FACTORS SHAPING TEACHERS’ EXPERIENCES IN MANAGING TEACHING IN THE ERA OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) INTEGRATION ACROSS THE CURRICULUM

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Abstract

Since the 1994 general elections in South Africa, the education system has been characterised by several changes and innovations. The Department of Education issued different laws and policies such as the White Paper 7 on e-Education (Department of Education (DoE), 2004) to promote a shift in our pedagogic approach. These include the introduction of Outcomes-Based Education (OBE) system and a shift from a single authoritative textbook to the use of a range of resources. Considering the laws and policies on ICT integration, the practicability of implementation in some South African schools poses challenges, as the ICT equipment is not evenly distributed in the schools across the country. There is further a wide gap between policy and practice and the policy approaches ignore teachers’ personal and professional beliefs and understandings. The purpose of this research therefore was to explore factors shaping teachers’ experiences in managing teaching in the era of Information and Communication Technology (ICT) integration across the curriculum. A qualitative research approach was adopted, and a case study that involved focus group interviews with about ten to fifteen teachers representing different streams. The four schools are in Mount Frere district in the Eastern Cape province. An accurate recording of the participants’ answers was made. The recording was facilitated using a voice recorder. The theoretical framework comprises of Miller’s model of ICT integration. Miller’s model argues that integrating ICT in teaching and learning is a systematic process. The findings revealed that poor ICT integration resulted from limited training in ICT skills. This is coupled with the lack of provision of continuous support. Without training ICT integration is almost impossible. It is imperative for the DoE to conduct intensive ICT training workshops to ensure that all teachers are on board in terms of integrating ICT into their pedagogical activities. The training workshops must cater for the technological knowledge, that is, the use of the software, in connection with the pedagogical strategies teachers use in teaching their subjects and the knowledge of the subject matter which teachers specialise in.

Keywords: Information and Communication Technology (ICT), ICT integration, Managing.

1 INTRODUCTION

The introduction of Information and Communication Technologies (ICTs) to our schools is creating new ways for students and teachers to engage in information selection, gathering, sorting and analysis. Every South African teacher and learner in general will use ICTs confidently and creatively to help develop skills and knowledge they need as life-long learners to achieve personal goals and to be full participants in the global economy by 2013. We want to ensure that every school has access to a wide choice of diverse, high quality communication services which will benefit all learners and local communities (Prof Kader Asmall in Department of Education, 2004, p. 17).

The paper is introduced with the words of Professor Kader Asmall, who was the Minister of Education in South Africa. He was setting out Government’s response to a new ICT environment in education. Since the 1994 general elections in South Africa, the education system has been characterized by several changes and innovations. The Department of Education issued different laws and policies such as the White Paper 7 on e-Education (Department of Education, 2004) to promote a shift in our pedagogic approach. These include the introduction of outcomes-based education system and a shift from a single authoritative textbook to the use of a range of resources. There has been a rapid increase in the popularity of the Internet and rapid growth of Information and Communication Technologies, which may have a high potential for e-learning if teachers increasingly and continuously leverage the technologies to enhance learners’ learning (Chikasa, Ntuli & Sundarjee, 2014).

In some schools where CAT and IT are not offered, the resources are packed in the strong rooms and in the laboratories. There seems to be some misconception or miscommunication or misunderstanding.
of the government's e-Education policy goal as in some schools' ICTs are not integrated in classroom practice. This also coincides with what the Deputy President of the country, Cyril Ramaphosa, said at the launch of the new paperless education system pilot project in Gauteng, that “Committed teachers and dedicated learners are a beacon of hope for our country, education is the core of our government's strategy for improving the lives of all our people” (South Africa Turns on Digital Classroom, 2015). A study by Du Plessis (2012) shows that teachers’ attitudes and beliefs play a critical role in their decision to use technology for teaching and learning. Many teachers are still using authoritarian approaches, which encourage role learning, and an authoritative textbook.

2 RESEARCH QUESTIONS
What are the factors shaping teachers’ experiences in ICT integration across the curriculum?
What can be learned from the teachers’ experiences regarding ICT integration in the country?

3 LITERATURE REVIEW

3.1 Management as a special activity for teachers
For effective management to take place, the individual teacher should be specifically trained for the role. Likewise, Marx (as cited in Van der Westhuizen, 1991) highlighted that to be able to manage effectively, specialized knowledge is needed and must be continually brought up to date and must be applied in a practical manner. A teacher has a specifically defined field to manage. A defined field, according to Van der Westhuizen (1991), consists of observed and measured specialized work and the management work that one should do on a daily basis to be skilled enough or carry out one’s operational work. To integrate ICT in classroom practice effectively, teachers must be specifically trained, to acquire and apply ICT skills, the training may either be infused in-service or through workshops for those already at work and the training. For effective management work and teaching actions to be realized, specialized knowledge needs to be upgraded continuously or brought up-to-date (Van der Westhuizen, 1991). ICT should be an integral part of all learning activities and should be available as pen and paper in schools. The knowledge society we are striving for, depends on smart machines and a smart workforce. Training and skill enhancement are part of a lifelong learning process. Management is a key idea for teachers in that both management work and teaching work aim at realizing effective teaching and learning. The management task-management area model focuses on the coordination and utilization of necessary people and available resources to achieve set objectives.

3.2 Miller’s evolutionary model of ICT integration in schools
This model can be used as an approach to understand the management of teaching in the era of ICT integration across the curriculum. Miller developed a five-phase model of ICT integration which he used in one South African school to establish how they are infusing computers in teaching and learning. In the first phase, the introduction phase, computers are installed in schools. Teachers who are first time users are introduced to the basics of computers, then they introduce each other. This could take less than a year for an individual teacher to work through, because of the support they get from each other. In the second phase, the entry phase, teachers start to use the equipment to support classroom instruction. This is also a time for sharing their successes and failures. Their perception of what is expected of them as class managers, for example, covering the prescribed content in time or maintaining silence in classes, disturbs or hinders their training in acquiring computer skills. The third phase is characterized by the changing roles. The teacher now plays the role of a facilitator and classroom interaction with learners changes to sharing instructional strategies. There are new support structures that allow team teaching, peer observation and evaluation time and the curriculum is modified to cater for the different gadgets that the school owns.

In the penultimate phase, learners are involved in collaborative learning, forming small problem solving groups searching for information and they are also encouraged to discover answers to some challenges for themselves. The school timetable is modified so as to accommodate the use of computer laboratory by teachers and learners and also to accommodate team teaching. Also, teachers develop communities of practice to support each other in using subject specific software. The last phase, the creation phase, is ongoing as new technologies develop constantly, schools keep on changing and upgrading to the best equipment that suit their instructional needs (Miller, 1997).
4 METHODOLOGY

The study is located in the interpretivist paradigm because of the personal involvement of the researcher in interpreting the specific meanings. Interpretivists assume that by placing the participants in their societal contexts, there is a greater chance to understand the perceptions they have of their own activities (Rule & John, 2011). The interpretive worldview the researcher holds led to embracing a qualitative research approach. Qualitative research studies the everyday life of different groups of people in their natural settings. The researcher adopted an exploratory case study research because case studies according to Yin (2014) strive towards a holistic understanding of how participants relate and interact with each other in a specific situation. The researcher used focus group interviews as data generation instruments. This was because she wanted to understand factors shaping teachers’ experiences through shared interaction. Shared interaction can be useful in a school setting where teachers naturally form groups, for different subject departments, different unions, different religious beliefs, etc. (Cresswell, 2009). Regarding ethical considerations, the researcher obtained written, voluntary, and informed consent for all participants. To ensure that the voices of the participants are not lost, the researcher used verbatim quotations in the data presentation. She generated data from teachers in four high schools. She used pseudonyms to identify the schools and abbreviated codes to identify the focus groups.

4.1 What shapes teachers’ ICT integration?

The researcher looked at what shapes teachers’ experiences of ICT integration under the following subheading; Provision of training programs on ICT integration. She reviewed the provision of training programs broadly, in terms of training and in terms of providing support. Although support usually means the same thing as training, in this context she saw a difference. Training involves helping teachers develop knowledge, skills and experience to prepare them for ICT integration. Support involves a range of activities that enable teachers to work together. It also addresses practical and financial issues, monitoring and the promotion of professional and personal development.

4.2 Provision of training programs on ICT integration

This involves providing training courses dealing with the new devices, modern technologies, and new pedagogical approaches; teachers preparing themselves by self-training; teachers taking up opportunities for training offered at schools and knowing how to access the resources. Van Deventer (2003b) maintain that it is through nurturing and support that teachers own specific needs are addressed. Providing support builds not only confidence in the development of better teaching techniques, but lifts the morale of teachers as well.

Under this sub-heading the question that the researcher asked the participants was based on whether teachers received any training on ICT integration or not, and, if they did, how it has helped them in managing their day-to-day teaching. Speaking about the ICT integration training as shaping their day-to-day experiences, participants came up with two perspectives. Some came with the view that they were not trained by their schools and the DOE on ICT skills and ICT integration. Others felt that there was training provided for Mathematics and Science teachers only. This is how one participant from SOE voiced their view:

“You learn on your own, we apply a trial and error method, if we were trained on using the equipment, we would be better off. ICT training and staff development programmes do not exist in the public schools. The computers were dumped in our schools by the service providers, we were not trained in using them. Many of us are old, and our teacher education did not incorporate ICT training. We were born before technology. Once the equipment is dumped, no one comes to check how are we doing, whether we are winning or failing. All in all, there is no support either from the SMT, nor the district. Even the few teachers who integrate, do not get any support. Nothing encourages us to integrate ICT in teaching and learning.”

A participant from OHS detailed the view as follows:

“We were not trained on using computers and on integrating ICT in teaching and learning. We are learning day by day as we are using them, we are using trial and error method of learning. In the Science department, we have problems with accessing some scientific functions in the computer, there is a program that needs to be installed for us to be able to access them. There is no support from the school’s SMT and from the district officials.”
As the researcher indicated above that other participants felt that there was training provided for Mathematics and Science teachers only. This is how one of the participants from THS expressed the view:

“In Science and Mathematics, we often attend workshops where we are trained on ICT skills and integration, though the training is not enough, but with other subjects there is no training. In our school, is 'the survival of the fittest'. Nobody checks as to who does it successfully or not, what challenges is h/she faced with, the one who does not, what are the reasons of not using the equipment.”

Another participant from THS expressed the view as follows:

“...as we said before that we don’t have access to the ICT equipment, I ended up using my cell phone to access you tube videos for learners. Sometimes I run out of data. If there was support from the school’s management the learners as well as us (teachers) would acquire more knowledge than we do.”

A participant from YHS articulated the view as follows:

“There is no training from the DOE, we assist each other (peer training). There is an SMT member who is always willing to assist. ICT training was offered to mathematics and physical science teachers, teachers for other subjects were not trained.”

With all the groups, I sought further clarification on the role of self-development. Teachers are said to be lifelong learners, responsible for their own professional development. As most participants claimed that they were not trained by their schools and the DOE on ICT skills and ICT integration, I asked them what have they done so far to capacitate themselves. Participants reported the inaccessibility of self-development programs in their small towns. They also complained about the Teacher Laptop initiative project that did not materialize in some provinces. This is how one participant from THS voiced their view:

“Our school is situated in rural areas, there are no facilities for computer training.”

A participant from SOE expressed their view in this way:

“The government promised to give us laptops, in our province we did not get them. That would have helped us to train ourselves in our spare time.”

The Teacher Laptop initiative had a key focus on teacher training and development in ICT, computer literacy and pedagogy. It was a cohesive plan by the DOE and other stakeholders to improve the quality of education through the use of ICT to enhance learning and teaching (Mail and Guardian, 2010). They argued that the initiative would have helped them a lot if it was implemented in all provinces, because personal access to a computer, especially at home, boosts the success of ICT training.

In all the schools that I studied, participants reported a lack of support on integrating ICT in teaching and learning, both technically and professionally. Singh & Billingsley (1998) argue that teachers’ work experiences are influenced through the lack of communication, the provision of learning opportunities and resources, and the nature and extent of feedback given to them.

In our discussions, teachers came up with the challenges associated with the lack of support from the department officials and the SMT. This is how one participant from YHS expressed their view:

“SMT members are themselves computer illiterate, they are unable to monitor us in the integration of ICT. The ICT equipment is unreliable, we were supplied with refurbished computers, some stop working in the middle of the presentation, and you just feel like a fool. Some equipment we were never trained on their use, for example, there is smart board that was never used, because no one is able to use it. Another challenge is accessing the equipment, as it was installed in one classroom, the Science laboratory, which is used as a classroom. The SMT is not assisting with time-tabling the use of the resources.”

One participant from SOE stated the following:

“HODs do monitoring, which includes checking annual teaching plans against learners’ class activities, but with ICT integration they themselves don’t know what is expected. The resources are very few, even if you are keen to use them, you find them already in use in another class. Some classrooms don’t have electricity at all.”
A participant from OHS expressed their view in this way:

“Some of the teachers are computer illiterate and some are just not interested in using ICT, so there is nothing to monitor as most of the teachers are not using ICT in teaching. Broadcasts are all in English, there is a language problem with some of them, where the language command of the facilitator is not good. The learners are unable to understand what is presented. Some broadcasts are a waste of time, as they are out of scope. Another challenge that we are faced with is unreliable electricity.”

On the same matter, a participant from THS came with a different challenge of inaccessibility of resources. This is how the participant articulated the view:

“We do not have access to the equipment, we end up using our own gadgets, the negative side is the cost, you have to carry out the costs yourself, streaming videos use a lot of data.”

In all the groups, I saw a need to take corrective action. This would involve determining the changes to be made and devising a plan for making changes. In this case, corrective action may be taken against HODs for non-performance, that is, not working closely with the teachers on integrating ICT in teaching and learning into various departments. Teachers lacked ICT skills and needed training and support on ICT integration. Participants also reported lack of parental co-operation as one of the challenges they are faced with the integration of ICT into teaching and learning. They also reported theft of the ICT equipment, for which they suspected community members. They added that parents did not assist the staff in tracing the stolen equipment. This is how one participant from THS stated the view:

“Parents do not support their children, even in situations where you (as a teacher) desperately need a parental intervention, they do not avail themselves. To curb the theft of ICT equipment, we need their assistance, but they don’t come to parents’ meetings.”

A participant from SOE voiced the view as follows:

“Parents only come to school for their children’s end of the year progress reports. During the year they are invited for meetings, parent’s days they do not come.”

What the parents are doing is in contrast to Miller’s (1997) model of ICT integration which promote the view that stakeholders have to reach consensus regarding the school goals on ICT integration. Parents are important stakeholders and play an important role in school activities, hence the need to engage them meaningfully.

4.3 Participants’ suggestions on the way forward about ICT integration

Having shared teachers’ experiences with integrating ICT into the curriculum, I asked the participants to suggest ways to make ICT integration into the curriculum work better. Most participants were of the view that there must be training and demonstrations for teachers on how to incorporate ICT into teaching and learning. This involves the appointment and training of ICT helpers, people providing continuing support (technical support staff). This is how one participant from SOE expressed their view:

“The DOE must provide training and continuing support for ICT integration. There must be people in schools who are trained to provide support.”

Miller’s theory demonstrates the different phases that ICT integration in schools should pass through, and that requires a lot of support from the management and from the teachers themselves.

Others came with the view that community (parental) involvement in the school is of utmost importance. They felt that parents must develop a sense of ownership of the school and protect the school property. Parents must be workshoped on the importance of using computers in teaching and learning of their children. Furthermore, parents must be made aware that ICT provides a convenient way for them to access up-to-date information about the child’s learning, anywhere and anytime. Stakeholders’ attitudes and beliefs must be aroused and motivated so that they work as a team with one vision. Participants suggested the involvement of relevant stakeholders in the school community and working as a collective to develop local knowledge levels amongst learners aligning whatever changes with the government policy. One participant from OHS articulated the view as follows:
“Parents must be workshopped on the importance of ICTs in teaching and learning. They must be motivated to develop a sense of ownership of the school.”

Senge (1990) notes that a shared vision is a vehicle for building meaning among stakeholders. In this way, the parents’ commitment to, and embracing ICT vision will enable a focus on core values that everyone can identify with.

Another view that the participants came up with was associated with planning. They felt that there must be a planning for ICT integration at a school level. This planning must involve drawing a budget for ICT to cater for securing the equipment against theft, training teachers in ICT skills and providing on-going support. The planning must be reflected in the school’s year plan. This is how one of the participants from THS expressed the view:

“For the integration of ICT in teaching and learning to succeed, there must be a thorough planning in the schools for ICT. This includes planning for the training of teachers, planning for the maintenance of resources, replacement of stolen resources and adding more resources.”

Planning, which seems to be lacking in all the schools, must be made a priority, especially at a management level. Although this seems to be restrictive in that it binds educators to some routine, on the other hand, it gives educators the freedom to think within the parameters set by the planning process. Hennessey (2005) suggests that teacher commitment and the transformative potential of technology are also of much importance. This means that teachers should incorporate the use of ICT in their annual teaching plans, transform it to their daily teaching plans. A basic skills training in using computers is necessary as a first basic step as most teachers are reluctant ICT users because they are worried that they might get embarrassed that students knew more about technology than they did.

The participants felt that the SMT must lead in the integration of ICT in the curriculum. Teachers must be involved in strategic thinking at planning, not only in the implementation stages. They added that successful integration of ICT depends on the ability of teachers to structure their learning environments in non-traditional ways, merging technology with new pedagogy. This is how one participant from YHS articulated the view:

“The teachers must be involved in the planning stages of ICT integration because they are the ones who are directly affected by the changes that are imposed in the schools. Also, the SMT’s must lead in integrating ICT in teaching and learning.”

Williams and Williams (2007) suggests that for any ICT innovation to be successful, it must be accompanied by appropriate management skills. The HODs must lead ICT integration in their departments. They must encourage good relationships among teachers, motivate them and delegate.

5 RESULTS

From the negative responses that were reported by the participants, the researcher can say the teachers are not competent enough to integrate ICT into the curriculum. Where there is poor training, people tend to resist the changes. The findings revealed that poor ICT integration resulted from limited training in ICT skills. This is coupled with the lack of provision of continuous support. Without training ICT integration is almost impossible.

6 CONCLUSIONS

The researcher concluded that that the teachers need to be informed about the significance of ICT in teaching 21st century learners. Teachers must accept that today’s learners are more knowledgeable about technology than them. They must allow themselves to be tutored by their learners about how to use ICT equipment. Also, teachers must participate in communities of learning to help one another with pedagogical issues, share knowledge and support one another on ICT usage in their various schools.

Based on the results that ICT integration was made poor by limited training on ICT skills, it is imperative for the DOE to conduct intensive ICT training workshops to ensure that all teachers are on board in terms of integrating ICT into their pedagogical activities. The training workshops must cater for the technological knowledge, that is, the use of the software. The learning of technological knowledge must be used in connection with the pedagogical strategies teachers use in teaching their subjects and the knowledge of the subject matter which teachers specialize in. ICT should not be
integrated in the curriculum for the sake of using the latest technology. The school’s readiness in integrating ICT in teaching and learning is of utmost importance. Every school is different and each school should be given the autonomy to select ICT resources that are most necessary to the needs of teachers and students. The SMT should adopt strategies to increase teachers’ familiarity with ICT. For example, using e-mail communication with the staff, using intranet to download lesson plan templates for submission. As teachers get used to using technology, integrating it into teaching and learning will be a smooth process.

REFERENCES


