Online Pedagogy in Teacher Education: A *Dis*affection for Affection in Times of Crisis?

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Abstract

This chapter argues for the need for teacher educators' professional development (TEPD) in online teaching. It starts by revealing the challenges teacher educators encountered during the forced shift to online teaching during the Covid-19 pandemic due to the lack of emotional connectedness. Based on empirical data generated from a case study of four teacher educators from different subject areas, this chapter reveals that knowledge of technology does not ascertain a smooth transition to the online mode. Instead, we argue that formal training to identify and address the emotions of teacher educators and students while teaching online is crucial for student engagement and effective cognitive outcomes. Finally, informed by Zembylas' 'emotional ecology' model, we suggest that Mishra and Koehler's TPCK framework has limitations and that integrating the emotional dimension is necessary. The revised framework means that TPCK becomes TPECK, that is, Technological Pedagogical Emotional Content Knowledge, and hence a more comprehensive framework for teacher educators' professional development. This chapter's contribution is an expansion of TPCK to TPECK with a visual to capture the idea.

Keywords: online pedagogy, teacher education, emotional connectedness, TPCK, professional development

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Covid-19: The Scene in Teacher Education

Since Covid-19 swept the globe, technology has taken centre stage in higher educational institutions, with teaching and learning shifting to online platforms. Much has been written about the effectiveness of technology as a pedagogical resource (Arkorful & Abaidoo 2015; Arunachalam 2019; Palvia *et al.* 2018; Trust & Horrocks 2017), and there is little doubt that technological resources have prevented the educational sphere from coming to a standstill. As Duncan and Young (2009) point out, online teaching and learning provide an excellent alternative in education, particularly when there are hindrances to traditional learning situations. There is increasing recognition that the pandemic is not nearly eradicated and that our world will be more frequently assailed by pandemics (Scudellari 2020). In the face of this 'new normal', it is thus improbable that the educational sphere will revert to conventional teaching methods in the near future, and online teaching and learning is bound to remain the norm for an extensive period.

What has the change to online teaching entailed for teacher educators who are attuned to face-to-face teaching? How sound was the assumption that teacher educators, the drivers of teacher development programmes, would be able to adapt their pedagogy in line with the new modality? These questions become particularly pertinent in the light of extant literature pointing to,

(i) the breadth of knowledge required by teacher educators due to the scope of their responsibilities (Olsen & Buchanan 2017; Lunenberg *et al.* 2014);
(ii) the lack of attention paid to the professional development of teacher educators who join the tertiary sector with teaching experience in schools and no formal preparation (Tack *et al.* 2018; Lunenberg *et al.* 2014; Goodwin & Kosnik 2013; Koster *et al.* 2008);
(iii) the silence of researchers (Koster *et al.* 2008) and perceived lethargy of policymakers with regards to TEPD, despite the challenges encountered by teacher educators while transiting to their new roles in higher education (Tack *et al.* 2018); and, finally,
(iv) the fact that many teacher educators lack confidence and competence concerning online teaching (Uerz *et al.* 2018), especially if they have to deal with a strong display of emotions, such as anger and rage, by students (McKnight 2013).

We became conscious of the predicament teacher educators faced during a case study we had previously conducted on the same topic[1] at the Mauritius Institute of Education. The initial study involved twelve teacher educators from different subject areas who had been interviewed about their online teaching experiences during the lockdown. While much emphasis is generally laid on the significance of technological know-how for online teaching, data from four teacher educators surprisingly revealed that the mastery of technology does not necessarily entail an automatic acceptance of and a smooth transition to the online mode. Thus, these teacher educators stood out due to the interesting paradox they brought to light and that, we believe, deserves further scrutiny for a more nuanced understanding of the phenomenon. The data is presented in the form of vignettes which, in research, are generally used 'as elicitation tools' (Wilks 2004:80) to generate data (Gray *et al.* 2017; Hughes & Huby 2004; Sleed *et al.* 2002). In the case of this study, however, they are crisp yet textured write-ups used to present data vividly. Member checking (Creswell & Miller 2000) was carried out to ensure trustworthiness.

Voices of Teacher Educators

Vignette 1

Kevin has ten years of experience at the MIE. He is passionate about technological devices and always keeps abreast of the latest technological trends. When Microsoft 365 was made available to academics, Kevin was among the first to start using the applications. However, before the lockdown, he had not made use of any online teaching because he had not felt the need to do so. When the lockdown started, and academics were forced to migrate to online teaching, he felt a dissociation because of the urgency and lack of planning. Kevin acknowledges that technology is advantageous as switching to a distance mode helps overcome disruptions in the teaching and learning process. However, he does not see online teaching as an automatic substitute for face-to-face teaching since it has a totally different design. He found the process of online teaching quite challenging as the dynamics of face-to-face learning could not be achieved via this mode. Not only was the teaching and

[1] Ankiah-Gangadeen, Mahadoe-Doorgakant & Goburdun – 'Covid-19: a liability or serendipity for teacher education? (2020).

learning process lengthier, but it entailed rethinking how the whole process – in terms of selection of content, delivery and interactional mechanisms – could be converted into the online mode. He also had difficulties fostering interaction among students, even with the smaller groups. He firmly believes that, at this stage, online teaching cannot truly replace face-to-face sessions.

Vignette 2

Hema joined the MIE as a teacher educator only a few months before confinement. She had previously taught in different tertiary institutions around the island on a part-time basis and had been involved in the use of Moodle. Even though she had eventually transformed some technological interfaces into pedagogical resources, she admits having found the experience to be quite daunting initially as she had to struggle to bridge the gap between the instructional realities during online teaching and the best practices used for face-to-face teaching. She had also found the whole process of preparing detailed online materials challenging and time-consuming. When considering the forced use of online teaching during the lockdown, she describes the experience as very stressful since academics were neither psychologically nor physically prepared to conduct all courses online. She was especially worried about her pre-primary trainees[2] , who were not conversant with technology and had been dragged into the online learning mode without being given the requisite support. Hema wonders how online learning can promote reflective, collaborative and interactive skills amongst learners given the crisis that all are facing. Nevertheless, she thinks that teacher educators can reinforce their ability to use online resources to allow trainees to develop a social community on virtual platforms. According to her, online learning offers a platform for trainees to interact with greater focus and intent.

Vignette 3

Rahul has been at the MIE for fourteen years but had engaged in some form of online teaching even before using platforms, such as Moodle, that were more easily accessible to his students. It had thus allowed him to experiment with blended teaching. Rahul is the go-to person in his department regarding

[2] Trainee educators who work in pre-primary schools.

technological issues. He lists online learning as one of his research interests and has a good mastery of different technological devices. Despite being comfortable with online teaching, Rahul has found the whole experience of teaching online during the Covid 19 crisis challenging. One of the most difficult aspects of teaching online was seeing his pre-primary trainees grapple with Teams since the latter struggled with registering and logging onto the application. He also noted mixed responses to the use of technology. While some students felt more at ease with online oral presentations, others evaded online sessions since they had no audience.

Moreover, for Rahul, teaching online during the pandemic has been different as, before this, he could always count on seeing the trainees at some point during face-to-face sessions. Since this was not the case anymore, it changed how he interacted with them. To make learning meaningful for his trainees, Rahul resorted to a number of other media formats. He found the whole process daunting and demanding much work, and he spent more time preparing for online teaching than he would have for face-to-face sessions.

Vignette 4

Having joined the MIE ten years ago, Varsha admits that online teaching is not new to her. From the time she became a teacher educator, she used the Moodle platform for her classes. Although she is familiar with some Microsoft applications, such as Teams, she affirms never using them as she preferred the traditional face-to-face teaching approach. However, with the outbreak of Covid 19, she had no choice but to adopt the new mode of delivery into her teaching. As challenging as this has been, Varsha feels that she has fared well, successfully carrying out online presentations and discussions with large cohorts of primary[3] and pre-primary trainees.

To a great extent, she managed to achieve her objectives by exploring new avenues through interactive PowerPoint and the chat feature of Teams. She nevertheless concedes that preparing for online teaching is different from preparing for face-to-face sessions. Her greatest challenge has been finding ways to engage and support students for active and meaningful learning. Although technology has allowed her to set tasks for prior preparation (for example, for practical lessons, students watched videos and got acquainted

[3] Trainee educators who work in primary schools.

with the procedure), it was inadequate for conveying certain concepts (like showing the consistency of a batter). These are best understood through first-hand experience.

Furthermore, while conducting her classes, she discovered limitations in her use of technology as she had to grapple with technical issues in developing simple videos to demonstrate practical lessons. Also, at times, she found it challenging to keep track of large cohorts of students who would log in to the platform but remain inactive. According to her, institutional support for technological and pedagogical training is necessary since not all teacher educators are well-versed in developing and delivering online resources and classes.

Understanding the Challenge of Teacher Educators: Insights from TPCK

The vignettes reveal that dispensing online pedagogy is not a simple matter of switching from one medium to another but requires specific knowledge systems. Therefore, the Technological Pedagogical Content Knowledge (TPCK) framework[4] (Koehler *et al.* 2013; Mishra & Koehler 2006) was used as a baseline to unpack the data and analyse the experiences of the four teacher educators. According to Mishra & Koehler (2006: 1017), 'thoughtful pedagogical uses of technology require the development of a complex, situated form of knowledge that we call Technological Pedagogical Content Knowledge (TPCK)'. In their framework, they foreground 'the complex roles of, and interplay among, three main components of learning environments: content, pedagogy, and technology' (Mishra & Koehler 2006: 1017). Highlighting the inadequacy of merely introducing technology in the classroom (as other researchers have), the authors make a case for knowing how technology is used at the theoretical, pedagogical, and methodological levels. They rightly contend that technology cannot just be superimposed on existing frameworks but, instead, be made an integral part of these, given the interaction among the various constituents. Using Shulman's PCK model as a basis, Mishra and Koehler's framework (see Figure 1 below) delves into the intricacies of using technology as a tool for teaching by considering content,

[4] Also referred to as the TPACK framework by the authors (See Mishra & Koehler 2009)

pedagogy and technology in isolation – thereby showing the importance of mastering each – as well as by articulating how closely technology should be embedded within teaching through the interplay of the different components to become a powerful tool for epistemic enterprises in the learning process. Thus, they view these components in pairs, namely: pedagogical content knowledge (PCK); technological content knowledge (TCK); technological pedagogical knowledge (TPK); and also, all three together, technological pedagogical content knowledge (TPCK).

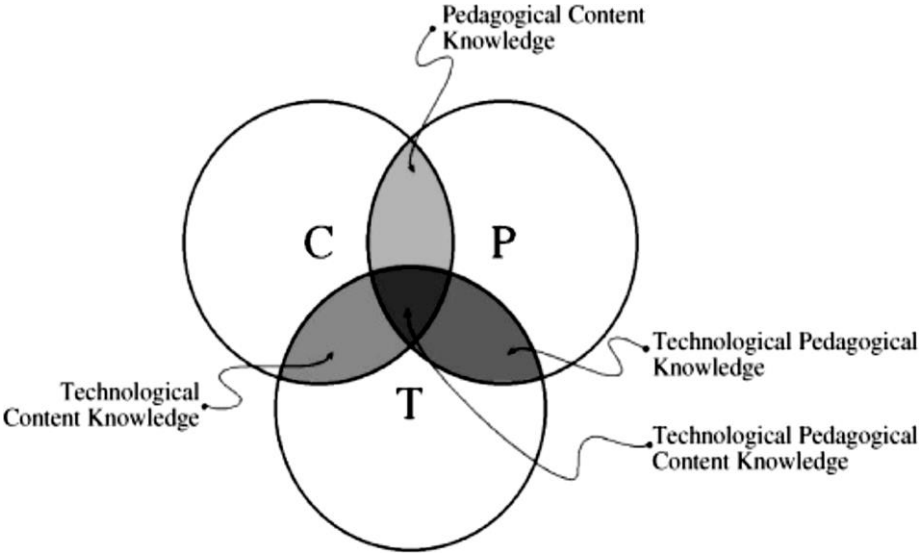

Figure 1: TPCK framework (Source: Mishra & Koehler 2006: 1025)

The TPCK framework is intricate and affords interesting insights into the types of knowledge pedagogues require to use technology effectively in their teaching. It reveals the need to know about technology (TK); the ability to determine the affordances and limitations of technology in relation to specific subjects or content (TCK) as well as the suitability of particular technological tools for the intended (pedagogical) purpose in a teaching/ learning setup (TPK). Finally, it requires the knowledge and skills to optimise technology for effective pedagogy in teaching content (TPCK).

Thus, the TPCK framework adequately makes the point that technology cannot merely be perceived as an 'add-on' tool or resource in pedagogical setups but should permeate every level of pedagogical know-how.

An analysis of the vignettes with respect to each level of the TPCK framework illuminated the reason for the teacher educators' struggle during online teaching. The grid below provides an overview of the analysis.

Table 1: Overview of analysis of vignettes

Framework Level	Evidence in the Vignettes
TK	**Kevin:** always keeps abreast with the latest technological trends **Hema:** had been involved in the use of Moodle **Rahul:** good mastery of different technological devices **Varsha:** online teaching is not new to her
TCK	**Kevin:** - technology is advantageous as switching to a distance mode helps overcome disruptions in the teaching and learning process - difficulties in fostering interaction **Hema:** - online learning offers a platform for trainees to interact with greater focus and intent - wonders how online learning can promote reflective, collaborative and interactive skills amongst learners **Rahul:** - some students felt more at ease with online oral presentations since they had no audience, while others evaded online sessions - Before this, he could always count on seeing the trainees at some point. Since this was not the case anymore, it changed how he interacted with them. **Varsha:** - managed to achieve her objectives by exploring new avenues through the use of interactive PowerPoint and the

	chat feature of Teams - It was inadequate with respect to conveying certain concepts (like showing the consistency of a batter), which are best understood through first-hand experience Her greatest challenge has been to find ways to engage and support students for active and meaningful learning.
TPK	**Kevin:** entailed rethinking how the whole process – in terms of selection of content, delivery and interactional mechanisms – could be converted into the online mode **Hema:** had eventually transformed some technological interfaces into pedagogical resources **Rahul:** To make learning meaningful for his trainees … resorted to a number of other media **Varsha**: had fared well, successfully managing to carry out online presentations and discussions with large cohorts of primary and pre-primary trainees
TPCK	Have TK, TCK and TPK, yet: **Kevin:** difficulties fostering interaction **Hema:** wonders how online learning can promote reflective, collaborative and interactive skills **Rahul:** before this, he could always count on seeing the trainees at some point. Since this was not the case anymore, it changed how he interacted with them. **Varsha:** her greatest challenge has been to find ways to engage and support students for active and meaningful learning

What resonates in the vignettes is that all four teacher educators were already familiar with technology, and three had previously used it as a pedagogical resource. For the TPCK framework, it can therefore be said that they had TK. The TCK is also evidenced through the teacher educators' critical stance towards technology and their ability to identify its potential and liabilities.

They all displayed PCK as they acted upon the understanding that online teaching required a different approach to face-to-face teaching, even though they faced certain difficulties in the process. Nevertheless, all four found the sudden shift to online teaching challenging and arduous due to their perceived lack of student engagement and inability to foster interaction. These

findings echo those in the study of Burke (2020: 5), which reveal that 'While it was clear that all participants held the goal of connecting with their students and engaging them in meaningful learning, this was not always seen as achievable'. The complexities of establishing an interactive online environment cannot be downplayed as these affect the efficacy of teaching and learning.

Change in any circumstance is generally unsettling. So, whilst the anxiety displayed in the current study may be significantly attributed to the unsettling circumstances in which the new modality had been resorted to, it may also be symptomatic of a more fundamental issue, namely the impact on the teacher educators' inherent beliefs about teaching and learning. It would appear that their practices as teacher educators, and their beliefs about teaching and learning, were forged in predominantly traditional classroom setups that fostered a connection between them and their learners through the proximity that physical presence breeds. Engaging with students through the interface of a 'screen' or application was troubling as it engendered a form of alienation from their learners. Online presence fails to compensate for the physical distance, especially since learners cannot always be seen. As such, facial expressions or silences cannot be deciphered to gauge their affective state, engagement in the lesson, or understanding of concepts. The emotional disconnect in online environments may dampen interaction and cause student disengagement, undermining the teaching/learning process. Gilmore and Warren (2007: 581) reveal how,

> the absence of the body dimension, of paralingual cues and removal of physical social-spatial indicators, force a renegotiation of the 'feelings rules' that govern traditional classroom settings, which in turn contributes to a more emotionally suffused teaching experience for online tutors.

The distancing becomes even more disconcerting when learners struggle to manage the devices and applications. In short, an online connection does not automatically result in human connection, thereby obliterating much of the affective dimension in pedagogy. Nevertheless, the literature on online teaching or online pedagogy mainly focuses on technical know-how in terms of knowledge of content, pedagogy or technology (Trammell & Laforge 2017; Wright & Malcolm 2010; De Simone 2006; Solem *et al.* 2006; Beason 2005). Meanwhile, the significance of conducive relationships between teachers and

learners (benefits concurrent with the pedagogy of caring) and fostering this on a different platform is marginalised. On the contrary, we aver that it should be foregrounded and addressed directly rather than subsumed under the broader domain of pedagogy.

Uncovering the Limitations of the TPCK Framework

Data analysis using TPCK uncovered the limitations of the framework. It was evident that although the teacher educators possessed the different types of knowledge deemed essential, they still faced hurdles. While Covid-19 has shown the importance of technology in attenuating social distance, it has drawn attention to the resulting emotional distancing between teacher educators and their learners. It has even brought to light the disarray of established professionals who have already built a repertoire of teaching experiences. Dyment *et al.* (2013: 139) correctly assert that 'building social engagement (online) may involve a level of orchestration that is not normally required on campus'. Successful teaching and learning rely extensively on the bond between teachers and learners and the rapport they share; this requires pedagogical skills that blend the technological and affective domains. In a study involving adult learners on a 30-week online course, Zembylas (2008) identified various emotions experienced by the participants. It is noteworthy that, among the negative emotions are alienation and the lack of connectedness – aspects highlighted and discussed above related to the current study. This study thus confirms that online learning is intricately tied to emotions, and vice versa, thereby pointing to the need for emotions to feature conspicuously in online pedagogy.

However, studies reveal that even though the connection between emotion and learning, or emotion and cognition is now acknowledged (Goleman 2004; O'Regan 2003), it tends to be sidelined in online learning in adult and higher education spheres (Stephan *et al.* 2019; Zembylas 2008), especially teacher education (O'Regan 2003). O'Regan (2003: 89) thus rightly stated that,

> (given) the centrality of emotion to the process of learning, specifically here of learning online … any theory of learning which fails to take account of this centrality is lacking a critical element and is, therefore, seriously deficient in its representation of reality.

Notably, the Community of Inquiry (CoI) framework (Garrison *et al.* 2000 in Swan *et al.* 2009) grounded in Dewey's philosophy of education is premised on the belief that 'effective online learning, especially higher-order learning, requires the development of community, and that such development is not a trivial challenge in the online environment' (Swan *et al.* 2009: 4-5). Consequently, two of the three core elements in the model (social presence and teaching presence) underscore social and emotional connection in an online environment (Cleveland-Innes & Campbell 2012). There is little doubt that these directly feed into the third element (cognitive presence) since, as Cleveland-Innes and Campbell (2012: 271) opine, '(e)motions … are a double-edged sword that may help or hinder learning'.

Although Mishra and Koehler took Shulman's PCK model a step further by integrating technology (TPCK), they failed to cater for the intricacies of online pedagogy fully, even despite the recognition that using 'technology per se does not lead to student learning since its effectiveness is entirely dependent on the teaching approaches used *in conjunction* with it' (Mishra & Koehler 2009: 15). What Mishra and Koehler disregarded was the emotional impact of technology on the teaching and learning process, substantiating Ball *et al.*'s (2008: 389) claim that,

> Although the term pedagogical content knowledge is widely used, its potential has only been thinly developed. Many seem to assume that its nature and content are obvious. Yet what is meant by pedagogical content knowledge is unspecified.

This lapse becomes even more blatant at a time when online teaching is becoming more widespread and emphasises the notion that technological possibilities, instead of pedagogical principles, drive the focus of online learning (Serdyukov 2015; Harasim 2012; Levine & Sun 2003). Thus, while the TPCK framework considers technology entering the teaching space, it does not adequately fulfil the needs for teacher educator development.

Mitigating the Limitations of the TPCK Framework through TPECK

Adult learners, in particular, need to be emotionally comfortable with the learning situation for learning to occur (Berenson *et al.* 2008). Thus, we maintain

that careful consideration of the affective domain in online teaching and learning would help teacher educators be better prepared for the shift in modality and foster a rapport with their students via the interface of technological resources. Attending to emotions enables both the students and the teacher educator to manage feelings and provides practical methods to address difficulties that could deter success. With respect to teaching, the affective domain would operate at two levels, more specifically, 'in empowering teacher educators to 'interact with students to build a relationship (and to appeal) to the affective attributes of students as a deliberate form of engagement' (Birbeck & Andre 2009: 41), thereby impacting positively on cognition. By foregrounding the role of emotions in teaching and learning, the affective domain would add value to the TPCK framework as a supplement to the technical knowledge base it develops. For an enhanced conversation between Shulman, Mishra and Koehler, and teacher education, we thus extend the TPCK framework to TPECK, that is, Technological Pedagogical Emotional Content Knowledge, so that the significance of emotions in the teaching and learning process gains due prominence. The modified framework illustrated in Figure 2 is put forth as a framework for TEPD, filling the gap related to formal preparation in online teaching.

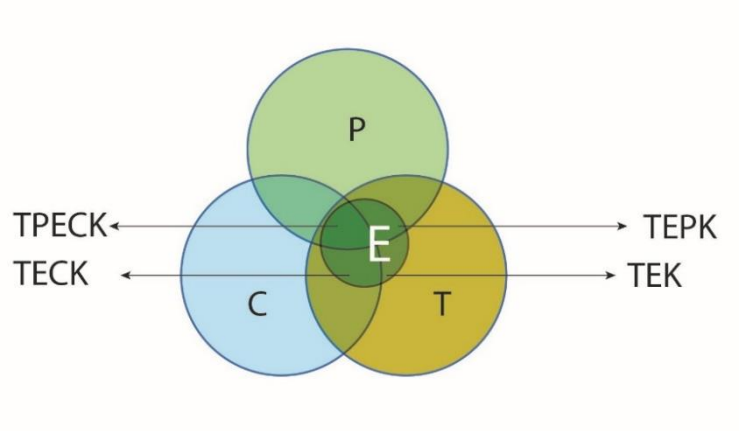

Figure 2: TPECK framework

In the TPECK framework, emotions are viewed with technological, pedagogical and content knowledge. Thus, we argue for the central role of emotions in the proposed framework for TEPD in online teaching. This is

informed by the concept of emotional ecology that Zembylas uses to enrich PCK, which 'in the context of education indicates how teachers and students create the environment that shapes how they are emotionally connected and engaged in learning together' (2007: 357). Zembylas (2007) classifies emotions along three planes, namely, individual (feelings experienced and expressed by the teacher), relational (the teacher's use of emotional knowledge to develop a relationship with learners) and socio-political (the influence of emotional knowledge of the institutional and cultural contexts on curricular decisions and actions). Zembylas' classification speaks to the data presented earlier in the chapter on all three planes: at the individual level (the teacher educators' disarray of online teaching was evident); at the relational level (the difficulties of building a rapport and establishing interaction online was brought out repeatedly); and at the socio-political level (lockdown and social distancing due to Covid-19 leading to the policy decision to adopt online teaching). As per Zembylas' model, the interaction among elements from all three planes led to a situation where teaching and learning were impaired following the change in modality.

As a framework for teacher educators' development, TPECK aims to empower teacher educators through a consideration of Technological Emotional Knowledge (TEK), Technological Emotional Content Knowledge (TECK), and Technological Emotional Pedagogical Knowledge (TEPK).

Technological Emotional Knowledge

Technological Emotional Knowledge refers to the way teacher educators and students feel due to the use of technology or in the process of using it. Emotions aroused are likely to vary in individuals and may, for instance, range from enthusiasm to reluctance or confidence to frustration – depending on such factors as teaching and learning styles and attitude towards or beliefs about technology. The TEK makes teacher educators conscious of their emotions and those of their students. It also highlights the importance of considering these emotions, given their impact on the degree of motivation for or involvement in online sessions (Wosnitza & Volet 2005).

Technological Emotional Content Knowledge

Technological Emotional Content Knowledge develops the teacher educators'

understanding of how students relate to technology-mediated content. The appeal of different content areas is apt to vary according to individuals, as reflected in the degree of emotional engagement (Schindler *et al.* 2017) displayed by learners. While some aspects of the content may be interesting, others may be uninspiring. In the case of online teaching and learning, the interplay between technology and content may be that not only does each element evoke emotions on its own (that is, the learner's feelings about technology and about the content being taught) but also with each other (that is, feelings aroused by technology may influence the learner's response to the content or vice versa). For example, in line with Krashen's Affective Filter hypothesis (Krashen 1982), which highlights the relationship between affective variables and language learning, the stress generated by limited technological know-how may hinder learning. Thus, TECK is essential to enhance the teacher educator's discernment while identifying avenues and limitations in online teaching regarding particular content.

Technological Emotional Pedagogical Knowledge

Technological Emotional Pedagogical Knowledge equips teacher educators with the requisite knowledge and skills to identify and manage their emotions and those of their students during online teaching. It also develops their ability to adopt an online pedagogy of caring by attributing a central place to emotions in the teaching and learning process. Among others, it involves establishing a conducive online environment, establishing and sustaining rapport with students despite physical distance, being attentive and responsive to students' state of mind and needs, motivating students and sustaining interest through a judicious choice of techniques.

Technological Pedagogical Emotional Content Knowledge

At the nexus of TEK, TECK and TEPK lie Technological Pedagogical Emotional Content Knowledge, where the interplay of the various components is played out. Through TPECK, teacher educators develop sensitivity and learn to address emotions during online teaching through an astute choice of teaching approaches. Thus, TPECK stands as a comprehensive framework that equips teacher educators with the knowledge, skills and attitudes required to promote emotional engagement during online teaching.

Conclusion

In this study, we highlighted the challenges teacher educators faced during online teaching despite their knowledge of technology and uncovered the limitations of the TPCK framework. We argued that, although the content and technological know-how are essential elements in online teaching, operating beyond the confines of a traditional classroom poses undeniable challenges for teacher educators when establishing and maintaining interaction with their learners. Establishing effective communication channels anchored in affective considerations is crucial in an online environment to allay student disengagement and hence teacher educators' dilemma. Consequently, there was an acute need for TEPD to allow teacher educators to develop the requisite knowledge base for online pedagogy. It would help bring about more willingness and ease to conduct online teaching since teacher educators would be equipped with complex knowledge, skills and necessary attitudes underlying effective online pedagogy. As such, we extended the TPCK framework to TPECK by including emotions for a more comprehensive knowledge base to conduct online teaching in teacher education.

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