience design Storyboarding (Mini Project 1)	Video on ADDIE model, Videos on OER Using free digital tools (Padlet, Mentimeter, Edpuzzle, Flipgrid, etc.) Creating/Sharing OER ZOOM breakout rooms Online discussion forum Online reflective journal
4. Develop the technology-enhanced learning material using selected software	Design Aspects: Information Design Instruction Design Interaction Design Interface Design	Learning Scenario E - "On Track..." Critical review of TEL materials Online activity-based assignment- Creating OER-integrated TEL materials (Mini Project 2)	ZOOM breakout rooms Using free digital tools Creating/Sharing OER Creating OER-integrated TEL materials ZOOM breakout rooms Online discussion forum Online reflective journal
5. Evaluate the technology-enhanced learning material	Evaluation Methods Methods of data collection and analysis Instrument preparation Report writing	Learning Scenario F – "Reaching the Goal!" Implementation and evaluation of the OER-integrated TEL material (Mini Project 3)	Online quizzes ZOOM breakout rooms ZOOM presentations Online discussion forum Online reflective journal

Process

The systematic capacity development intervention was implemented with the group of participants, in accordance with the five stages of the ADDIE instructional design model – Analysis, Design, Development, Implementation, and Evaluation. It comprised continuous intensive hands-on learning activities (both individual and group-based) and assessment tasks (including self, peer, and tutor assessments), supported with various digital tools and online learning resources, providing capacity development, guidance, motivation, and constructive feedback to the participants (see Table 2). The intervention was implemented during a period of six months.

Table 2: A Summary of the Activities of the Intervention

Phase	Learning Activities (Individual/Group)	Assessment Tasks (Self/Peer/Tutor)
Analysis	Select a topic to develop a technology-enhanced learning (TEL) material. Analyse your target group, subject matter content and context. State the learning outcomes. Identify the specific forms of knowledge required to teach with technology based on the TPACK framework. Create a concept map depicting your plan.	Quiz - Teaching - Learning Methods (S) Quiz - Effective Communication (S) ZOOM group presentations (P) Discussion Forum: Sharing concept maps (P) <i>Mini Project 1</i> (T) Part I – A Concept Map of the TEL material Part II – An Explanatory Report Part III – Discussion Forum; Reflective Journal
Design	Design the learning experience for a TEL material including learning activities, assessment tasks, and learning resources, ensuring constructive alignment with the learning outcomes, and integrating multimedia elements. Search and find relevant OER to be reused/revised/remixed.	Quiz – OER and Creative Commons (S) ZOOM group presentations (P) Discussion Forum: Sharing table of constructive alignment (P) Discussion Forum: Sharing OER found (P)
Development	Create a detailed Storyboard depicting all elements in the planned OER-integrated TEL material. Critically review sample TEL materials based on Information design; Instruction design; Interaction design; Interface design. Develop learning resources/assets using free digital tools. Share your creations as OER.	Discussion Forum: Sharing storyboards (P) Discussion Forum: Sharing created OER (P) <i>Mini Project 2</i> (T) Part I – Creation of an OER-integrated TEL material Part II – Report on the Design and Development of the TEL material Part III – Discussion Forum; Reflective Journal
Implementation	Prepare an implementation plan and an evaluation plan. Develop data collection instruments, Implement the TEL material with a selected target group. Collect and analyse data. Prepare an evaluation report.	Discussion Forum: Sharing implementation and evaluation plans (P) Discussion Forum: Sharing data collection instruments (P) <i>Mini Project 3</i> (T) Part I – A Concept Map of the TEL material Part II – An Explanatory Report Part III – Discussion Forum; Reflective Journal
Evaluation		

Collection and Analysis of Data

Data gathering occurred throughout the process via multiple sources including questionnaire surveys, discussion forum posts, reflective journal entries, and focus group discussions.

The specific data sources are listed below:

- Pre-Implementation Questionnaire (15 responses)
- Mid-Implementation Questionnaire (11 responses)
- Post-Implementation Questionnaire (11 responses)
- Discussion forum: 'Use of TPACK framework to plan TEL materials – Sharing concept maps for peer review' (15 participants)
- Discussion forum: 'Designing Meaningful Learning Experiences' (15 participants)
- Discussion forum: 'Design and Development of the OER-integrated TEL material (11 participants)
- Discussion Forum: 'Implementation and Evaluation Plans' (11 participants)
- Reflective journal entries (15 participants)
- Focus group discussion (11 participants)

The data triangulation in this manner allowed ensuring validity through the convergence of information retrieved from different sources and developing a comprehensive understanding of the phenomenon (Patton, 2002). Out of the 15 participants who commenced the course, only 11 participants have successfully completed it by fulfilling all assessment requirements.

Mainly, a qualitative approach was adopted in the analysis of data obtained from multiple sources, addressing the three research questions. An in-depth content analysis and interpretation of data was conducted using coding and categorisation, in terms of specific codes derived under three key categories – Technology, Pedagogy, and Content, in line with the TPACK framework.

Findings

Research Question 1: What design strategies of the intervention enhanced the creation of OER-integrated TEL materials by educators?

The findings of the preliminary questionnaire revealed the participants' existing practices in relation to their use of learning resources. All participants claimed that they got resources from different sources such as libraries and the internet, as well as from their colleagues, and sometimes even developed resources on their own. However, as revealed by the mid-intervention questionnaire, the participants became aware of free digital tools and OER only after the intervention, and became interested in them as evident by the following quotations:

It's amazing, I am using free digital tools whenever I need...I know how to work with digital tools like Kahoot, Edpuzzle, Padlet, Flipgrid and Google forms and...Padlet...

Now I'm keen about these OER...copyrights and obey to those. Once I start searching...I narrow down to CC (licenses) and use these resources.

While all participants were extremely motivated to create free and Open Educational Resources by themselves to integrate in the teaching-learning process, they also comprehended that it was quite challenging to use OER to create TEL materials because, "for some topics it is somewhat difficult to find resources", "selecting the best material is a problem" and "have to sacrifice more time".

Nevertheless, it was revealed by the data analysis of the post-intervention questionnaire that all participants were satisfied either 'extremely' or 'to a great extent' with the design and development of OER-integrated TEL material by themselves during the intervention, as exemplified by the following quotations:

I got lots of experience...via TPACK, ADDIE Model...OER and Creative Commons...

This novelty of experience made it extremely interesting and exciting to design and develop the TEL material.

I am satisfied that I was able to create a TEL material incorporating relevant multimedia.

Further, all participants were satisfied with the various design strategies adopted in the intervention, which have enhanced their learning experiences. The analysed qualitative data in relation to design strategies are presented in Table 3, supported with selected excerpts.

Table 3: Design Strategies that have Enhanced the Process

Category	Codes	Supportive Quotations
Content	Study Guide	Study guide, learning schedule specifies the week-to-week activities that we are expected to complete to achieve the final goal. It's like a map with directions showing us to the correct point.
	Constructivist theory	I realized that the constructivist learning approach and rapid change in technology field...further encourage 21st century skills such as creativity, innovation and learning to learn.
	Communication strategies	It is possible to create meaningful learning...by gaining knowledge how to use effective communication strategies in the teaching and learning process.
	ID models	I read about the ADDIE model and came to know five main concepts to organize the TEL material- Analysis, Design, Development, Implementation, and Evaluation.
	OER	I was delighted to know the free availability of invaluable and huge pool of open educational resources (OER).
	TPACK framework	I learnt what is TPACK framework as integrating Technology, Pedagogy and Content Knowledge...I have gained interest...
Pedagogy	Scenario-based learning	The authentic learning experience with the scenario-based step wise approach made me more confident about the process.
	Constructive alignment	Constructive alignment was a novel concept...and I understood that there should be a logical alignment between learning outcomes, learning activities and assigned tasks.
	Concept mapping	Concept Mapping...is a practical tool which represents meaningful relationships increasing our ability to learn meaningfully.
	Storyboarding	The storyboards help to design the sequence of the learning experience wonderfully and creatively.
	Creation	I was happy to produce a resourceful, interactive self-learning TEL material...I was also able to utilize interactive multimedia.
	Collaboration	This was a very exciting and novel experience for me, as we have to participate in online collaborative learning activities.

	Interactivity	We can interact with peers very easily and can get feedback very well for our activities.
	Reflection	Reflection allows us to see the improvement within ourselves as well as a way to rectify any errors.
Technology	LMS - Quizzes	The online quiz...stimulates my interest of effective teacher communication in education.
	LMS - Discussion forum	The peer comments received from discussion forums also helped me to further development of the design.
	ZOOM - Breakout rooms	Breakout room in the Zoom meeting room was a novel experience for me.
	ZOOM - Polls	At the end of the session, I eagerly participated in the online Zoom polling session...even it was a novel experience.
	Digital tools	I was able to obtain lots of knowledge and hands on experiences with some important technology tools...such as EdPuzzle, Padlet, Flipgrid, Wordwall and Mentimeter.

It was observed that the supportive design strategies were related not only to the three key categories — content, technology, and pedagogy — but also with a blend of their interactions, as depicted by the following quotation:

...With the knowledge and experience gained through scenario based authentic learning environment, Moodle based learning resources, Zoom day school activities, peer comments and support, explanations made by the lecturer and also from my own searching and practicing of using and incorporating new software tools, ultimately I was able to achieve the expected outcome within the assigned time duration...

The supportive design strategies of the intervention, as revealed by the analysis of data are summarised below:

- Knowledge construction on the TPACK framework and its applications
- Concept mapping to plan a TEL material based on the TPACK framework
- Learning experience design based on constructivist theory of learning
- Sharing draft concept maps for peer review
- Competency development on using free digital tools
- Competency development on searching, selecting, and integrating OER
- Knowledge construction on ID models and design aspects
- Storyboarding on TEL material and sharing for peer feedback
- Learning activities using different features in the ZOOM Platform
 - Individual activities (e.g.: quizzes; polls)
 - Group activities (breakout rooms)
 - Watching video clips and discussions
 - Activities with various digital tools
 - Group presentations and peer feedback

- Learning activities using different facilities in the Moodle LMS
 - Announcements and Guidelines
 - Learning Resources
 - Discussion Forums
 - Reflective Journal
 - Assessment Rubrics

Research Question 2: What challenges were encountered by the educators during the intervention and how those were managed?

Key challenges faced by the participants during the overall process are summarised in Table 4.

Table 4: Key Challenges Faced by the Participants

Categories	Codes	Supportive Quotations
Content	Novel concepts	Almost all the concepts were new... How to select the design model...connect design aspects with TPACK Framework...draw the concept map...storyboarding and following the ADDIE model...
Pedagogy	Novel pedagogies	
Technology	Novel technologies	
Technology	Using digital tools	At the commencement it was an extremely stressful experience...I had to spend a lot of time with digital tools.
	OER integration	It was my first time to be aware about OER ...I was not successful...to find OER to integrate in my lesson.
	Technological issues	I am not much familiar with technology...the first part of this was very difficult and it was stressing.
Pedagogy	Traditional practices	Switching from traditional ways into modern approaches was a challenge for me...
		How to overcome a traditional lesson plan and come out with a newer approach to a lesson incorporating new concepts...was another challenge that I faced.
Content	Language issues	I had to translate Sinhala material to English...using a glossary...it was difficult to translate...
Other	Workload	With my multiple responsibilities I found it very difficult. Many a time I was thinking to give up because the workload is very heavy...
	COVID-19	Our convent was under quarantine due to Covid-19. I was tempted many times to give up, but the valuable experience...encouraged me to go on...

Many aspects of the intervention were totally novel to the participants, which involved pedagogically complex and technologically challenging tasks. Hence, they experienced a ‘cognitive load’ (Sweller, 1988) during the process. However, they made concerted efforts to overcome the challenges, with commitment, motivation, and determination.

Research Question 3: What are the effects of the intervention on changing educators’ thinking and practices?

The intervention has significantly affected changing thinking and practices of the participants, as evident by their self-reflections, summarised in Table 5.

Table 5: Changes in Thinking and Practices of the Participants

Categories	Codes	Supportive Quotations
Content	Using OER	Checking the Creative Commons license of the resources available on the internet before using...now I am aware that we cannot use the material on the internet as freely as we want.
	Creating OER	Now I'm confident in creating and sharing OER integrated TEL material. I published my TEL material in the OER commons.
Pedagogy	Pedagogical methods	My mind has changed...how those pedagogical methods of teaching are the tools for communication in education process.
	Teaching-learning strategies	I have taken a new turn in the teaching-learning process of my college I started to implement some of the strategies I used and practice through this course.
	Communication	Both the teacher and the student have to communicate well in order to get the right results in education. Communication is the foundation of education technology.
	Creativity	The whole process of designing the TEL material was given me the feeling of an artist. It was really an artistic creation of a storyboard and a flowchart which I really enjoyed doing.
	Critical thinking	At the end of the activity, I was surprised of the work I did. The impact created on me from this activity is...if you think and act, you can be successful.
	Reflection	Reflective learning is to review on achievement of each of the learning outcomes gradually in getting learning experiences. We have learnt how to write and submit reflections.
	Self-learning	I believe that this TEL material will be a very effective one to the students and teachers too, as they can observe the improvement of the student by self-learning.
Technology	Competent in technology use	When looking back at the whole learning experience...it made me aware that, it had made me a different person. Now I am a teacher educator who is more competent in using technology...
	Extended use of technology	My idea of using technology...has gone beyond the boundaries of using Zoom or Teams...now I am aware of the real meaning of using technology to enhance the teaching-learning process...
	Positive thinking	My zero-knowledge technology turns to a better position, I am able to be a positive thinker. I understood my capacity of myself on technology I wish to design a good TEL material in future.
	Using interactive software	I felt that we could make our students' learning process more effective by appropriately utilizing those interactive and attractive software tools...
	Creating TEL materials	I wish to develop many other TEL materials to facilitate my teaching learning process...

	Sharing OER	I'm very proud of this OER...I'm so excited that this learning material I created can now be used by anyone in the world...
	Promote networking	We must help our students to connect with the global world...We can lead our students to global education.

The key effects of the intervention on the educators are summarised below:

- Ability to effectively blend subject matter content with pedagogy and technology
- Using and integrating free digital tools
- Using, adapting, integrating, creating, and sharing OER
- Increased confidence in designing and developing OER-integrated TEL materials
- Enhanced creativity, critical thinking, communication, collaboration, and reflection
- Motivation to continue with creating innovative OER-integrated TEL materials

The findings revealed that this innovative experience inspired the participants to adopt constructivist theoretical approaches, pedagogical frameworks, instructional design models, and novel technologies in their teaching-learning process, and in the creation of TEL materials. It has also encouraged them to use, integrate, and create digital tools and OER. The practical design strategies employed in the intervention, along with tutor guidance and peer feedback, have supported them immensely to proceed with motivation, despite the various challenges faced by them.

Discussion and Implications

Overall, the systematic capacity development intervention has enabled educators to become active creators of OER-integrated TEL materials. The learning experience which adopted a scenario-based pedagogical approach (Naidu et al, 2007) combined with learning by designing (Paniagua & Istance, 2018), has encouraged educators to engage in a creative process of construction (Papert, 1980) resulting in their empowerment as innovative designers of technology-enhanced learning experiences for their own students (Laurillard, et al., 2018).

Specifically, the appropriate merging of technology, pedagogy, and content in the design of learning experiences in the intervention, based on the TPACK framework, has supported educators to function as designers themselves, and apply their synthesised knowledge via TPACK into actual practice (Koehler et al., 2016). The findings establish and confirm the essential need for learning experience design with careful intersection of subject matter content, pedagogical approaches, and technological affordances (Naidu, 2016).

Online teaching and learning should not be considered just as another mode of content delivery, but as an opportunity to adopt alternative pedagogical methods focusing on knowledge management and competency development (Bates, 2019). The current study implicates how an exclusively online capacity development experience encompassing innovative design strategies can facilitate educators' shift from being mere consumers of knowledge to creators of knowledge, harnessing the affordances of both technology and pedagogy. Further, empowering educators to take a leadership role as 'change agents' (Fullan, 2015) is vital. Future research along these areas in diverse educational settings should provide useful insights for practitioners.

In the current global context, particularly within the COVID-19 pandemic scenario, enacting changes in the thinking and practices of educators towards embracing digital education practices and open educational practices becomes quite significant. Rethinking and redesigning of online learning and capacity development initiatives, with an appropriate blend among content, pedagogy, and technology, will contribute to positive transformations in teaching and learning and lead us towards reimagining our shared futures (UNESCO, 2021).

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