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ACCOUNTING TEACHERS' READINESS FOR E-LEARNING IN THE FOURTH INDUSTRIAL REVOLUTION: A CASE OF SELECTED HIGH SCHOOLS IN THE EASTERN CAPE, SOUTH AFRICA

ABSTRACT

This study sought to explore Accounting teachers' readiness to implement e-learning in their classrooms during the Fourth Industrial Revolution, specifically in schools in the Eastern Cape province of South Africa. To this end, the authors employed a qualitative approach and a case study research design. Interviews and observation were used to gather data from Accounting teachers with sampling consisting of six educators being purposively and conveniently selected. The findings revealed that Accounting classrooms are not designed in a way that supports e-learning. Another finding was that Accounting teachers do not understand e-learning or the benefit associated with an e-learning classroom. The recommendation made here is that information and communication technology officials at the district level should establish educational platforms at the cluster level to service teachers, advising them on how to use helpful technologies in practice. The Department of Basic Education needs to establish relationships with local universities so that the universities' specialists might assist teachers in implementing e-learning in practice.

Keywords: *Accounting teachers, e-learning classroom, Fourth Industrial Revolution and readiness*

1. INTRODUCTION

In a 21st century, which is characterised by the pervasive influence of technology across all spheres, e-learning in classrooms offers an uncompromising alternative form of instruction, especially in the developed world where it is rapidly becoming the mainstream method of teaching and learning in educational institutions (Rosen, 2014). Rosen further observed that technology affects every aspect of our lives and is revolutionising how we conceptualise and act towards teaching and learning. In Accounting classrooms, e-learning has been identified as an important feature and an innovative way of providing quality education through

web-based communication, collaboration, multimedia, knowledge transfer and training, to support active learning unhindered by time and space barriers (Motaghian, Hassanzadeh & Moghadm, 2013). According to Dahawy, Tooma and Kamel (2014), instructional methods in Accounting have rapidly changed over a relatively short period due to the influence of technology in the subject as a whole. Dahawy *et al.* (2014) further revealed that prior to the mid-20th century the resources available for Accounting instruction consisted of little more than textbooks, chalk and talk. However, with the inclusion of technology within the subject, the methods of getting cutting edge information around the subject has improved as a result and teachers and learners are able to go beyond the limit and are able to receive all the information they want with the help of e-learning resources. Petter, Sevicik and Straub (2013) point out that, in many African countries e-learning implementation in Accounting classrooms has been advancing at a snail's pace. Gardner (2014) opines that modern-day learners should be taught using technology if they are being prepared to be problem solvers in the Fourth Industrial Revolution (4IR). Gardner (2014) warns that continuing to write on chalkboards does not address the needs of the current media-savvy generation, whose mindset differs from that of learners of the past. This view supports the argument made by Fosu (2017) that e-learning classrooms have changed how learners learn and think. The *Daily Dispatch* (2019) confirms that in the Amatole education district, which was the district where the study was conducted, the majority of schools do not have access to technologies. The same cannot be said for the teachers. As reported (*Daily Dispatch* 2019), schools that have technologies within the same education district are struggling to maintain them in an attempt to keep abreast of current global trends, while some devices are lost or stolen due to a lack of security in schools.

2. STATEMENT OF PROBLEM

In the 4IR, one of the main questions currently facing Accounting teachers is what might prompt them to adopt and integrate the new technologies that are available in their own classrooms. Do these factors relate to teachers' qualities, personalities and backgrounds or is teachers' acceptance of technology driven by other external factors?

(Dahawy, Tooma & Kamel, 2014). Wagner (2014) opines that, in the 21st century, chalk and talk is a key characteristic of an outdated way of delivering content in the classroom. Wagner (2014) further confirms this method has worked well in the past; however, for the 4IR generation of learners it may not yield many positive outcomes, since the youth's exposure to, and understanding of, technology differs from those of even their more recent predecessors. Wagner further observes that today's learners are obsessed with technology and this obsession is fuelled by continuous advances in technology, in developed and developing countries, around the world. One of the most important questions that current Accounting teachers need to answer, is: *What causes teachers not to implement and advance e-learning in Accounting classrooms? Is it a lack of technology resources in schools or teachers' lack of appropriate knowledge, skills and expertise*? Given this conundrum, the authors sought to explore Accounting teachers' readiness for e-learning in the 4IR by undertaking a case of study of selected high schools in the Eastern Cape, South Africa.

3. RESEARCH QUESTION

The main research question being addressed in this study is: What are the factors that influence Accounting teachers' readiness for e-learning in the Fourth Industrial Revolution? The sub-research questions derived from the main question are:

- Do Accounting teachers have knowledge of the benefits of implementing e-learning in their classrooms?
- Do Accounting classrooms in schools support e-learning?
- Do Accounting teachers use e-learning platforms in their classrooms?
- Do Accounting teachers understand their roles and responsibilities in implementing e-learning in their classrooms?

4. SIGNIFICANCE OF THE STUDY

The authors envisage that Accounting curriculum planners, information and communication technology officials from the district where the study was conducted, community members and school principals have benefited tremendously since they have first-hand information in relation to why technology integration in Accounting is at slower pace. Accounting teachers of the selected high schools have also benefited since the study gave them an opportunity to voice their views around technology integration in Accounting. Authors believe that recommendations from the study may assist to serve as "intervention" to address the challenges in technology integration in Accounting.

5. THEORETICAL FRAMEWORK OF THE STUDY

Based on global expectations and changing realities related to the way in which technology influences teaching in the era of 4IR, Siemens (2005) proposes the theory of connectivism, which the authors identified as ideal for underpinning the study reported on here. This theory reveals how connectivity in educational classrooms has offered learners an opportunity to explore and create new opportunities to learn, and for users to share information via the World Wide Web. Siemens' (2005) theory brings together aspects of cognitivism and constructivism in suggesting a broader and more inclusive framework for learning in today's "open" and "connected" learning environment which is enabled by interactive Web 2.0 technology. The key feature of Siemens' theory is that learning not only happens on an individual basis, but also through peer-to-peer interaction and in groups who use the internet. However, when the platform for internet interaction is not supported then the teaching and learning is affected. When connectivity is fully operational and functioning optimally, learning becomes more enjoyable, talents are developed and learners work at their own pace and in their own time, without being forced to learn. The theory observes that, in connectivism the teacher's job is to guide learners in his/her classroom, simply by answering key learners questions that arise while largely allowing the network to support learners' learning. Learners are also encouraged to seek information, through the internet, on their own, before sharing that knowledge with their peers in the classroom.

This theory views learning as a means of creating meaning, by allowing individuals to incorporate their past experiences, needs, emotions and experientially gained knowledge into present knowledge acquisition. Siemens continues arguing that the theory accepts that the world of e-learning is an overwhelming place in which knowledge is abundant, yet fragmented. Siemens further states that when technology learning is in full use at a particular institution, learning becomes easy, since online networks support it. Furthermore, teachers can note the benefits of a connected classroom once they offer the practical's of the theory they have in mind. Siemens goes further in arguing that in connectivism the only way that it helps teachers become familiar with the technological system, is through practising and gradually they find

themselves becoming familiar and oriented as time goes on. This theory is applicable in this study since delivering of information is constantly changing, its validity and accuracy may change over time, depending on the discovery of new contributions pertaining to a subject. Connectivism is very relevant to this study since it stresses that two important skills that contribute to learning are the ability to seek out current information and the ability to filter secondary and extraneous information. Furthermore, the capacity to know is more critical than what is actually known.

6. LITERATURE REVIEW

In this study literature on Accounting teachers' readiness for e-learning in the 4IR was reviewed under six separate sub-headings.

The benefits of e-learning for the Accounting classroom

An e-learning classroom is an important and powerful tool since the world of the 4IR is characterised by the rapid processing of information. The Education domain has no choice but to embrace this (Sangrà, Vlachopoulos & Cabrera, 2012) if it is not to lag behind. Sangrà, Vlachopoulos and Cabrera confirm advantages associated with e-learning include the ability to quickly deliver learning, anywhere and at any time. Smythe (2012) confirms when e-learning is used optimally, it can facilitate blended learning (i.e., the use of multiple platforms to convey information). Alajmi (2013) opines that worldwide, all societies are working towards changing to become e-learning communities. Alajma further reveals through e-learning classrooms, learners may develop the potential skills, knowledge and expertise to unlock the ever-changing world and become game-changers in society. Kiilu and Muema (2012) confirmed that in e-learning classrooms, talent may be developed that will allow learners to access the global economy and improve their lives. Kiilu and Muema further observe that, once learners learn by means of technology, they become more creative, motivated and eager to test their boundaries. Kiilu and Muema go further in revealing that many learners can even go on to become designers of technology, which allows them to contribute to the production and productivity of their country. Keramati, Afshari-Mofrad and Kamrani (2011) argue that in many developed countries, many technological gains and advances are associated with the innovative technologies being used and these gains are the result of implementation of e-learning in the education system at an early stage.

E-readiness Accounting classroom

An e-readiness classroom is one that is designed especially for the delivery and support of electronic learning systems (ELSs) (Lloyd, Byrne & McCoy, 2012). Lloyd *et al.* (2012) assert that where such classrooms exist, the teacher's job is to instruct learners to work on their own, while his/her role is to guide the learners throughout – this is where teaching is supported by technology, often in the form of a connection to the internet. For Keramati, Afshari-Mofrad and Kamrani (2011), the e-readiness of an Accounting classroom is determined on three levels: technical readiness, lifestyle readiness and pedagogical readiness. *Technical readiness* is where the focus is on the readiness of technology hardware, software and a connection to the internet, as all these aspects support e-learning. In *lifestyle readiness*, the focus is on the facilitator and related challenges that may affect his/her satisfaction with an e-learning community, for instance his/her in/ability to adapt to change (Panda & Mishra, 2013). *Pedagogical readiness* places the emphasis on the facilitator's understanding of technology and his/her experience, confidence and attitude (Akaslan & Law ,2011). Sammak, Baghbel

and Samancioglu (2010) assert that pedagogical readiness pertains to perceptions regarding the electronic learning systems, and evaluates whether facilitators have a predisposition to embrace new technology to accomplish different related tasks. Holsapple and Lee-Post (2010) believe that in terms of pedagogical readiness, it is crucial to assess whether a facilitator prefers a chalk-and-talk approach to the optimal use of technology.

The use of technology in Accounting classrooms

Apostolou, Watson, Hassel and Webber (2013) opine that before the 20th century, many researchers did not investigate the use of technologies in Accounting, as a result, Accounting teachers are still using an old approach when teaching accounting. This finding has also been confirmed by Halibi, Touvein and Maxfield (2014) when confirming that Accounting teachers in Egypt predominantly still adhere to the "old-fashioned" method of delivering Accounting lessons to their learners. Loch, Straub and Sevick (2014) believe that there are two main reasons why e-learning is difficult to achieve in the Accounting classrooms of developing nations: one reason relates to rituals and cultural differences that manifest them and the funds required to adopt electronic platforms. The second is the prevailing state policies and regulations, which either facilitate or impede technology transfer. However, the findings of Peterson and Reider (2009) noted that in Algeria and other parts of the African continent, Accounting teachers prefer to teach financial management using technology. Downes (2012) reported that e-learning is influenced by diversity, autonomy, openness and the availability of connections. This means that when one of the components is not connected to the others, learning cannot proceed smoothly.

Using technology to teach modern-day Accounting learners

Hammond (2013) notes that over the past two decades, information and communication technology (ICT) has changed the way learning is delivered. For Harasim (2009), taking advantage of e-learning technologies such as telematics, blended learning, live broadcasts, smart phones and broadband connectivity to the internet and social media, has brought about substantial changes to learning, apart from providing equal opportunities to all learners. Harasim (2009) admits that the technical ability to connect to the internet has changed the face of learning completely. Through the adoption of innovative technologies, learning has moved away from being a one-man activity and become collaborative in nature – think of the discussion forums in which users can participate, thanks to internet access. However, as certain technologies become more accessible and user friendly, learners look forward to experiencing them and seeing for themselves what these platforms entail. Furthermore, when learners are positive about using technology in the classroom, the process of transforming teaching and learning takes place in educational settings. This change shifts teaching and learning from a traditional to a modern approach, with learners becoming more hands-on in their learning (Kock, 2014). Farid (2014) believes that knowledge of e-learning can only be available to teachers once their schools start to embark on support and implementation of e-learning. This can be done by means of acquiring e-learning devices that are needed to support the full implementation of e-learning and maintaining of classes where e-learning teaching can take place. Furthermore, once all supporting systems in a school are in place then teachers will be interested to use the technologies available and some might end up taking technology short courses to improve their understanding on the use of it.

E-learning platforms

Most schools in the United Kingdom are virtual learning environments (VLEs), thanks to the use of Web 2.0 or "soft software" such as Sakai and DrupalEd, Moodle, Blackboard, TurnItIn and many more (Beetham & Sharpe, 2007). VLEs are a component of web-based software that grants teachers the opportunity to search topics on the internet within a very short period. Typically, such learning environments include a chatroom, an online discussion forum, daily reminders and online assessments with clear instructions on what learners need to do when completing assignments and submitting assessments. Beetham and Sharpe (2007) reveal that through various platforms, teachers can track their learners' activities in the VLE and are in a position to display syllabus information. Through these platforms, a teacher is given access to a series of integrated tools that allow him/her to guide learners while the latter are studying, and to decide on the best ways of teaching a particular topic – even before entering the classroom.

Teachers' roles in supporting an e-learning classroom

In teaching and learning, subjects that require the use of e-learning, inside and outside the classroom, may assist in developing ways of moving away from the old method of teaching (traditional) to adopting modern ways of teaching (e-learning). In the process, teachers need to assume novel roles and responsibilities (which may, in fact, be carried out by more than one person) (Fowler & Mayes, 2004). They further stated that teachers are required to transform his/her traditional teaching approach into an e-learning approach that suits the needs of the current generation by means of implementing e-learning throughout when teaching in their classrooms. Furthermore, teachers need to realise that they have to be part of developmental initiatives that aim at improving their efficacy. Through these initiatives they will realise that teaching an online subject might, for example, feature the following characteristics:

- an educator who continuously employs suitable, available technologies to create attractive content;
- an e-learning instructor who serves as an assistant in class, while taking day-to-day responsibility for keeping up with current discussions;
- an educator who has the responsibility to perform administrative roles, in addition to overseeing the learners' work, and who gives guidance when learners undertake practical activities; and
- an independent moderator, who has been hired by the school to come and assess the authenticity of the learners' work.

7. METHODOLOGY

Approach

This study is a qualitative research study and is based on a naturalistic approach that seeks to understand phenomena in context or real-world settings. In addition, the researcher does not attempt to manipulate the phenomenon of interest (Maree, 2015). This approach is interpretive in nature.

Design

We used a descriptive case study research design, as we were interested in participants at case level and relied on a descriptive framework for analysis of data. One of the most important features of a case study is its flexibility to allow examination of "a phenomenon in its natural setting" and allowing use of many methods in the collection of data (Johansson, 2003). A case study inquiry, such as the one completed here, also involves intense descriptions of a phenomenon or case (Henning, Van Rensburg & Smit, 2004).

Population

Bell (2013) concurs that population is a target population from which the researcher draws the sample. In this study, all Accounting teachers in the district formed the population.

Sample

De Vos, Strydom, Fouché and Delport (2011) assert that a sample is a set of elements taken from a larger population according to certain rules. They further state that a sample represents the larger population from which it is drawn. In this study, sampling was drawn from six Accounting teachers of the Amatole East Education District.

Convenient sampling: It refers to situations when elements are selected because they are easily and conveniently available (Maree, 2015). In this study the sampled participants were chosen based on being quick and easy to reach them.

Purposive sampling is a method used in special situations where the sampling is done with a specific purpose in mind (Maree, 2015). In this study the authors handpicked participants to be included in the study based on having possession of the particular characteristics being sought.

Data collection instrument

Data collection instrument is a term used to describe a process of preparing and collecting the data (Johnson & Christensen, 2008). In this study interviews and observation were the method of collecting data. Interviews were semi-structured. Semi-structured interviews assist in collecting thoughts, beliefs, knowledge, reasoning, motivations and feelings about a topic from participants (Johnson & Christensen, 2008). According to Johnson and Christensen (2008), observation involves watching behavioural patterns of people in a certain situation for gaining data.

Participants

Participants in this study were only six teachers sampled from teachers of the whole district of Amatole East Education District. These teachers were selected from six different secondary schools. Three teachers were selected from the rural areas and the other three were selected from urban areas. In this study participants were expected to respond to interview questions in English since it is a medium of instruction (Department of Education, 2003). The participants were also sampled using the volunteer sampling technique, which refers to a scenario where participants willingly volunteer to participate in a study (De Vos, Strydom, Fouché & Delport, 2011).

Data analysis

The recorded interviews were transcribed. After the authors had satisfied themselves that the transcript was accurate, we made three copies of it and independently coded the data.

After that we categorised the codes by putting similar things together as per the data from the interviews. From here we developed themes by giving the data codes to differentiate each data from one another. Then the authors decided to have a meeting where we discussed the themes and reached a consensus on four themes. In this study, data analysis was done manually following these steps namely: organising the data, finding and organising ideas and concepts, building over-arching themes in the data, ensuring reliability and validity by giving the participants the transcribed document to verify the correctness of it. The data was coded following these steps: reading through the data and creating a storyline, categorising the data into codes and using memos for clarification and interpretation.

Ethical consideration

Permission was obtained from the university where the author was studying, then the Provincial head office of Department of Education for access to schools, and then consent from Accounting teachers. Further, participation in the study was voluntary and the participants were made aware of their rights, including the right to withdraw from the study at any point should they deem it necessary.

Trustworthiness

According to Maree (2015), consistency checking and credibility or stakeholder checks involves for example, having another coder take the category descriptions and finding the text that belongs in those categories. The authors also made it a point that in the process of data collection, there were no biasness. The authors were not part of the schools where research was conducted, they only went there for research purposes. The authors did not participate in the conversation with the participants to avoid influencing their responses.

Limitations of the study

Classroom observations were not allowed and thus did not form part of our data collection techniques. This was a limitation for the study, since we wanted to see the conditions of the classrooms as a way of verifying our other data collection technique and the lack of support of e-learning in the classrooms.

Presentation of data

The first question was “do Accounting teachers have knowledge of the benefits of implementing e-learning in their classroom?” In this question data was collected through interviews. When the participants were responding to this question it was clearly shown where the starting point for the implementation of the e-learning was. Looking into the response it is clear that there are participants who do not even know what e-learning platforms are all about, if they do not know them, they cannot use them. The sub-themes/categories below have been identified in this question.

No understanding of e-learning benefits in the classroom

The results indicated that despite the laptops given to Accounting teachers in order to integrate technology when teaching, the reality is that there are Accounting teachers who do not know the benefits associated with e-learning. As a result, they do not implement any e-learning in their classroom. Participant 5 supported this notion, stating:

> *In my case allow me to say I don't know anything pertaining those benefit, and please allow me not to go further in [answering] this question.*

Participants 6 had a similar response:

> *I cannot say I know the benefits by just listening from the radio and newspapers while I never [got] time to attend any workshop so that I can learn it by myself and later be afforded with an opportunity to practise those lessons in my classroom by implementing it.*

Looking into these responses, e-learning and the benefits associated with it can never be achieved with these teachers.

Unfamiliar with e-learning teaching

South Africa is celebrating 26 years of democracy, yet there are still Accounting teachers with laptops in their hands who are unfamiliar or unclear about e-learning teaching as an extra educational resource to support the 21st century goals. Participant 1 supports this notion, commenting:

> *Let me be honest with you, I am not familiar or clear with e-learning related teaching even if I was allocated a laptop by my employer.*

Participant 4 confirms this stating:

> *I am not a fan favourite of technology especially the fact that my school does not have technology as result I'm not so clear on how it can be used in the classroom to improve teaching and learning.*

The above responses clearly show why integration is slower in Accounting classrooms since teachers do not possess the type of skills required in order to integrate technology in the classroom.

One of the questions asked was "do Accounting classrooms in schools support e-learning?" Even in this question data gathered was collected through interviews. When responding to this question, Accounting teachers disclose that classrooms in their schools (not only Accounting classrooms) do not support any e-teaching due to vandalism of electricity components by learners. The sub-theme/category below has been identified in this question.

Classrooms are damage

In order to improve technology integration in Accounting classrooms, electricity supply needs to be attended to by the school managers since it is through electricity that teachers [not only Accounting ones] can implement e-learning in their classrooms. Without the proper supply of electricity within the classroom e-learning cannot happen. Participant 1 supports this assertion saying,

> *In my school, all classrooms' – not only Accounting classrooms' – electricity supply like switch, plugs and lights are damaged meaning it does not support any electronic learning.*

Participants 2concurred:

> *In order for the classroom to support e-learning it needs to be supplied [with] computers, furniture which support[s] the e-learning environment, other computer device[s] like whiteboards, projectors, pointers and cooling systems for the computers not to [be]*

> *damage[d]. In our case, we do not have any of those technologies I have mention[ed], so let me say our own classrooms do […] not support e-learning and also even if we can have those components, if electricity supply within the classroom is not maintained as it is a big challenge due to damages we cannot implement it at all.*

For any classroom to be in position to support e-learning its starting point is well-connected electricity that allows technology connections. Classrooms without the proper electricity connection are a danger to everyone in the school and managers need to attend to them quickly.

Another question that was asked to the participants was "do Accounting teachers make use of e-learning platforms in their classrooms?" In this question, participants indicated that they do not make use of any e-learning platform since they do not even know what e-learning platforms are about. In this question the following sub-theme/category has been identified.

No e-learning platform is used in the classroom

In order for participants to use e-learning, they firstly need to have a deeper understanding of various forms of e-learning available and how they can use them in their various classrooms. Looking into the above response it has come out that there are Accounting teachers who do not even know what e-learning platforms are all about. If they do not know them, they cannot use them. Participant 1 confirmed this notion by stating:

> *What do you mean when you are talking about [an] 'e-learning platform?* [The researcher explained the concept] *I will be very honest with you […] I have never use[d] any form of e-learning platform in my entire teaching career.*

Participant 2 revealed a similar result that, "*Absolutely no form of e-learning platform I am using".* In order for participants to use any extra teaching and learning material such as e-learning they firstly, need to be workshopped around e-learning material. Once they have been workshopped, they will identify them by themselves and they will start using them.

The next question asked if Accounting teachers understood their roles and responsibilities in implementing e-learning in their classrooms. Only one participant claimed to understand the roles and responsibilities of the teachers in implementing e-learning in the classroom. The remainder admitted that they were not aware that they had to play a leading role in making sure that they teach their learners with the aid of new technological approaches and innovations. In this question the following sub-theme/category has been identified.

No understanding of the roles and responsibility to implement e-learning

The results indicated that even though Accounting teachers have technology, they still think that it is not their responsibility to implement e-learning in their classrooms. Furthermore, these teachers are still waiting for government in their school to build a computer laboratory in order for them to implement e-learning. Participant 1 supported this notion, asserting that:

> *I really don't know that I have a responsibility of making sure that the classroom is an e-learning class, however, I can accept the responsibility after I can be workshopped so that I can learn how to make use of computers within the classroom of accounting.*

Participant 2 stated:

> *I don't know that I have a responsibility, maybe it [is] [be]cause by the fact that no technology learning is taking place in my education district and even the information communications*

technology section is not doing anything to assist us as teachers. Maybe I can say I have such responsibility if there [the] department can build a computer laboratory to my school.

The above responses paint a different picture between participants and their employer. They are expected to play a meaningful role in implementing e-learning, but they have not been educated on the use of it. Based on this, participants think that they do not have any responsibility in the successful implementation of e-learning in their classroom.

8. DISCUSSION OF FINDINGS

In this study the findings arrived at after data interpretation and analysis were examined in the light of the questions asked. Emerging themes were discussed with reference to literature. One of those themes was:

Accounting teachers do not understand e-learning benefits in the classroom

The study revealed that despite the education initiatives of allocating laptops to each teacher with the aim that teachers will utilise these laptops to support e-teaching in the 21st century, the reality is that these teachers do not have sufficient information on the gains associated to e-learning and they rely on the chalk and talk method of teaching. This finding confirms Halibi, Touvein and Maxfield's (2014) finding in that Accounting teachers in Egypt predominantly still adhere to the "old-fashioned" method of delivering Accounting lessons to their learners. This study revealed that knowledge of e-learning can only be available to teachers once their schools start to embark on support and implementation of e-learning. Furthermore, this can only be done by means of acquiring e-learning devices that are needed to support the full implementation of e-learning and maintaining classes where e-learning teaching can take place.

Accounting classrooms are damaged

The study revealed that e-learning can only take place if classrooms are specially designated to support technology use. Furthermore, the study revealed that an e-ready classroom is one that is designed especially for the delivery and support of electronic learning systems. When the classroom is in a bad condition, it hinders the smooth running of teaching and learning especially e-learning in the 21st century. Furthermore, it appears that due to the bad state of the classroom, none of the teachers – not only the Accounting teachers – use technology in the classroom to stimulate and inspire learners through their teaching. The finding confirms Keramati, Afshari-Mofrad and Kamrani's (2011) ideas that e-readiness of an Accounting classroom is determined on three levels: technical readiness, lifestyle readiness and pedagogical readiness.

Accounting teachers do not understand their roles and responsibilities in implementing e-learning

One of the findings revealed that in order for Accounting teachers to implement e-learning in their classrooms the starting point is to educate them on e-learning so that they can have a deeper understanding of it. Once they possess a deeper understanding of it, they will start to understand their part in the implementation of e-learning. Through educating those teachers about e-learning they will begin to understand the fundamental roles attached to them in supporting e-learning and they will realise that e-learning is a feature of 21st century learning. Furthermore, the study discovered that teachers do not realise that they have to

be part of developmental initiatives that aim at improving their efficacy. The finding connects with Siemans' (2005) findings that once teachers understand that they have a role to play in implementing e-learning, a teacher's job becomes easier and through connectivism that takes place, they can guide learners in his/her classroom, simply by answering learner questions that arise while largely allowing the network to support learners' learning.

Accounting teachers are unfamiliar with e-learning teaching

Another finding in the study is that the only way teachers, not only Accounting teachers, can become familiar with e-learning teaching and learning is through practising. Furthermore, the study reveals that the allocation of laptops to teachers is not an assurance that teachers are familiar with e-learning, instead these teachers need to be supported and monitored in the implementation of e-learning in their various schools. Through supporting them, especially in the first two years after they have received their laptop, they will end up developing a motivation to utilise these laptops as a mean of supplementing their teaching, which familiarises them in e-learning teaching and learning. These findings corroborate Harasim's (2009) finding that technical ability to connect to the internet has changed the face of learning completely. Through the adoption of innovative technologies, learning has moved away from being a one-man activity, and become collaborative in nature.

No e-learning platforms are used in Accounting classroom

In this study, the authors found that given the changing reality of what teaching and learning in the 4IR involves, extra teaching aids available in the 21st century such as telematics, live broadcasts, video learning platforms etc. are not being utilised for the purpose of extending boundaries in teaching and learning even if they contain valuable information. Furthermore, the study revealed that through non-use of e-learning platforms learners are missing out the real chances to participate in chatrooms and discussion boards that are available nationwide. The study goes further in revealing that, when learners and teachers understand the reasons for using these platforms within the classroom, it allows them to be increasingly exposed to other, appropriate ways of learning one thing in different ways. These findings indicate a significant gap between the actual state of affairs, since Peterson and Reider (2009) noted that in Algeria and other parts of the African continent, Accounting teachers prefer to teach financial management using technology. This means Accounting teachers in South Africa are behind some other countries in Africa in terms of integrating technology in the classroom.

9. CONCLUSION

This study explored teachers' readiness for e-learning during 4IR. To that end, the study focused on selected high schools in the Eastern Cape province of South Africa. The authors concludes that based on the research findings, the participants' readiness to implement e-learning in their classrooms needs urgent attention from education officials, if the aim is to provide learners with quality, targeted e-learning in a rapidly changing world. The ICT section of the Eastern Cape's Department of Education (DoE) needs to realise, however, that the successful implementation of e-learning in schools depends entirely on teachers being intensively capacitated in respect of their e-learning readiness, since it is their expertise, skills and knowledge of technologies and platforms that will enable them to play pivotal roles in ensuring that e-learning is achieved across all subjects. Furthermore, the authors conclude that all levels of capacitation (from the teachers' point of view) must occur as a matter of urgency – from school infrastructure provisioning to the upskilling of educators. After all, e-learning will take place smoothly if it is

not only seen as a nice-to-have tool, but as a facility that changes the learners and teachers' experiences of how they view learning in an increasingly technology-driven environment.

10. RECOMMENDATIONS

In the 4IR era, the goals and gains of the education system have changed from those of the past century. Now, the goal is to develop critical thinking and self-learning abilities in learners, so that they can become independent learners and lifelong learners. Therefore, an e-learning classroom, with properly trained teachers, is the ideal solution for changing educational practice in all provinces of South Africa. The authors recommend that ICT officials at the district level establish educational platforms at the cluster level to service teachers by keeping them updated on how to use ICTs in their classrooms. The Eastern Cape DoE needs to establish links or relationships with local universities whose experts could guide teachers in how to implement e-learning in their classrooms. Another recommendation is that all classrooms – not only those designated for teaching Accounting – be renovated so that they can support e-learning, since it is pointless to distribute laptops to teachers when they cannot use them for lack of power or due to damage to outlets/plug points, etc. The authors also recommend that teachers be encouraged to take responsibility for improving their skill sets, particularly in ICT-related matters, by doing technology-related short courses.

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