INTERGRATING VIDEOCONFERENCE TECHNOLOGY INTO PEDAGOGICAL INQUIRY: USER PERCEPTIONS

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ABSTRACT
Effective integration of Videoconference technology depends on users' perception. There seem to be reluctance and ignorance amongst tutors to integrate Videoconference technology effectively, for students to comprehend the subject content when delivering the lesson. Following a qualitative research approach, this paper explores tutors' perceptions in integrating Videoconference technology into teaching and learning. Data were collected through the individual semi-structured interviews with Videoconference tutors and tutorial lesson observations. The findings of the study highlight some factors contributory to tutors' perceptions in using Videoconference technology with various suitable teaching methodologies. The findings of the study recommend modification in tutor training on how to integrate this technology with various suitable teaching methodologies and motivating these tutors to exploit the Videoconference medium in teaching and learning. We conclude in this study that Videoconference, if effectively used in Distance Learning, will bridge the learning distance that students experience.

Keywords: Attitudes, Videoconference, tutor, tutorials, learning technology integration, instructional methodologies, interactivity.

1.1 INTRODUCTION

Integration of information and communication technologies (ICTs) into teaching and learning has risen on the South African education agenda, particularly after the release of the White Paper on e-Education in 2003 (Wilson-Strydom, Thomson & Hodgkinson-Williams 2005). However, the adoption and integration of these technologies is a challenging and complex process for higher education institutions (HEIs), particularly where there is limited previous experience in the use of ICTs to support teaching and learning. Higher Education Institutions, especially those in the West, have access to ICT as a means to impart upon students the knowledge and skills demanded by 21st century educational advancement (UNESCO 2002).

Education systems need the aid of technology for pedagogical reasons as students in the higher technology learning environment are likely to perform well compared to students in the more traditional or non-high technology proponents (Fouts 2000). If the learning environment is technologically rich, it can increase self-esteem and enthusiasm for learning which could possibly lead to more positive attitudes towards learning, as well as lowering dropout rates. Additionally, when properly used, information and communication technology (ICT) holds great promise to improve teaching and learning in addition to shaping workforce opportunities (Aduwa-Ogiegbaen & Iyamu (2005). ICT permeates the education environment and underpins the very success of 21st century education (Olube, Eke, Uzorka, Ekpenyong & Nte 2009), and also adds value to the processes of learning, to the organization and management of learning institutions

To validate the above claim by Olube et al (2009), emerging technologies have created numerous opportunities for innovation in the delivery of University courses Randall (2011). For example, podcasts, e-books, and online tutoring (such as, Videoconference or discussion boards) have broken down many of the traditional barriers to the delivery of courses Randall (2011). More than that,

these technologies offer opportunities for tutors to engage with students in ways that enhance their learning far beyond that which can be offered by traditional classroom teaching alone (Randall 2011).

Due to these trends, the role of the tutor is also likely to change, thus knowledge is now much more accessible and therefore tutors are likely to spend less time delivering information and more time helping students to critically evaluate and apply their knowledge (Randall 2015). Given the savings and opportunities it offers, it is likely that on-line teaching through medium such as VC, will dominate the higher education environment.

1.2 CONTEXT

In the South African context, an ICT user such as the University of South Africa (UNISA) has shown an increasing potential in teaching students through various forms of technologies. UNISA is recently striving towards becoming a fully-fledged Open and Distance e-Learning Institution (ODeL) which entails a student-centred approach that gives students flexibility and choice over what, when, where, and how they learn, and provides them with extensive student support (UNISA 2010). UNISA is the largest university on the African continent and attracts a third of all higher education students across Southern Africa with a student headcount of over 400 000. This figure includes African and international students from 130 countries worldwide, making it one of the world's mega universities (www.unisa.ac.za).

In order to advance its mission of *"addressing the needs of a diverse learner profile by offering relevant learner support, facilitated by appropriate information and communications technology"* (UNISA 2010), the University make use of tutors' expertise to support students. As a result, every year the University recruits tutors as part of a continuous support system for its student learning (UNISA 2010). As an Open and Distance Education (ODL) institution, UNISA highlights the important role of the tutor in the teaching and learning environment in order to support students to achieve greater access, retention and improve their pass and throughput rates (Nonyongo & Ngengebule 2008). These tutors enter into an agreement with the institution as independent contractors to assist students with guidance and facilitation of learning (UNISA 2008).

In light of the above description, UNISA has developed a conceptual framework for technology-enhanced support to its students, taking into account blackboard communication platform, podcasting, and Videoconference (VC) technology (UNISA 2010). The University introduced VC in 1990 as a way of bridging the time, geographical, economic, social and educational and communication distance between student and institution, student and academics, student and study material and student and peers (Wilson 2004).

This means that teaching and learning may take place despite the challenge in distance between the tutor and a student (Wilson 2004). Interactive as it is, when effectively monitored and well-coordinated, VC can potentially extend the "reach" of education beyond teaching and learning environment (Haupt 2010).

This paper explores end-users' perceptions of integrating Videoconference technology in teaching and learning. The focus is on the instructional methodologies tutors use in the VC tutorials and how these methods support their integration of VC technology.

1.3 VIDEOCONFERENCE

The term Videoconference (VC) is defined as a "one-to-many medium, making it a sensible way to provide access for many sites to a remote academic expert" (Laurillard 1993). Putting it clearly, Tipton, Pulliam, Sharon, Allen & Sherwood (2011) mention that Videoconference allows for in-sync

broadcasting from a primary site to a single or multiple remote settings. Similarly, Wilson (2004) describes video conferencing as a set of interactive telecommunication technologies which allow two or more locations to interact via two-way video and audio transmissions simultaneously.

The use of VC technology can offer opportunities for social interaction in a distance learning environment. The findings of a study done at the Open University of Hong Kong indicate that both student-teacher interaction and student-content interaction were perceived as successful through Videoconference (Ng 2007).

Of major concern in our study, tutors and students are often resistant to maximally using VC technology during tutorial sessions. There seem to be little evidence of technology integration into tutorial session's activities by VC tutors. Therefore, changing tutors' perceptions is a key factor in fostering technology integration (Marcinkiewicz 1993). Stevens (1980) as cited in Violato, Mariniz, and Hunter (1989) identified tutors' perceptions as well as expertise in using computers as major factors in the adoption of technology in the classroom. According to Hignite and Echternacht (1992), it is critical that tutors develops positive perceptions towards technology use in order to successfully incorporate technology into the classroom, and that tutors specifically should possess adequate computer literacy skills.

1.4 CONCEPTUALISING KNOWLEDGE

Knowledge is often loosely equated with foresight and defined as a belief that one's action will have a particular consequence (Malle & Knobe 1997; Shaver 1985). However, knowledge can also be conceptualized more abstractly as a simple understanding of potential causal relations between actions and outcomes. That is, to know that one's action will have a particular consequence; one must first know that certain types of actions or classes of actions have the potential to bring about certain types of outcomes or classes of outcomes. In the context of this study, we argue that, the tutor's content, pedagogical and technological knowledge can bring a desired outcome which is that of developing positive perceptions towards the use of VC technology and thereby integrating it into the tutorial sessions. The study from which this paper emerged was guided by a framework of Technological Pedagogical Content Knowledge (TPACK) model.

1.4.1 Technological Pedagogical Content Knowledge (TPACK) model

According to Koehler, Mishra, Bouck, DeSchryver, Kereluik, Shin, & Wolf (2011), TPACK attempts to identify the nature of knowledge required by teachers for technology integration in their teaching, while addressing the complex, multifaceted and situated nature of teacher knowledge.

At the heart of the TPACK framework, is the complex interplay of three primary forms of knowledge: Content (CK), Pedagogy (PK), and Technology (TK) (*See Figure 1.1 below*).

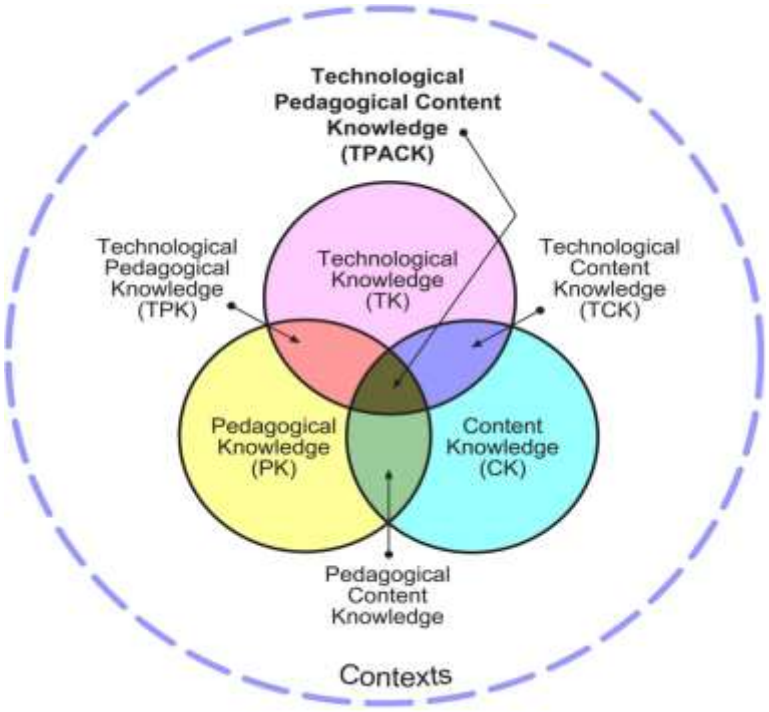

Figure 1.1: The Seven Components of TPACK

Content Knowledge (CK)

In the context of this study, content knowledge refers to the body of information that the tutor have and which students are expected to learn in a given subject or content area. For example, participants under study are found to have acquired knowledge on the following modules: English and law, and they are assumed to have a deeper knowledge on these disciplines (Nematandani & Ramorola 2013). As Shulman (1986) noted, this knowledge would include knowledge of concepts, theories, ideas, organizational frameworks, knowledge of evidence and proof, as well as established practices and approaches toward developing such knowledge" (Koehler & Mishra 2009).

Pedagogical Knowledge (PK)

This refers to teachers' deep knowledge about the processes and practices or methods of teaching and learning that the teacher should have (Koehler & Mishra 2009). In this form of knowledge (Shulman 1986) maintain that it applies to understanding how students learn, general classroom management skills, lesson planning, and student assessment (Koehler & Mishra, 2009).

Methods of teaching that the tutor can possess can be primarily descriptions of the learning objective-oriented activities and flow of information between teachers and students (Kizlik 2013). Nematandani and Ramorola (2013) assert that in most time, a particular teaching method will naturally flow into another, all within the same lesson, and excellent tutors have developed the skills to make the process seamless to the students.

According to Wehrli and Nyquist (2003), in the VC setting, it is important for a tutor to develop group facilitation skills to manage interaction, time and process effectively. Though in some cases, VC set up might handle large group discussions, different sites can be used as different groups in discussions, and that might be possible in a multipoint or bridge VC connection, where all the sites participate in one single discussion (Nematandani & Ramorola 2013).

Technology Knowledge (TK)

This is knowledge about certain ways of thinking about, and working with technology, tools and resources. This includes understanding information technology broadly enough to apply it productively at work and in everyday life, being able to recognize when information technology can assist or impede the achievement of a goal, and being able continually adapt to changes in information technology (Koehler & Mishra, 2009).

Technological Content Knowledge (TCK)

When TK and CK combine, they converge into a TCK (Technological Content Knowledge), (*See figure 1.1*). Koehler and Mishra (2009) put it clearly that technology and content knowledge have a deep historical relationship.

According to Shulman (1986) this is an understanding of the manner in which technology and content influence and constrains one another. Teachers need to master more than the subject matter they teach; they must also have a deep understanding of the manner in which the subject matter can be changed by the application of particular technologies (Ramorola 2010). Moreover, teachers need to understand which specific technologies are best suited for addressing subject-matter learning in their domains and how the content dictates the technology—or vice versa" (Koehler & Mishra, 2009).

Technological Pedagogical Knowledge (TPK)

TPK is a combination of TK and PK. According to Koehler and Mishra (2009), TPK is an understanding of how teaching and learning can change when particular technologies are used in particular ways. This includes knowing the pedagogical affordances and constraints of a range of technological tools as they relate to disciplinarily and developmentally appropriate pedagogical designs and strategies.

Pedagogical Content Knowledge (PCK)

As indicated in the above figure (*Figure 1.1*), PK and CK combined to form PCK. Shulman (1986) noticed that all students need a teacher who is more than knowledgeable about their subjects. Shulman (1986) called this combination of content and teaching knowledge, 'pedagogical content knowledge'. In this study, our view is that for the students to comprehend the subject content, they need a tutor who has subject knowledge and a clear and effective ways of teaching such a subject.

PCK therefore refers to the overlap of information about subject knowledge, that is knowledge of the subject being taught, and pedagogic knowledge, that is knowledge of how to teach. Despite a teacher's deep understanding of a subject area, he or she must also be able to foster understanding of subject or concepts for students (http://www.educ.uaberta.ca). In the context of this study, pedagogical Content Knowledge is the process through which tutors in a VC teaching and learning environment, master both content and diverse student pedagogy (www.idra.com).

1.4.2 Technological Pedagogical Content Knowledge (TPACK) formation.

Underlying truly meaningful and deeply skilled teaching with technology, TPACK is different from knowledge of all three concepts individually (Shulman 1996). Instead, TPACK is the basis of effective teaching with technology. On the basis of this model, we argue that, when a tutor has acquired a content knowledge, pedagogical knowledge and Technology knowledge, then such a tutor can use the available relevant teaching methods to support the integration of VC technology in teaching and learning. We further argue that the understanding of the relationship between technology infusion and pedagogical knowledge represents the foundation and a road map through which technology integration can be successfully implemented (Koehler & Mishra 2009).

According to Honey and Moeller (1990), the vital aspect of technology integration is teachers' understanding of the pedagogical principles to address technology integration. Also, Hasselbring, Barron and Risko (2000) remarked that teachers may desire to use computers for instruction and may gain sufficient computer literacy but remain deficient in the acquisition of the pedagogical knowledge required to effectively use technology to facilitate instruction.

1.5 METHODOLOGICAL CONSIDERATIONS

This study employed a qualitative phenomenological research design to gain a richer and deeper understanding of integrating VC technology into teaching and learning. Phenomenological methods are particularly effective at bringing to the fore the experiences and perceptions of individuals from their own perspectives (Lester 1999). In light of the given descriptions, the perceptions of VC tutors regarding the use of VC technology were explored in this study.

Data generation, collection and analysis

The very strength of qualitative discourse is its exploratory nature (Fook & Sidhu 2015). In this study, we used individual semi-structured interviews and tutorial observations to collect data from VC tutors. The sample population comprised of eight (8) VC tutors based in UNISA Pretoria main campus where the VC was connected to the UNISA's Bloemfontein, Port Elizabeth, Nelspruit and Durban Learning centres.

A set of predetermined questions were prepared and used to guide individual semi-structured interviews. For tutorial observations, we attended five VC tutorial sessions as per schedule, at the main campus in Pretoria. In these sessions four learning centres of Bloemfontein, Port Elizabeth Nelspruit and Durban, were connected to the main campus VC. These tutorial observations assisted in establishing how tutors integrate VC technology in their tutorial offering and their perceptions in using this technology. Although the findings of the study cannot be generalised owing to the small samples that were used, they provide rich information on tutors' perceptions towards integrating VC technology with various teaching methodologies.

Participants in this study were therefore purposefully selected, because our intention was to find information-rich key informants, groups, places, or events to study (McMillan *et al* 2001; Cresswell 1994). In other words, these participants are chosen because they are likely to be knowledgeable and informative about the phenomena we are investigating. The participants' responses were recorded on an audiotape and thereafter transcribed (De Vos *et al* 1998). The interviews were then organised thematically before they were analysed.

Data was analysed using qualitative thematic analysis, which is a process of "encoding qualitative information" (Boyatzis 1998). Thus, as part of data analysis in this study, we developed "codes," that served as labels for sections of data. We used thematic analysis as a way of getting closer to our data and to develop some deeper appreciation of the content (Boyatzis 1988). We adopted thematic analysis as a first step because we were interested in looking for broader patterns in our study, in order to then conduct a more fine grained analysis. The next section presents the findings of the study.

1.6 FINDINGS AND DISCUSSIONS

Looking at the end-user perceptions on the integration of videoconference technology, this article highlights challenges in relation to the pedagogical content knowledge (PCK) as well as the technological knowledge (TK). The findings are discussed in the next section.

1.6.1 Tutor's Pedagogical Content Knowledge (PCK)

The objective of this study was to explore tutors' perceptions in integrating VC technology with active teaching methodologies that tutors use during VC tutorial sessions. The findings in this study revealed the following: Some tutors felt that they are not trained enough to use active teaching methods through VC medium, other tutors are less knowledgeable about the subject content they offer and seem not to understand how to create a learning environment for effective tutorial sessions

From the tutorial observation as conducted at UNISA's main campus in Pretoria, it was discovered that one of the tutors was not confident in presenting the Mathematics lesson. The tutor found to have challenges in explaining some mathematical concepts to students. Another tutor who offered Accounting Sciences module in other VC site struggled in addressing the questions as posed by the students, which was a clear indication that she was not conversant with the content which she is responsible for, this however led to a serious classroom management collapse as some students were seen withdrawn totally from the learning processes. Some students were seen chatting on their cell phones instead.

In the semi-structured interviews, another tutor explain in this way: *"I understand that a tutor must know his module well, but in my case I think I did not have time to prepare todays' Mathematics lesson, yea."* This was a response of a tutor who is responsible for Mathematics module(s). He further raised an issue on this by justifying that: "*Some students will ask you questions just to embarrass you, not with an intention to learn."*

Despite justification, the response from this participant indicates either a lack of preparedness or a total lack of pedagogical content knowledge. Furthermore, this finding is in agreement with Oliver and Reschly (2007) who maintain that, adequate teachers' lesson preparation is an important first step in providing content knowledge and opportunities to develop proficiency in classroom management.

Thus, according to Oliver and Reschby (2010), two components are critically important in teachers' lesson preparation: teacher knowledge of the subject to be taught, and knowledge and skill on how to teach that subject. As pedagogical content knowledge represents the blending of content and pedagogy into an understanding of how particular aspects of subject matter are organized, adapted, and represented for instruction (Shulman 1996), therefore, tutors need to have this knowledge because it plays a critical role in transforming content knowledge into appropriate learning experiences for students (Shulman 1987).

1.6.2 Tutors' Technological Knowledge (TK)

When examining tutors' views in terms of integrating VC technology in a technology-based learning environment, the study found two developmental patterns: the first concerns the source of influence on technology integration, which focuses mainly on the human-learning factor. The second concerns the nature of influence occurring when using technology in the classroom.

Sources of influence on VC technology integration

In the semi-structured interviews conducted with eight (8) participants, the findings indicated that the source of influence on technology adoption point to a move away from external authoritative factors, example, non-provision of the VC equipment to the centre by the University or low bandwidth, and towards personal factors associated with reluctance to use it and lack of professional development thereof.

This finding is in line with the response from one participant who explains that: *"I can't do anything to link the VC after disconnection, even when the remote is there. I mean I am here to tutor and not to operate VC."*

The above response is a clear indication of a negative attitude towards the use of technology on the part of a tutor. Evidence from research done by Al-Oteawi (2002) as cited in Bordbar (2010), suggests that majority of teachers who reported negative or neutral perception towards the integration of ICT into teaching and learning processes lacked knowledge and skills that would allow them to make "informed decision".

Thus, negative perception towards technology use have primarily been found to arise due to teachers' lack of confidence in using technology, inadequate pedagogically driven training opportunities being provided, in addition to inadequate technical support (Awan 2011).

Additionally, another participant shows that he would require assistance of the VC technician to come and switch it on, when it is disconnected. Tutors under investigation don't embrace the technology in their teaching and learning; to an extent that they even show reluctance to acquire knowledge on how to use it in order to assist students understand concepts from the subject content. The participant indicates: *"I must communicate with the VC whatever…to come and switch it on."*

Another participant raised an issue this way: *I am not a technical expert, so if there is a problem, the learning center must attend to it.* Both the above responses imply that the participants lack technical skills and willingness to acquire knowledge on how to work with technology in teaching and learning (Koehler & Mishra 2009).

Though the majority of participants in the study show reluctance in using VC technology, some participants show enthusiasm. This is evidenced by a participant who explains that: '*As a professional tutor, I must be able to use this VC because it will help me in ensuring that students learn effectively.* Another participant said: *No ways, I must connect when it switches off, otherwise my teaching methods will be affected*.

From the given explanation it seems participants perceptions on technology use are influenced by their own internal factors than external. This poses some challenges that need to be addressed at the institutional level. In supporting this finding, Bullock (2004) found that teacher's perceptions are a major enabling/disabling factor in the adoption of technology. In the same vein, Kersaint, Horton, Stohl, and Garofalo (2003) found that teachers who have positive perceptions toward technology feel more comfortable with using it and usually incorporate it into their teaching.

Nature of influence occurring when using technology in the classroom

The second developmental pattern exhibited by the tutors describes the kind of influences required for technology adoption. This developmental pattern focuses mainly on the different types of knowledge and knowledge change involved in adopting information technology.

Participants under observation displayed various frustrations in this study. Most of them were seen trying different methods like 'lecturing method, group work and question and answer', but fail to integrate them with technology.

For example, as we conduct observations, we found that another tutor could not use a document camera which led to him not able to project his prepared activities, so that students can work on them in the far site. In this way his application of the question and answer method could not support the integration of technology in his VC session because he lacked Technological Knowledge (TK).

During observations of these tutors at UNISA Pretoria's VC venue, it was evident that participants under study show no knowledge of how to exploit VC equipment as they were struggling to operate a document camera, to demonstrate to students how a business letter should be structured (English).

These findings are in line with Chipps (2010) who recommends that tutors need to be orientated on using PowerPoint slides when facilitating tutorials. In this study, we argue that, if tutors are trained on how to operate the VC equipment, therefore they will be motivated to use it more often. Thus, it is a common sense that if someone doesn't know how to use a technology or features of technology, he or she becomes less motivated to use it.

However, to further exacerbate the situation, some tutors don't even attempt to use any active methods as a way to integrate technology in their lesson through VC. Another tutor who attended the semi-structured interviews put it this way: *"To me it is difficult to use active teaching methods when tutoring via VC than via face-to-face. How can you do it? You are bound to sit down and face a camera; after all I can't operate this VC."*

Livhuwani, Economics tutor show reluctance by saying: *"I don't use any method at all when teaching via VC because this VC is not reliable at all."*

In this study, we further argue that a form of knowledge like Pedagogical Content Knowledge (PCK) and Technological Knowledge (TK) play a crucial role in influencing how tutors should offer tutorials and their adoption of technology during tutorials.

To back up this argument, Koehler and Mishra (2009) indicate that, PCK represents the knowledge of how technology facilitates pedagogical approaches like asynchronous discussion forum to support social construction of knowledge.

1.7 DISCUSSION

From the individual semi-structured interviews with tutors, it is noted that tutors lack pedagogical content knowledge as they show an evidence of under preparedness. One tutor during individual semi structured interviews even came out clear that he did not prepare his mathematics module, which was why he could not tackle student's questions. The issue of tutor's under preparedness also stood out during the observation when tutors were unable to explain concepts to student, making it difficult for students to understand the content.

Another theme that came out from the individual semi structured interviews was a lack of technical skills and knowledge on how to use VC equipment. In this instant, tutors showed some tendencies of shifting responsibilities to the VC technician, to say they prefer to call him to come and reconnect as they are 'not experts in the VC operations.'

During observation, tutors also show frustration when trying to use certain teaching methods, where they fail to match them with VC technology. To overcome these challenges, tutors need to show some expertise of teaching through the technology. In support of this view is Wilson (2004) who states that the effective use of modern videoconferencing strategies depends on presentation expertise of tutors. Despite all these challenges by most tutors, some few showed enthusiasm in using VC technology. For example a tutor who offers English tutorials always tried to operate the equipment as he feared that it will affect his teaching methods and compromise integration of this technology.

In light of the above discussion, the TPACK model (Shulman 1986), fit well in this study as it looks into various form of knowledge which tutors need to acquire and which can in turn influence, in a positive ways, their perceptions towards the effective use of VC technology.

For tutors to acquire this knowledge which are the components of TPACK, namely; Content Knowledge, Pedagogical Knowledge, Technology Knowledge, Pedagogical Content Knowledge, Technological Content Knowledge and Technological Pedagogical Content Knowledge, the recommendations in the following section are imminent.

1.8 RECOMMENDATIONS

It is very clear, from the above discussions, that tutors who do not have knowledge on how to use technology in teaching and learning will eventually have a challenge in integrating technology with various methods in their VC sessions. This challenge necessitates tutors to acquire all forms of knowledge (CK, PK, TK, PCK, TCK and TCK) for effective teaching with technology.

Our understanding is that acquiring knowledge on how to use technology to yield a particular outcome influences the use of such technology. Therefore, based on the findings of this study, recommendations would allow more research to be conducted. As part of our recommendation, all tutors appointed for VC tutorials at UNISA, are required to consider undergoing training which is normally organised in the form of a Tutor Development Workshop (TDW) soon after appointed.

The workshop should specifically focus on how to infuse VC technology when exploiting various teaching methods, more especially those methods which are relevant to VC setup such as problem-based and small discussions. It should also focus on the subject specific content and basic training on VC operation. This intervention will enable them to acquire Pedagogical Content Knowledge (PCK) and Technological Knowledge (TK). As the creator of the TPACK model, Koehler (2011) said, “Teachers need to be equipped with knowledge about various technologies and be able to use them as pedagogical strategies in their classrooms”.

Furthermore, the knowledge which tutors will acquire during the training will help them to develop positive perceptions towards using technology. In the context of this study, we believe that these tutors will be able to teach with technology (VC), understand the representation of concepts using technology, and understand pedagogical techniques that use technology in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face and knowledge of students’ prior knowledge. Motivation and training of tutors on the use of VC technology and integration with various relevant teaching methods at UNISA and other ODL institutions of higher learning should be accelerated.

1.9 CONCLUSION

In this study, we explored the end-users’ perceptions in integrating videoconference technology in a distance learning environment. In our investigation, we focused on the instructional methodologies used by tutors in the VC tutorials and how these methods support their integration of VC technology during tutorial offerings.

An overall findings show that tutors cannot answer students’ question relating to the subject matter, which apparently show their (tutors) lack of Pedagogical Content Knowledge (PCK). To some of the tutors it is virtually apparent that they did not prepare totally. A fact to be considered in this study is that tutors are not trained in the operation of the VC technology such that they could not even link VC after disconnection, which is clear evidence that they lack Technological Knowledge (TK).

We conclude by saying that, VC is a set of interactive telecommunication technology which allows two or more locations to interact via two-way video and audio transmission simultaneously (Wilson 2004), therefore if tutors are trained properly on how to exploit it, they can be motivated and have positive perceptions on using it with various proper methods.

There are limitations to this study. The limitations results in the sense that only five UNISA regional centres were involved in the study, therefore the findings of this study cannot be generalised for the entire population at UNISA.

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