

# Teacher Educators' Conceptualisation of Technology in Malawi: A Critical Perspective

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## Abstract

This study took a critical perspective to explore teacher educators' conceptualisation of instructional technology in Malawi. Participants included teacher educators from three different public teacher education institutions, and staff members of a Non-Governmental Organisation (NGO) that trains teachers and student teachers in the use of digital education technology. Data were generated through semi-structured interviews and document analysis. The findings showed prominence of the media view of instructional technology, especially digital technologies. These conceptualisations appear to be shaped by the teacher educators' prior training, experience in teaching an instructional technology course, and organisational structures that facilitate the use of instructional technology at the institutions under study. These findings might be useful for teacher educators' technology professional development content and activities. The findings can also provide insights into extending conversations on the applicability of Teacher Educator Technology Competencies (TETCs) in contexts beyond the USA, where they were primarily developed.

**Keywords:** critical perspectives; Malawi; teacher educator technology competencies; instructional technology; non-traditional teacher educator

## Introduction

One of the recent significant contributions in the field of technology and teacher education is the development of Teacher Educator Technology Competencies (TETCs). The TETCs are meant to guide technology professional development for *all* teacher educators (Foulger et al. 2017). However, Krutka, Heath, and Willet (2019) argue that the definition of *technology* is not clear in the proposed TETCs, and it is only assumed that *technology* refers to digital technologies such as computers, iPads or the Internet. Yet, definitions of technology vary in contexts such as time and cultures. Chitiyo (2010) highlights differences in the conceptualisation of instructional technology between high-income country contexts, such as the USA, “where technology in education is almost synonymous with computers in all schools” (Chitiyo 2010,110), and developing nations such as Zimbabwe, where most schools lack digital technologies. Thus, if the TETCs refer to digital technologies only, they may not be applicable to other contexts. Meanwhile, Krutka et al. (2019) suggest that research on definitions of technology in diverse contexts might benefit the field, especially by offering propositions of how the TETCs might be applied to diverse contexts. Contextualised in Malawi, the study that directed this article explored how teacher educators conceptualise instructional technology and why they conceptualise it the way they do. This paper is part of a larger study aimed at exploring technology professional development for teacher educators in Malawi. A critical perspective was used to gain insights into teacher educators’ conceptualisation of instructional technology in a low-income country context (Ezumah 2020).

## Literature Review

### **Perspectives of Instructional Technology**

The definition of instructional technology depends on the context, and the concept still lacks consistency in identity: as a field of study, it is used interchangeably with other terms like educational technology, instructional media, or instructional systems design (Chitiyo 2010; Gedik 2017; Reiser 1997). Engler (1970) summarises two broad perspectives from which instructional technology has been defined over the years: 1) as “hardware-television, motion pictures, audio-tapes and discs, textbooks, black boards, and so on ...”; and 2) “as a process by means of which we apply the research findings of behavioural sciences to the problems of instruction” (Engler 1970, 379).

The perspective of instructional technology as hardware also varies. In some contexts, instructional hardware or media include all the materials and equipment such as the chalkboard, Information and Communication Technologies (ICTs), flip charts, overhead projectors, videos, and local resources that are used to enhance the teaching and learning process. In Malawi, Kadzera (2006) categorised instructional technology into three categories: 1) common-readily available and fondly used technologies such as chalkboards and flip charts; 2) creative technologies, which are produced using locally available resources; and 3) higher-order technologies, which are mechanical or

electronic in their operations and require maintenance and training to use. However, as technology hardware and software change, conceptions of instructional technology have tended to focus on digital technologies such as the Internet or computers.

The other perspective is mainly understood among professionals who view instructional technology as a field of theory and practice encompassing a systematic way of designing, implementing, and evaluating processes of teaching and learning. Schiffman (1986) presents five views of the field of instructional systems design: 1) the media view, which focuses on a process of media selection; 2) the embryonic systems view, which is similar to the media view, but emphasises media production; 3) the narrow systems view, which looks like a systems approach, but the steps of needs assessment and formative evaluation are noticeably absent; 4) the standard systems view, which resembles a fair representation of instructional systems design; and 5) the instructional systems design view, which synthesises theory and research related to human stimuli to the environment, composition and transmission of information and so forth (Schiffman 1986).

Meanwhile, understood in line with the above-highlighted perspectives, the history of instructional technology shows that the scholarly and professional discipline of Information Technology and Teacher Education (ITTE) emerged from the mother field of instructional technology in the early 1980s. Willis, Thompson, and Sadara (1999) reviewed the developments of ITTE, noting some indicators of growth such as research paradigms and the emergence of professional journals such as the *Journal of Technology and Teacher Education*. However, the significance of clarifying the meaning of technology in the field of ITTE has resurfaced in the context of recently developed TETCs (Krutka et al. 2019). The present paper contributes to the conversation on the meaning of technology in the field of ITTE by focusing on teacher educators' conceptualisation of instructional technology.

### **Teacher Educators' Conceptualisation of Instructional Technology**

Reiser (2001) traced the history of instructional technology in the USA and reported that most individuals hold the media view of instructional technology. Since teacher educators are not a homogenous group (White 2019), it is also possible that some teacher educators may share the professional view of instructional technology, others may align with the media view, while still others may hold both perspectives. Such conceptualisations can be shaped by how instructional technology features in a teacher education programme. According to Heinich (1984), the focus of instructional technology in a teacher education programme can determine whether teacher education faculty prioritise preparing teachers in the effective use of technology or advancing the knowledge base of instructional technology.

Conceptualisation of instructional technology can also be shaped by organisation structures that facilitate the use of instructional technology in teacher education institutions. For example, there has been an increasing interest in using teaching and

learning centres to facilitate technology professional development for teacher educators (Parrish and Sadera 2019). The centres organise technology training, provide access to technology resources, and support faculty in designing instruction that integrates technology (Usun 2005). Such institutional structures can, therefore, shape teacher educators' understanding and practices of instructional technology.

Furthermore, teacher educators' conceptualisation of instructional technology is shaped by their prior training. For example, in Zimbabwe, Chitiyo (2010) interviewed teacher educators at three universities to understand how they conceptualised instructional technology integration. Similarly, Chitanana (2014) investigated teacher educators' use of instructional technology as a way of gauging their instructional technology practices. Both studies reported that teacher educators' conceptualisation of instructional technology was limited to the media view, which reflected the influence of the audio-visual aids undergraduate courses that the teacher educators took (Chitanana 2014; Chitiyo 2010). Chitiyo (2010) added that teacher educators with a post-graduate diploma in instructional technology held a different understanding of instructional technology than those who did not have this qualification.

Gedik (2017) interviewed experts to understand their conceptualisation of instructional technology as a field of study and practice. The author asked questions such as "how do you define instructional technology" and "what do you think is the purpose of instructional technology as a field?" (Gedik 2017, 82). Findings showed that experts with a PhD in instructional technology understood instructional technology interchangeably with educational technology and that, to them, instructional technology focused on enhancing teaching and learning (Gedik 2017). These views were in line with existing definitions of instructional technology as a field of research and practice. Gedik (2017) also observed that little is known about how instructional technology is conceptualised in many developing countries.

Clearly, teacher educators' conceptualisation of instructional technology is influenced by multiple factors that can be categorised as contextual or individual. This study focused on Malawian teacher educators' conceptualisation of instructional technology and why they conceptualised it the way they did. Some of the interview questions in this study included, "how do you understand instructional technology"; and "how does instructional technology use become visible in your work?"

## Teacher Educators and the Language of Technology: A Critical Perspective

Selwyn (2016) argues that the language of educational technology is characterised by unwarranted, enthusiastic and often exaggerated terms. Yet, the history of instructional media shows that all new instructional media start with great promise, enthusiasm and interest, but leave little impact in terms of transforming instructional practices (Reiser 2001). It is, therefore, necessary to challenge certain dominant ways of thinking and

talking about technology that often romanticises teaching (Chen, Souraya, and Wohlleben 2017). According to Postman (1994, 41), “The role that new technology should play in schools or anywhere else is something that needs to be discussed without the hyperactive fantasies of cheer leaders.” The goal is to move beyond instrumental questions of “what works?” and “how can technology fix education?” (Castañeda and Selwyn 2018). It is also necessary to subject the language of educational technology to critical scrutiny to uncover issues of “fairness, equality and genuine empowerment through digital education” (Selwyn 2016).

Related to the above critical views, Krutka et al. (2019) invite teacher educators to explore critical questions regarding technology and teacher education, especially questions concerning teaching *about* technology. Noting that the TETCs seem to emphasise digital technology, Krutka et al. (2019) ask: “What makes digital technologies more important than analogue counterparts? Should teacher educators be particularly concerned with emerging technologies?” (Krutka et al. 2019, 564). These questions are essential for interpreting meanings attached to instructional technology, especially in the context of African countries. Ezumah (2020) argues that limiting the meaning of instructional technology to digital technology disadvantages educational institutions in low-income countries, especially in Africa, that can’t even afford pencils or textbooks. Clearly, there is a need to redefine and reframe the meaning of instructional technology from critical perspectives.

It is from the above-highlighted critical perspectives of instructional technology that this study analysed and interpreted teacher educators’ conceptualisation of instructional technology in Malawi. For instance, through teacher educators’ descriptions of how instructional technology use became visible in their work, the prominence of a digital media view of instructional technology is evident. The view is characterised by the transformative potential of instructional technology.

## Research Purpose and Questions

To join the ongoing conversations on teacher educators and the language of technology, the present study is situated in Malawi. This paper focuses on teacher educators’ conceptualisation of instructional technology and why they conceptualise it the way they do. The assumption is that the way teacher educators define instructional technology largely influences their instructional technology practice. The research questions for the study were:

1. How do teacher educators conceptualise instructional technology?
2. Why do teacher educators conceptualise instructional technology the way they do?

## Methods

This qualitative research employed a case study design, focusing on three public teacher education institutions and an NGO as cases. In Malawi, teacher education institutions

can be categorised by type, level of education, and ownership arrangement. In terms of type, there are teacher training colleges (TTCs), universities, and colleges of education. Regarding the level of education, the TTCs prepare primary school teachers, while secondary school teachers are trained at the faculties of education in public and private colleges and universities. According to ownership arrangements, teacher education institutions can be viewed as public (state-funded), religious or private (Jamu 2017). At the time of this study, there were 14 public teacher education institutions, out of which three institutions were purposively selected. The institutions were selected because of their age; they were within reach of where the researcher was based; and they were typical cases. In terms of age, because public teacher education institutions in the country are relatively older than private or religious institutions (Ministry of Education, Science and Technology [MoEST] 2008), they could be informative cases.

### **The Cases and Study Participants**

**Case A** is one of the eight public TTCs offering Initial Primary Teacher Education (IPTE) for a period of two academic years within a structure called 2 IN-2 OUT-2 IN. The structure means the student teachers are in college for the first two terms, then in the following two terms, they are out in teaching practice schools, and back in college again in the last terms of the training. At the time of data collection, Case A had 46 teacher educators—of whom 20 were males and 26 were females. Seven (3 females and 4 males) teacher educators were interviewed. The educators reported a range of 8–31 years of work experience; highest qualification of BEd (2) and MEd (5); ages of 41–56; and subject specialisation of language, mathematics and expressive arts.

**Case B** is one of the public universities that focus on educating secondary school teachers, primary school teacher trainers, and other educational professionals. This study was bound within the four-year Bachelor of Education programme, which prepares secondary school teachers. At the time of this study, Case B had 32 academic members of staff. Three teacher educators were interviewed. Additionally, the study involved officers in the quality assurance and ICT departments that facilitate faculty development activities. The participants reported an age range of 30–63; work experience of 6–39 years; gender (3 males and 2 females); and highest qualification of PhD (3) and Masters (2).

**Case C** is a college of education structured into three faculties (Faculty of Humanities, Faculty of Science and Faculty of Education) and nine departments. The college offers degrees in secondary and primary education through face-to-face and distance modes of tuition. This study was bounded in the Bachelor of Education (secondary) programme. At the time of this study, there were 60 full-time lecturers. Five (2 females and 3 males) lecturers were interviewed. The participants reported an age range of 38–50; work experience of 3–15 years; and highest qualification of a Master's degree.

**Case D** included members of staff at an NGO that is implementing a digital education technology programme in various primary schools across Malawi. The NGO was

involved in establishing the conceptualisation of instruction technology by teacher educators that do not work in schools or colleges of education. According to the literature, unlike teacher educators working in schools and colleges of education (traditional teacher educators), little is known about those who work outside these spaces (non-traditional teacher educators) (Gondwe 2021; White 2019). The programme implemented by the NGO uses tablet technology to improve core competencies of reading, writing and mathematics for primary school children in the early grade section. Teacher training in the programme takes place at schools and the TTCs. Two project staff members participated in this study, reporting the highest qualification of BEd; both were males; had work experience of 3–6 years; and an age range of 32–40.

### **Data Collection: Ethics and Instruments**

The researcher obtained ethical approval from the University of Malawi Research Ethics Committee (Protocol NO. P.12/19/07), and the Ethics Committee of the Graduate School for International Development and Cooperation, Hiroshima University, Japan. All participants were requested to voluntarily participate in semi-structured interviews. Some interviews were conducted online using WhatsApp and Zoom video calls, while others were done face-to-face. Also, some interviews were conducted by this researcher, while other participants were interviewed by a research assistant.

### **Data Analysis**

Audio-taped interviews were transcribed, and then the analysis of textual data combined deductive and inductive approaches (Fereday and Muir-Cochrane 2006). The researcher read and re-read the textual data (interview transcripts and documents) to identify chunks of texts that related to the categories of data to answer the research questions (Bowen 2009). Then, data were displayed utilising matrices created in Microsoft Word.

## **Findings**

### **Case A**

Teacher educators' responses (presented verbatim here) to the question, "how do you understand instructional technology?" included: "I understand that as the use of ICT ... in the teaching and learning process" (ATE1); "dealing with the use of ICT in the process of teaching and learning" (ATE3); or using technology such as computers not only "to enhance teaching but also to make teaching relevant because the world is changing now" (ATE7). However, this understanding of technology seems to have been changing, depending on the type of instructional technology available at a point in time:

Sometime back we had no phones or computers ... so people were depending on manmade kind of instructional technologies that they may use, that time the emphasis was on teaching and learning using locally available resources ... but this time the world has changed, we have these technologies ... (ATE4).

Participants' expressions of how instructional technology became visible in their work also showed how they conceptualised instructional technology (Chitanana 2014; Chitiyo 2010). For example, instructional technology offers convenience as teacher educators perform their roles. "What I have noted is that use of ICT simplifies my demands like where I get information ... the moment I am looking for information I am comfortable getting it from the Internet" (ATE5). Table 1 presents how instructional technology became visible in the teacher educators' work.

**Table 1:** Teacher educators' use of instructional technology

Instructional technology used for	Significant quote/paraphrased statements
Assessment tasks	"Like in teaching practice, I keep data on students' grades which I use Microsoft Excel. This time I can allocate students by their schools, names or sex very easy because all those have been made already. You can tweak information very fast" (ATE4)
Lesson preparation and delivery	ICT resources like computers, projectors, cell phones, tablets or GeoGebra allow teaching and learning experiences to become more innovative, enriching, motivating, and engaging (Malawi Institute of Education 2018)
Information searching	In my work as a lecturer, I may give them a topic to research on the Internet ... they get that information. When they get the information, it means I am using technology (ATE2)
Teacher educators' own learning	Using YouTube, for example I download how to make <i>bokosi la kanema</i> (a TV model made from local resources) and that is using technology on my own ... I also use my phone at home (ATE6)  Teacher educators can refer to online and other relevant sources on how to use ICT resources in the teaching and learning process (Malawi Institute of Education 2018, 29).

The conceptualisation of instructional technology was also visible through expressions of a technologically competent teacher educator. ATE5 characterised a competent educator as one with "fewer problems when it comes to the use of ICT"; "able to integrate it in the teaching"; and with "adequate knowledge of the devices."

ATE4 presented a broader view of instructional technology competencies in terms of relevance, use and regardless of the type of the technology. When a teacher educator is technologically competent:



We see him bring things which are relevant to the lesson ... using and helping students using it; carrying things can indicate that they are competent ... using them in class is another way. We may see that the teacher is well prepared. We are also interested in how it is being used effectively. We label that teacher as competent to use resources.

In summary, teacher educators in Case A defined instructional technology as media, including specific tools such as ICT and locally available resources. These conceptualisations can be attributed to trends in the primary teacher education curriculum, which recognises ICT as one of the cross-cutting issues that can enhance life-long learning for teachers in Malawi. The course also emphasises teaching and learning using locally available resources.

### **Case B**

Interview data showed the dominance of a media view of instructional technology, especially specific digital tools such as computers. For BTE1, instructional technology means “employing some electronic devices in your teaching and learning ... using a projector, movie or video, computer.” BTE2 understood “technology as medium that we use for instruction, e.g., computer or videos or projector or some other means for searching information such as the Internet” (BTE2). These views seem to be shaped by the teacher educators’ prior training, as both BTE1 and BTE2 had undergone an instructional media course in their undergraduate and upgrading programmes. Teacher educators’ knowledge of instructional technology appears to have relied on personal initiatives and has been influenced by changes in the teacher education programme. For instance:

I graduated in 1988 and then we did not have the instructional technology course that undergraduate students learn now. I have never undergone any instructional technology course since then, although I know how to use the computer and do PowerPoint presentations ... (Field note, email communication, 9 December 2019)

The above quotation suggests different experiences of instructional technology between older and younger generations of teacher educators in Case B. In this study, BTE1 and BTE2 were younger than the above-quoted teacher educators who had been in service for some time. Yet, all respondents held the media view of instructional technology.

Teacher educators’ understanding of instructional technology was also clarified through their use of technology. Instructional technology featured in the teacher educators’ professional roles, especially research and specific tasks related to teaching and learning, including assessment, lesson presentation and communication.

**Table 2:** Examples of how teacher educators use instructional technology.

<b>Instructional technology used for</b>	<b>Significant quote</b>
Research	For research, though slow Internet which makes doing research on IT very tedious
Lesson preparation and delivery (face-to-face/online learning)	“I use Google classroom, Power Point presentations when teaching. Currently working on putting first year module content on Moodle” (example of online learning)
Information searching	“I understand technology as a medium that we use for instruction, e.g., computer or videos or projector or some other means for searching information such as the Internet” (BTE2)
Teacher educators’ own learning	I have resources downloaded from the Internet and I have electronic books, journal articles, videos which I refer to and even share with my students.

From table 2, it can be observed that digital technologies are prominent in the teacher educators’ use of instructional technology. Based on Jung’s (2005) approaches to the use of ICT in teacher education, it can be said that teacher educators use ICT: 1) as the vehicle for delivering instruction; and 2) as facilitating or networking technology, where it is used as a source of online resources for the teacher educators’ and student teachers’ professional development.

Teacher educators’ perspectives of technology competencies also shed light on how they understood technology. BTE2 felt that he was strong at the basic level, such as “searching information using the Internet ... using Google classroom I have challenges I need to do more practice.” Generally, these perspectives cut across technology competencies reported in the literature, especially using technology in general and using technology for teaching and learning (Uerz et al. 2018).

### Case C

Participants defined instructional technology mainly as media, including the use of digital technologies such as ICT and non-digital technology. CTE5 responded:

We understand it differently, but I will talk on what is done [at] our college. At our college we do not have so many modern technologies, but we are able to use LCD projectors, overhead projectors; we encourage them [educators] to make teaching and learning materials, using charts, teaching, and learning using locally available resources and we also tell them to Google using their phones. (CTE5)

CTE5 had a Master of Education Planning, but at one time, she taught the Instruction Media and Technology course. Thus, her observation that instructional technology is

understood differently can be attributed to this background. Similarly, CTE1 noted that instructional technology “means anything that a teacher can use to teach. It could be electronic or computers.” While acknowledging that this was not a conclusive definition, CTE1 reflected on her background, which may have influenced her understanding of instructional technology:

We have a course called Instruction Media and Technology. Unfortunately, I never went through the course ... but I have read it and understood. I also taught instructional media. The General Teaching Methods (GTM) is general; it involves unpacking what teachers should be aware of. It is offered to all student teachers. And every student goes through [an] instructional media course. But in GTM we just highlight the issues of learning materials as part of instructional media.

The view of instructional technology as any teaching resource was also shared by CTE4: “these are the T/L resources that can be used to transfer knowledge into concrete knowledge to students; so that students don’t have problems understanding what they are learning.”

While the above perspectives imply instructional media as both digital and non-digital, other teacher educators emphasised digital media. CTE3 recalled that he had a chance “to learn about using different forms of ICT such as cell phones and radios.” He recalled that his understanding of instructional technology was from an instructional media course that he took when he was studying for the University Certificate of Education at Case B (UCE). However, the media view of instructional technology was not the only view. Some teacher educators understood it as a process that goes beyond hardware. According to CTE2, “Instructional technology is beyond computers; it is also a kind of methodology, how you organise classes and how you arrange materials, ideologies of how learners can learn better. Which methods or philosophies to use ...”

Educators’ conceptualisation of instructional technology was also understood through their views of how they used instructional technology. CTE3 reported that he used ICT in his classes: “theology these days needs technology ... look at the modern prophets [who] are capitalising on the use of ICT ... preaching can be televised.” He also claimed to have a passion for using ICT: “I normally use [it] because I want to vary methods, that is try to show them inspiration speeches and stuff.” CTE2, who specialised in special needs education, also claimed that “My field involves how to include all learners; we can use different devices on teaching.” CTE5 also confirmed the use of instructional technology as media for learning, although she noted that she frequently used non-digital materials: “Sometimes I make charts as teaching and learning materials when explaining some concepts, but beyond that, you won’t see [instructional technology] in my class” (CTE5).

The nature of instructional technology has been changing at Case C, with a shift from the emphasis on non-digital media and teaching and learning (using locally available resources) to digital technologies. CTE4 recalled: “When I was in secondary school the

use of technology was very local because they were using just charts and just leaves and some usual teaching and learning materials, but never thought about using materials such as ICT.” Kadzera (2006) traces the use of computers in Case C back to 1997, when a Canadian university donated ten Macintosh computers.

In summary, participants in Case C had a spectrum of definitions of instructional technology. The media view dominated the conceptualisation, with some looking at it as both digital and non-digital technology, while others were inclined towards digital media only. However, one teacher educator went beyond the media view, and understood instructional technology as a process of planning, delivering, or assessing an instruction. The educators’ conceptualisations of instructional technology were influenced by their prior training, and their experience in teaching the instructional media and technology course.

### **Case D**

Study participants defined instructional technology as “devices that are used to support the teaching and learning processes using online and offline-based content and applications to improve the delivery of lessons” (DTE1), and “a mode of delivering of education materials (contents) to the learners using technological devices” (DTE2). These perspectives focus on digital educational technology because the programme in which they work is specifically about this kind of technology. Their views on the benefits of digital educational technology also suggested how they understood instructional technology. When asked about his perspective on education technology in Malawi, DTE2 remarked:

I find this mode of teaching and learning as something that we need to embrace. Taking into consideration that now the world is going digital ... when learners are using it, it's interactive and learners are attracted to that ... using digital educational technology has reduced absenteeism ... as a country we need to embrace this. It is like learners are playing but they are learning a lot.

The above quote shows the rationale for introducing digital technology in the education system: first, because education technology is a global trend. Second, digital technology is positioned as a tool that can address some educational challenges such as absenteeism. Thirdly, digital technology seems to be conceptualised as a new way of doing things, which threatens the role of teachers: “Maybe some teachers are used to the old ways, maybe that this is going to make them irrelevant in the job. So, they don’t accept it wholeheartedly and tend to resist” (DTE2). This was corroborated by DTE1, who recommended that lecturers need to be exposed to “new ways of teaching, they should be trained whether through workshops or indeed through their current upgrading courses. They need to be exposed to new ways such as learner-centred approaches” (DTE1).

In summary, the NGO case participants conceptualised instructional technology as media, especially digital technologies. This perception derives from the nature of the programme in which they worked, which focused on digital education technology. The purpose of such technologies or devices is to deliver or support teaching and learning. They positioned digital technology as “new ways” of doing things, somehow indicating that such technologies can “transform” education. The transformative potential of digital technology lies in its attributes, especially the ability to facilitate interaction. These perspectives on how tablets are “transforming” education in Malawi were reported by interview participants as much as they have been reported in the literature (e.g., Hubber et al. 2016; Outhwaite et al. 2017; Pitchford 2015; Pitchford et al. 2018).

## Discussion

This study sought to understand how teacher educators in Malawi conceptualise instructional technology. This was significant because what is understood, taught, or learnt as instructional technology largely shapes teacher educators’ instructional technology practices. The study findings have been analysed and interpreted from various perspectives of conceptualising instructional technology, such as media perspectives, the standard view or hardware—while paying attention to the unique issues emerging from the data. The discussion takes a critical perspective to understand how, for example, privileging one type of technology might be problematic.

### **Prominence of the Media view of Instructional Technology**

Findings show that the media view of instructional technology was prominent in all the case studies. This was evident in teacher educators’ definitions of instructional technology, as well as how the use of instructional technology became visible in their work. Teacher educators reported that they used technology tools such as computers, Zoom, mobile phones and YouTube. They used these technologies for their own professional development; to enrich content and familiarise themselves with contemporary and more effective strategies for teaching and learning; and to search for additional instructional materials. Overall, the media view found in this study accords with previous research in similar contexts of sub-Saharan Africa (Chitiyo 2010; Chitanana 2014). Despite the prominence of the media view in all the cases, a teacher educator in Case C shared a perspective beyond the media view. This uniqueness might be because of the teacher educator’s individual knowledge-base, rather than the institutional context of Case C, suggesting that even within the same institution, teacher educators differ in the way they conceptualise instructional technology.

The media view of instructional technology also varied: while the media view displayed by teacher educators in Case C and Case A included both digital and non-digital technologies, those in Case B were more inclined towards digital media, such as computers and the Internet. Besides this slight variation, instructional technology as digital technology cut across all the case studies, with a dominant discourse that digital technology can make education better. It appears to be taken for granted that digital

technology can improve teacher education. Yet, the view of instructional technology narrowed to digital technology is problematic in many ways. In the context of Malawi, privileging digital tools can disadvantage schools that can't afford even basic instructional technologies such as chalkboards or textbooks (Ezumah 2020; Kadzera 2006). Moreover, emphasising digital technology means that technology professional development for teacher educators will be limited to developing digital technology competencies. Yet, as Krutka et al. (2019) ask: "What makes digital technologies more important than analogue counterparts?" (Krutka et al. 2019, 564). It is, therefore, necessary to ensure that scholarship on the language of technology does not ignore or exclude "less privileged" contexts such as Malawi.

Exclusion from educational technology tends to be viewed through the Global North-South lens, where the Global South is often positioned as a "victim" and the Global North is seen as "imperialist." Ezumah (2020), for instance, takes a non-Western perspective to highlight problems associated with technology transfers from the Western world to sub-Saharan Africa, and how such transfers serve to perpetuate Western dominance. Ezumah's line of thought would suggest that if the TETCs refer to digital technology only, they may not fully support technology professional development for teacher educators in contexts such as Malawi, where teacher educators require digital and analogue technology competencies. Some of the competencies specific to non-digital technologies include procedures for the proper use and strategies for using the chalkboard, as well as creativity and skills for transforming local resources and producing teaching materials with efficiency (Kadzera 2006). Therefore, contextualising TETCs in Malawi would require a definition of instructional technology that includes both digital and analogue technology tools. However, while these insights are useful as they help us understand educational technology differently, the critiques themselves also need to be critiqued.

### **Factors Shaping Teacher Educators' Conceptualisation of Instructional Technology**

While the above-presented conceptualisation of instructional technology could be because of the content of technology professional development activities that teacher educators undertake, there were other salient factors that seemed to shape their understanding of instructional technology. First, teacher educators' prior training explains why they conceptualised instructional technology the way they did. This observation is supported by previous research (Chitanana 2014; Chitiyo 2010; Gedik 2017). Most of the participants in this study graduated from Case B, where they studied instructional technology modules as part of their BEd or the University Certificate of Education programmes. The instructional technology modules in question focused on preparing teachers to use and select instructional media.

Related to prior training, involvement in teaching instructional technology also explains teacher educators' conceptualisation of instructional technology. Some teacher educators in Case C reported having learnt about instructional technology from their

teaching of the instructional media and technology module. Based on these findings, one would expect that qualified or experienced instructional technologists should have a broader view of instructional technology than those without experience or qualifications (Gedik 2017; Reiser 2001). However, it was surprising to note that almost all teacher educators in this study held a media view of instructional technology. This differs from Chitiyo's (2010) finding that teacher educators with a post-graduate diploma in instructional technology held a different understanding of instructional technology than those who did not have this qualification.

Teacher educators' conceptualisation of instructional technology is also due to the organisational structures that facilitate instructional technology (Heinich 1984). In this study, Case A and Case C had departments of expressive arts that took part in producing non-digital instructional materials made from locally available resources. Also, all three public teacher education institutions had ICT committees, and ICT centres/computer laboratories. Case B and Case C had Open and Distance Learning (ODL) centres. These structures certainly set the discourse and scope of what teacher educators understand as instructional technology. In the context of Covid-19, the ODL centre in Case B focused on preparing faculty for the use of online learning platforms such as Zoom and Google Meet, which were technologies of the day. In this way, the organisational structures drive continued efforts to remake teacher education institutions and programmes "to accommodate the technology ... because it is good for us, but in any case, we have no choice" (Postman 1996, 39).

The findings also suggest that the emphasis on digital technology seems to mark a shift from non-digital instructional technology. The shift can partly be attributed to the influx of projects promoting digital technologies over non-digital ones. This view holds in the context of public teacher education institutions in Malawi that rely on external funding for technology development. As Gedik (2017, 91) observes: "... vendor-university relations, and the pressure exerted by vendors concerning 'how good a certain tool is' for education within the 'wild capitalist system' has shaped the understanding of instructional technology." Findings in this study suggest a manifestation of Gedik's observation. Teacher educators interviewed in Case A referred to the use of digital technology tools implemented by the NGO case study included in this research. The NGO has also developed an ICT curriculum for use by TTCs in Malawi.

## Conclusion

Teacher educators' conceptualisation of instructional technology can create a basis upon which their technology professional development can be explored and understood. This multisite case study sought to understand teacher educators' conceptualisation of instructional technology in Malawi. Although there was an instance of defining instructional technology beyond the media view, the media perspective was the most prominent in all the cases. This conceptualisation of instructional technology has been linked to the teacher educators' individual characteristics (such as prior training or

experience with teaching an instructional technology course) and the influence of work settings (such as teacher education programmes and organisational structures).

The study findings provide the opportunity to understand the content of technology professional development that teacher educators undertake, and how Teacher Educator Technology Competencies (TETCs)—initially developed in the USA—might be contextualised in Malawi. Since the emphasis on the digital media view can result in a narrowed scope of technology competencies for teacher educators in Malawi, it is suggested that contextualising TETCs as content for teacher educators' technology professional development, should refer to technology as both digital and analogue tools. This broad definition should be considered when designing technology professional development for teacher educators; in the instructional technology course offered at undergraduate; and within the policy documents that guide the implementation of instructional technology in the teacher education institutions.

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