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Inclusive Education and Digital Divides: The Case of Video Materials in In-Service Teacher Training

Proscovia Suubi Nantongo
Department of Education
University of Oslo
Email: proscovn@student.uv.uio.no

Per Hetland
Department of education
University of Oslo
Email: Per.Hetland@iped.uio.no

Abstract

The status of inclusivity in current educational practices warrant an examination to ascertain the primary aim of inclusive education or education for all. Drawing on the classroom observations of a single case study, we analysed the use of the teacher-mediated video material 'Teachers for All' to explore the application of the AIP model (i.e., access, interaction and participation) analysing the teaching and learning process. Two teacher educators and 11 in-service teachers from one regional training centre (out of six regional training centres) participated in the study. We conclude that the AIP model provide three advantages. First, Carpentier's AIP model provide a theoretical framework for analysing and building bridges between special needs education, where access signifies presence, and interaction socio-communicative relationships, and inclusive education, where participation signifies co-deciding and power. Second, the AIP model provide a theoretical and methodological framework to analyse the dimensions of technology, content, people and organisations of a specific digitalised social learning environment. Third, the AIP model is useful understanding the ambiguities between teacher-centred versus learner-centred pedagogy.

Keywords: inclusive education, teacher-centred pedagogy, Carpentier's AIP model,

digital technology, digital divide

Introduction

In an inclusive education framework, the aim of education for all is to promote educational justice for all learners (UNESCO, 2014). In the context of sub-Saharan Africa, where a large percentage of the school-going population is perceived as vulnerable to exclusion, education for all may seem like the logical approach (Kamenopoulou, 2018; Munene, 2016). Of significance is the ability of information and communication technology (ICT) to promote effective pedagogical practices (Alibali & Nathan, 2007; Beardsley, Cogan-Drew, & Olivero, 2007; Marsh & Mitchell, 2014) – specifically, the potential to stimulate participation and elicit learners' reflective feedback (Helgevold & Moen, 2015). However, research has also revealed a widening divide between ICT and educational pedagogies especially in low-resourced nations. The impediment lies in misinterpretations of educational reforms at the macro level leading to weak implementation at the micro level (Hargreaves & Shirley, 2009; Munene, 2016; Nantongo, 2019). Because digital use takes into account 'the need to develop clear methods for situating video cases in the large contexts… and the development of instructional procedures that take advantage of the power of video cases' (Miller & Zhou, 2007), limited or lack of both technical and pedagogical awareness among the populace often complicate ICT adoption (Nantongo, 2019).

In the case of Uganda, the Ministry of Education and Sports spearheaded a nation-wide curriculum review process in primary teacher training programme, establishing ICT facilities and emphasising inclusive pedagogy that ensures all learners' educational needs (Nantongo, 2019). Hence, in this qualitative study, we observed and analysed the use of standardised video material as an ICT approach aimed at facilitating inclusivity, in teacher training.

This article proceeds as follows. The second section discusses the theory and conceptual framework drawn from Carpentier (AIP Model, 2015) to highlight educational and digital divides. The third section presents the methodology in which data was qualitatively collected from a single casestudy on two stages (design stage and user study stage). The fourth section presents the study findings. The fifth section discusses the findings in light of the present literature. The final section concludes the article with the way forward.

A Sociocultural Framework for Understanding Technology Enhanced Learning

Sociocultural theory contributes to the discussion about the design intentions inscribed in the technology that this study examined, the conceptions of the use and users that guided

its design and the actual use of video materials in teacher education (i.e. design intentions and actual use).

Vygotsky and other proponents of sociocultural theory (Daniels, 2001, 2009; Engeström, 2007; Vygotsky, 2012; Wertsch, 1979) have asserted that tools (e.g. those provided by technology) are culturally designed and adapted to perform culturally defined goals. Tools mediate the learning process by framing the intended goal to facilitate the participants' understanding and sense of the meaning of their culture (Lave & Wenger, 1991). The actual practices, attitudes and perceptions of the activity (teaching) process, thus, endow the participants with experiences (histories).

The digitalisation of classrooms and the learning process has emerged in learning spaces as an impeccable solution to most problematic educational experiences, such as learner exclusion. Knowledge may be inaccessible due to time and space constraints. Extended studies on the use of videos in learning spaces have strongly commended their long-lasting impact on access, interaction and participation (inclusivity) in social engagement (Blomberg, Sherin, Renkl, & Glogger, 2014; Goldman, Pea, Barron, & Derry, 2007). The critical prerequisite for inclusive education is the focus on learner-centred pedagogy (Lyakurwa, 2019; Mino, 2004; Mpho, 2018) designed to engage learners in the learning process through interaction and participation. Similarly digitalised social learning environments are often set to promote learner-centred against predominantly teacher-centred pedagogies (Akyeampong, 2017; Tabulawa, 2003).

To structure our discussion on the use of teacher-mediated video material (cultural tool) in teacher education, we combine sociocultural theory with the access, interaction and participation (AIP) model (Carpentier, 2012, 2015) as seen in Table 1 and 2. The concepts of access, interaction and participation have become important for describing how and in which spaces learners access knowledge, how they interact with each other socially and communicatively and how we think about participation (Carpentier, 2012, 2015). Carpentier (2012) claimed that 'access becomes articulated as presence, in a variety of ways that are related to four areas: technology, content, people and organisations' (p. 173), while interaction 'has a long history in sociological theory, where it often refers to the establishment of socio-communicative relationships' (p. 174).

Finally, Carpentier (2012) stated that the 'difference between participation on the one hand, and access and interaction on the other is located within the key role that is attributed to power, and to equal(ised) power relations in decision-making processes' (p. 174). In the final discussion, we will use Carpentier's AIP model (see Table 1) to highlight the relationships between teacher-centred and learner-centred models (see Table 2).

Table 1. Access, interaction and participation – the AIP model

	Access (Presence)			
	Technology	Content	People	Organisations
Production	Presence of (proto-) machines to produce and distribute content	Presence of previously produced content (e.g. archives)	Presence of people to co-create	Presence of organisational structures and facilities to produce and distribute content
Reception	Presence of (proto-) machines to receive (relevant) content	Presence of (relevant) content	Presence (sites) of joint media consumption	Presence of organisational structures to provide feedback to

	Interaction (Socio-communicative relationships)			
	Technology	Content	People	Organisations
Production	Using (proto-) machines to produce content	Producing content	Co-producing content as a group or community	Co-producing content in an organisational context
Reception	Using (proto-) machines to receive content	Selecting and interpreting content	Consuming media together as group or community	Discussing content in an organisational context (feedback)

	Participation (Co-deciding)			
	Technology	Content	People	Organisations
Production (and reception)	Co-deciding on/with technology	Co-deciding on/with content	Co-deciding on/with people	Co-deciding on/with organisational policy

Source: Carpentier (2015, p. 22)

In this study, the aim is to study the potentials of the AIP model (access, interaction and participation) using a case study of teacher-mediated videos among in-service teachers learning inclusive education.

Design and Methodology

We conducted the qualitative case study in 2017 in one of the six regional centres designated to host an in-service teacher education programme targeting Grade III certificate holders in primary education. It is a three-year distance learning programme including two weeks of face-to-face sessions twice every year. It is run on a module basis. Upon completion, students receive a diploma in special needs education (Grade V). Kyambogo University owns the programme, and the primary teachers' colleges (PTCs) acting as the centres are highly involved in both administrative and teaching activities.

The data are based on a single setting in which tutors used 'Teachers for All' video material to facilitate learning among in-service teachers. In the early 1990s, Brown (1992) and subsequently Collins (1992) introduced design experiments as a new approach to studying learning phenomena in quasi-experimental settings to facilitate dialogue. However, like Goldman (2007), the sociology of testing has identified a paradox: even when users are important, when it comes to performing tests, their contributions are often ignored or made invisible (Hetland, 2011; Pinch, 1993; Woolgar, 1991). Consequently, we will focus on the ambiguities between design and actual use. Documenting the data followed two stages

Design stage:

The University of Oslo's Department of Special Needs Education in Norway, Kyambogo University in Uganda and Kenya Institute of Special Education in Kenya produced DVD material called 'Teachers for All' in 2008 (Wormnæs, Skaar, & Refseth). We refer to this step as the design stage, and build on a study of the original designer group's report from the design stage (see Table 2).

User study stage:

The next step involved determining how the 'Teachers for All' DVD was used in the classroom (see Table 2). Six regional centres implement a uniform curriculum but we purposively selected one regional centre because of the presence of a tutor there who had participated in the design stage of the DVD material. Consequently, the case selected represents an extreme or deviant case. Extreme cases often reveal more information 'because they activate more actors and more basic mechanisms in the situation studied' (Flyvbjerg, 2006, p. 229). This was important since many studies of ICT in an educational

context in Uganda risk being studies of non-use of ICT (Nantongo, 2019). The first author video recorded live classroom teaching sessions employing this DVD material. The study participants included two tutors (Tutors 1 and 2, both females) and 11 in-service teachers (with mixed backgrounds concerning gender, age and experience) trained in inclusive education. This study was approved by the Norwegian Social Sciences Data Services. In the past, the first author facilitated this training programme in the different regional centres. Certainly, this double role (researcher and teacher educator) strengthens the qualitative data by 'creating a synergy of what [is] visible and relative' (Nantongo, 2019) in the practical field of teaching inclusive education to teachers. Further the researchers sought permission to access the participants from the training centre managers. The individual tutors consented to participate unconditionally and willingly integrated the videos into their instructions. Individual in-service teacher student had the opportunity to withdraw from the class or isolate himself or herself from the video recordings.

We transcribed the documented video material (verbal data) verbatim. In addition, from the live observation of the lesson, we were able to describe the occurrences as they unfolded. We used NVivo to form categories using the AIP model.

Findings

We will systematically present the findings from the two stages concurrently, based on the AIP model: the design stage is dedicated to perceptions of the 'Teacher For All' video material as is visually presented, whereas for the user study stage, we look at how the above mentioned video material was used in the teaching sessions of in-service teachers (as recorded). The supplementary data are the researcher's live observations in the classroom. The following table presents the summarised findings from the design stage and the user study stage.

Table 2. From design to use

	Access (Presence)			
	Technology	Content	People	Organisations
Production	**DS**: Design of DVD- and net-based version; net-based version better supported by scaffolding material	**DS**: Design included 40–50 short video sequences of lessons in Ugandan and Kenyan primary schools	**DS**: Design team from University of Oslo, Kyambogo University and Kenya Institute of Special Education	**DS**: Design supported and funded by University of Oslo, NORAD and NUFU
Reception	**DS**: Originally cheap, small, rechargeable, battery-operated DVD players **US**: PC	**DS** and **US**: DVD- and net-based versions gave different options and limitations – universal design difficult	**DS**: Production team unsure about how narrative traditions differed in different countries	**DS**: Dummies were shown to a wide range of stakeholders

	Interaction (Socio-communicative relationships)			
	Technology	Content	People	Organisations
Production	**DS**: Video sequences may capture the complexity of a classroom and have real-world relevance	**DS**: Present 'scenarios' (good practices and dilemmas to invite participants into a discussion)	**DS**: All participants had a background in inclusive education and teacher education	**DS**: Final videos should be useful in teacher education for inclusion in countries in the southern and northern hemispheres
Reception	**DS**: DVD players within classroom settings guided by teachers **US**: PC within classroom settings guided by two tutors	**DS**: Defining tasks, taking the opportunity to collaborate and to reflect **US**: Learners preferred teacher-centred approach	**DS**: Examples of specific methodological steps in teaching **US**: Learners 'coordinated' their responses	**DS**: Promote discussion and reflection in pre- and in-service teacher education **US**: Teacher-induced dialogues

	Participation (Co-deciding)			
	Technology	Content	People	Organisations
Production (and reception)	**DS**: The production and design expertise was found only among the Norwegian participants **US**: Would a broader cultural involvement change the design?	**DS**: Co-deciding on/with content (e.g. scenarios, good practices and dilemmas) **US**: Limited evidence of recontextualisation of the learning material	**DS** and **US**: Co-deciding on/with people (e.g. a tendency for the educators to focus more on what teachers and student teachers should know, less on reflection on how to learn the knowledge, skills and attitudes)	**DS**: Co-deciding on/with organisational policy (e.g. in teacher education there is a need for instructional material with examples of relevance for their students) **US**: Need for indigenous pedagogies perhaps, and need for knowledge and skills in technology integration

Source: Adapted from Carpentier (2015, p. 22)

Note: **DS** represent the Design stage, while **US** represent the User study stage.

Access

The first step of data generation was at the design stage where observations of the 'Teachers for All' DVD material was carried out. In total, 'Teachers for All' includes 40–50 short video sequences of indoor and outdoor activities/lessons from Ugandan and Kenyan primary schools. There are also video sequences with statements by public officials, teacher educators, head teachers and class teachers, along with sequences where pupils with and without disabilities share some of their experiences of being in an inclusive school. Each video sequence lasts, on average, 10 minutes. The educational intention of the designed video was to influence students' perspectives by challenging them to reflect upon key perspectives of relevance for teaching learners with disabilities in inclusive schools.

The choice of technology had user implications. First, several attempts to start the video were unsuccessful due to the use of a technically dated laptop. In a seemingly reluctant voice, the tutor recognised the need to upgrade the laptop. Learners waited in anticipation; some gazed at each other, prompting one learner to voluntarily offer technical assistance. Although the researcher suggested switching computers, participants expressed limited technical resources and time constraints. In view of the observed technical hiccups, and mindful of the DVD material's production date, the researcher randomly asked whether the in-service teachers had access to these videos during their Grade III training or at the schools where they were currently practising. They could not recall using any form of video

for teaching.

Finally, the tutor was able to access two video sequences. One sequence featured a teacher conducting an English lesson. The teaching session was labelled methodology and lasted for 19 minutes. The second sequence featured a teacher conducting a social studies lesson; the teaching session was labelled inclusion and lasted for 29 minutes. Both lessons were conducted among lower primary school classes. The tutor selected the two videos/sequences for participants to watch. The participants repositioned themselves around the laptop. In the interest of the users, audio-visual accessibility was limited due to size of the gadget vis a vis the class size. The tutor determined continued access to the content. The findings also revealed that the DVD material in use exited as a single copy personally owned by the tutor not the programme.

Overall, the data revealed that video use is never or seldom part of pedagogy in teacher education. It depends on the individual tutor's interest and previous knowledge. Lack of time coupled with large class sizes also hinder the use of technology in teaching.

Interaction

From the design stage, 'Teachers for All' should have real-world relevance; it requires students to define and examine the tasks and subtasks needed to complete the activity from different perspectives, providing the opportunity for students to collaborate and reflect. The 'scenario' idea is based on a narrative perspective, where the intention is to create an image of how one might use the planned material in the future. The purpose of using a scenario was to create a shared basis for associations and to invite participants to discuss what the learning tool should look like and how they may use it. There was a wish to present examples of specific methodological steps, considered universally relevant, for teaching beginners. Video recordings from classroom activities have the legitimacy and rigour to promote discussion and reflection in pre- and in-service teacher education; they have a hallmark ability to capture the complexity of a classroom and facilitate closer examination. The tutors complemented several video sequences with text-based discussion/reflection.

From the user study stage, the researcher noticed that Tutor 1 appeared several times to observe the in-service teachers as they watched the video as if she was expecting them to display a particular shared behaviour in relation to the video content – the eye gaze shifting back and forth without verbal expressions. The in-service teachers exhibited a particular body posture conveying eagerness to learn from a relatively familiar scenario. However, when the tutor, with the aid of inscribed texts, posed questions, there was limited direct interaction, mainly in the forms of eye gaze, giggles and faint smiles. Moreover, although this behaviour could have signalled moments of interaction, the tutor never interrogated it. Tutor 1's recaps of video sequences encouraged involved class demonstrations amidst restricted laughter from the in-service teachers. Several times,

Tutor 1 described the scenario and opined: 'She is actually trying to teach him sounds. You may realise that this is a child with mental retardation. And you can see that she encourages the child to say the sound'. As was the case many times, the in-service teachers maintained their visual focus on the video without having any verbal reaction to the tutor's submission.

Tutor 1 employed questions, cautions, supplements and/or technical adjustment of the video (rewind/forward) to elicit more access and interaction: 'So, in each video, we have reflections and discussion. So, as you view this video, we should be able also to understand what the teacher is doing, so that we are going to reflect'. Furthermore, Tutor 1 read the inscribed prompts, citing a particular scene, to the class and described the event: 'the activity was teaching children sounds before the actual reading. So, what do you think the children could have learnt from this activity?' She then asked the class with the following: 'To us, what do you think could be the purpose?' Then she hastily wrapped up, 'These are our reflections that we need to work on'.

In summary, Tutor 1 recited verbatim and elaborated upon inscribed reflective tasks to the in-service teachers. The class offered minimal verbal interactions during the lesson. At this point, the role of Tutor 2 was unclear.

Participation

In designing 'Teachers for All', there was a deliberate attempt to create a basis for discussing how learners are involved in class activities, such as whether everybody is able to contribute ideas and can expect meaningful and dignifying comments from the teacher (and peers). The DVD provided several themes and topics that served as a good starting point for identifying and initiating discussions to the benefit of both the teachers and student teachers on inclusive education. There were typical scenarios of how one interprets inclusive education in the classroom environment. For example, there was the case of Anna, who was perceived to be at risk of being left out during the teaching and, therefore, the teacher paid special attention to her.

During the user study stage, Tutor 1 systematised the learning tool (video) by describing the aim, content and tasks to the viewers beforehand. She contextualised the video content with the in-service teachers' assumed teaching experiences (past knowledge) of learners with special needs. This was intended to stimulate memory and elicit critical observations. For example, Tutor 1 reflected upon one of the video sequences as follows:

If I may ask a question: In our classrooms, when we have children with special needs – like Anna (the girl with special needs) – the teacher said 'Sarah', and Sarah answered. Then she goes to Anna. 'Anna, Anna, Anna'. It looks like she wants the children to identify that Anna has a problem. She continues to say 'Anna'. Anna responds. Then she says 'Very good. You see, even Anna can read'. Is it really good? To you as practising teachers, what do you

think?

The researcher observed that the in-service teachers expressed no intention of discussing the narrative above. Rather, they listened to the tutor's remarks on the teacher's strategy to encourage Anna to read and the shortcomings of inclusive practices among her peers.

The tutor extracted examples of inclusive education practices from the video and challenged the in-service teachers to cite more such elements. She verbally encouraged the class to take an active role in the lesson. For example, Tutor 1 said, 'Someone can stand and make the movement'. The class swung in emotions when a participant volunteered to perform the movement. There were no verbal explanations as to why most participants laughed. Rather, Tutor 1 recommended teacher demonstrations for effective inclusive learning: 'I do; you do; we do'.

Once, Tutor 1 insisted that the class respond to her questions. Suddenly, group laughter erupted, followed by a resounding collective response to the question. For example, Tutor 1 distinguished the uniqueness of classroom arrangement. On rewinding the video and elaborating on the content, for example, Tutor 1 said, 'the teacher appreciated, but at the same time, that girl Vanessa was not given time'. She then challenged the class: 'Do you think Vanessa learnt anything? She was not given a chance'. At this point, Tutor 2 interrupted with a supposition about what they could observe. Tutor 1 agreed completely and supplemented her submission. The two tutors prolonged the dialogue by including elaborations, citing classroom examples, from both the video and the teaching field, of good practices for inclusive education.

The researcher observed that the class seemed less tense as they listened to the dialogue but maintained the same posture (gazing at the screen) throughout, and no in-serve teacher attempted to join in the dialogue. However, to continue citing the inscribed text and save time, the dialogue ended unexpectedly. Tutor 1 read and answered the tasks as provided in the video with the help of rhetorical questions, accessioned by the participants' aided contributions. For example, Tutor 1 said, 'Teachers for___ (pause)' and the class replied, 'All'. Then Tutor 1 asked, 'Able to what?' and subsequently answered, 'enjoy'.

At the end of the first session, the students had to discuss strategies relating to their routines as classroom teachers. There was no presentation of the outcome of the discussion; rather, a subsequent video session began with Tutor 1 positing that the in-service teachers (study participants) were primarily the potential implementers of inclusive education. The video materials demonstrated them as role models.

In summary, selected excerpts represent the voluminous data recorded to illustrate how the user study addressed the general aim of video use in teacher education. Our conclusions from the general observation are, first, that the tutors focused more on what the in-service teachers should know and less on how a multimedia-based tool could

facilitate reflection and motivation to acquire the intended knowledge, skills and attitudes. Second, the tutor answered or simply recited several inscribed questions/tasks. The roles of Tutor 2 and the in-service teachers remained unclear. Tutor 1 also made no attempt to provide opportunities for individual contributions. The lesson was facts-driven with minimal reflection on diverse thoughts. In fact, the use of videos attracted minimal verbal responses from the in-service teachers. Particular scenarios also left the students giggling without further explanation. The students commonly responded collectively (in unison) to complete the tutor's normative narratives on inclusive education.

Discussion

As stated earlier the aim of this paper is to explore the potentials of the AIP model (access, interaction and participation) using a case study of teacher-mediated videos among in-service teachers learning inclusive education. The following discussion is informed by the findings from the design stage and the user study stage.

First, as a design strategy, and also as the material was nearly 10 years old, a DVD version maintained user-friendly accessibility in light of potential slow and unstable internet connections. Although the capacity of educational materials to promote inclusive education learning may be uncontested, Hargreaves and Shirley (2009) emphasised that such good practice may be rejected if there is a mismatch within the prevailing circumstances. Our findings show that the educational curriculum did not advocate the video material's authenticity, which adversely affected its accessibility and implementation. Hence, at the end of the project (modus operandi), no local ownership was assumed to ensure sustainability. UNESCO (2014) has raised a concern about building institutions to ensure that global reforms are sustained in the local context. Indeed, most experiences of educational reforms and innovations show that they require the backing of technical and political decisions to attract resource allocations (Munene, 2016). The findings reveal no official recognition of 'Teachers for All' video use at any level of teacher education.

Second, the DVD material design provided real scenarios and reflective tasks to promote a learner-centred approach to learning about inclusive education. This approach is closely linked to the sociocultural understanding of learning. The findings indicate that this insight is underrated when the power-related position is established. The tendency for one would-be facilitator (tutor) to monopolise the learning process by performing all possible tasks, identifying other parties' mistakes and authoring good practices evidences this. Conversely, those in a less powerful position due to knowledge uncertainties withdraw, becoming passive, as a strategy to avoid criticism. The user study revealed that in-service teachers are socialised within a teacher-centred schooling tradition with the frequent use of a question-and-answer approach. Often, the in-service teachers gave both questions and answers collectively, but also occasionally, they ignored the questions. The teacher found

this somewhat frustrating, but mostly because the learning material was designed to include reflective questions for discussion and practice.

We assert that the intention in the video was to disrupt the tutor's traditional role and power by providing in-built tasks. In a struggle to restore this position, the tutor recited the texts and answered the tasks.

However, the main problem was not the teaching material's aim at breaking away from a teacher-centred teaching practice; quite the contrary, inclusive education provides an opportunity for society to critically examine its schooling system (Mpho, 2018). Consequently, in moving from the design stage to the user study stage, we experienced that the design stage had an inscribed user that was almost invisible in the user study stage (Hetland, 2011). This user paradox is evident both in the selection of the video material and within the planned dialogical and participatory activities. Therefore, if one wishes to introduce new audio-visual teaching material that represents a break with old teaching and learning methods, one must also change the framing of teaching and learning (Nantongo, 2019). This is at the heart of (UNESCO, 2014) prioritisation of five areas for the sustainability of educational reforms, but specifically, transforming learning environments and training programmes.

Moreover, our findings show active participation between the two tutors (equal power position). Although this verbal interaction could not attract more participants from the class and was short-lived, it redefined the teaching and learning approach to which the class was accustomed. The result was the expansion of content by contextualising the video from various perspectives in line with Miller and Zhou (2007) pedagogical approach to video use. As videos have the capacity to induce access, interaction and participation in inclusive learning through reflection, attention and discussion among participants (Beardsley et al., 2007; Helgevold & Moen, 2015), this very analysis, therefore, points to the question of participants' role in the use of videos. In the current study, there was no logical evidence suggesting how students contributed to the existing knowledge (video) even with the intention to design the video with familiar learning environments and daily routines in Uganda. From a sociocultural perspective, the video stimulated minimal tutor–learner interaction beyond its content.

Continuous episodes of the tutor's eye gaze alternating between the class and the video, as well as learners' numerous giggles and facial expressions (paralinguistic features) while watching the video demonstrated interactions. In some ways, the tutor relied on paralinguistics, although the interpretation of the learners' own gestural reactions remained unexplored during the learning process. This use of paralinguistic features with verbal expressions maintained a unified focal point (video) of learning and ensured that everyone interacted and participated in a digitalised environment (Alibali & Nathan,

2007). Therefore, it would be naïve to conclude that there was no interaction; rather, the indicators were less exploited at the expense of verbal communication, leading to minimal achievement of the intended goal of inclusive learning.

Using video for reflective purposes (describing, evaluating and integrating) in teacher education, Blomberg et al. (2014) remarked on the overall overwhelming tendency of experiencing learning by watching videos. Therefore, we can assume that the limited verbal exchange (dialogue) between the tutors and learners was a response to the limited time to digest the video content and the approach to relate that content to knowledge that the in-service teachers had already acquired in the programme. For example, Helgevold and Moen (2015) study on the use of flipped classrooms in which variations in modalities were used (such as on-line lectures and discussions) 'contributed to a better understanding of, and a greater involvement and participation in the teaching and learning processes' (p.40).

Analyses have revealed that there is a crucial difference between the design stage and the user study stage, and to understand this difference, we must understand the present teaching and learning culture in Uganda (and quite likely across large parts of sub-Saharan Africa). In a study on how blind university students access learning in inclusive classrooms, Lyakurwa (2019) found that students with visual impairments often preferred teacher-centred methods over learner-centred methods; however, our main finding is that this preference is likely deeply entrenched in Ugandan schooling traditions – a tendency restraining reflective pedagogical engagement (Nantongo, 2019) even at the teacher training level. The critical justification borne of these findings is the facilitator's (tutor) own pedagogical awareness of using videos (Helgevold & Moen, 2015) – the less the pedagogical awareness, the less likely the learners are to reflect in the user study.

As stated earlier, at the design stage, there were considerations about the tool's (video) accessibility in differently endowed (internet and no internet) learning spaces. However, the findings reveal that such solutions lack an in-depth sociocultural understanding of the environment. Thus, DVDs alone may not guarantee accessibility in the context of in-service teacher education in Uganda. This explains why the material mostly has been neglected for the last 10 years – a warning that Hargreaves and Shirley (2009) already sounded in relation to importing practices without proper training.

Similarly, we argue that the narrow implementation of digital classrooms in much of sub-Saharan Africa emanates from issues of technological affordability, as Goldman et al. (2007) contended, rather than a cultural preference for teacher-centred methods. Given this case study contextualising the use of video in teacher education, we 'call for the need to adapt research approaches to make them qualitative and flexible but also systematic and reflective' (Kamenopoulou, 2018, p. 129) in semi-digitalised communities (e.g. sub-Saharan Africa) to establish prevailing local alternatives. One important issue about 'Teachers for All' is that it is based on a learner-centred approach to inclusive education

(Mino, 2004). However, other studies have concluded that even if participants embrace the concept of inclusive education, teacher-centred methods dominate in countries such as Botswana (Mpho, 2018) and Ghana (Akyeampong, 2017). Along similar lines have come claims that international aid programmes' interest in a learner-centred pedagogy is part of the dominant economic and political ideology that international aid agencies promote (Tabulawa, 2003). Helgevold and Moen (2015) warned of the adverse implications of global reforms because of their lack of understanding of local contexts. For the same reason, Tabulawa (2003) advocated the need for the study of indigenous pedagogies.

Conclusions

We have investigated the use of teacher-mediated videos within in-service teacher education, and our findings indicate that a) the AIP model provide a theoretical and methodological framework for analysing and building bridges between special needs education and inclusive education, b) the AIP model provide a well-integrated framework to study the four dimensions technology, content, people, and organisations of digitalised social learning environments, and c) the AIP model is useful understanding the ambiguities between teacher-centred versus learner-centred pedagogy. The case study reveals a mismatch between the video material design's intentions ('Teachers for All') and its actual use, perhaps indicating restrictive in-depth inclusive learning. We suggest that Carpentier's AIP model should guide further studies into pedagogical approaches in teacher education to better understand accessibility, interaction and participation.

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Conflict of Interest

We declare that by undertaking this study, there is no known conflict of interest.

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