

2010

An Investigation of Factors affecting the Use of ICT for Teaching in the Western Cape Schools

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Recommended Citation

Chigona, Agnes and Chigona, Wallace, "An Investigation of Factors affecting the Use of ICT for Teaching in the Western Cape Schools" (2010). *ECIS 2010 Proceedings*. 61.

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An investigation of factors affecting the use of ICT for curriculum delivery in the Western Cape, South Africa

Journal:	<i>18th European Conference on Information Systems</i>
Manuscript ID:	ECIS2010-0097
Submission Type:	Research Paper
Keyword:	E-learning, Education, Human factors, IS success/failure



AN INVESTIGATION OF FACTORS AFFECTING THE USE OF ICT FOR TEACHING IN THE WESTERN CAPE SCHOOLS

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Abstract

The Khanya project has been equipping schools and educators with ICT skills and equipment to be used in the curriculum delivery in South Africa. However, research and anecdotal evidence show that there is low adoption rate of ICT among educators in Khanya schools. This interpretive study sets out to analyse the factors which are preventing the educators from using the technology in their work. The perspective of limited access and/or use of ICT as deprivation of capabilities provides a conceptual base for this paper. We employed Sen's Capability Approach as a conceptual lens to examine the educators' situation regarding ICT for teaching and learning. Data was collected through in-depth interviews with fourteen educators and two Khanya personnel. The results of the study show that there are a number of factors (personal, social and environmental) which are preventing the educators from realising their potential capabilities from the ICT.

Keywords: Educator, Capability approach, Technology, Conversion factors, Curriculum delivery

1 INTRODUCTION

One of the goals for integrating ICTs in education is to enhance teaching and learning practices thereby improving quality of education (Higgins, 2003). However, in most developing countries like South Africa, the potential of ICTs to support pedagogy is yet to be fully realised. To date most of the attention both on policy and research has been on how the lack of infrastructure and access to technology affect the use of ICT in pedagogy (Koo, 2008). However, it has also been shown that even in cases where the infrastructure is available, few educators are effectively integrating ICTs in curriculum delivery (DeCorte, 1990; Becker, Ravitz, & Wong, 1999; Pelgrum, 2001; Becta, 2003;). It can be said, therefore, that there are also non-technical factors that affect the adoption of ICTs for curriculum delivery.

A number of studies (e.g. Cox *et al*, 1999; Mumtaz 2000; Grainger & Tolhurst, 2005) have shown that there are a wide range of factors which influence educators' under-utilisation of ICT in their teaching. These include access to resources, quality of software and hardware, ease of use, incentives to change, support and collegiality in their school, school policies, commitment to professional learning and background in formal ICT training (Cox *et al*, 1999; Mumtaz, 2000; Becta 2003). In addition, computer-phobia is argued to be a major deterrent to the utilisation of ICT by educators. It is believed that capabilities and constraints determine the efficacy (real and perceived) of an individual's taking particular actions (Stern, Dietz, Abel, Guagnano & Kalof, 1999). For many teachers who may have the capability to use ICT, lack of self-confidence in using the technology is noted to be a strong limiting factor to its use (Pelgrum, 2001; Becta 2003).

Building on this line of research, we suggest using a Capability Approach to understand factors which may hinder educators in a developing country context from effectively using ICT for curriculum delivery. In particular we employed the Capability Approach developed by Amartya Sen who argues that social arrangements should aim to broaden individuals' capabilities – their freedom to achieve valuable beings and actions. He believes that focusing on freedom is a more accurate way to develop what individuals really value (Sen, 1999). Sen, therefore, denies focusing on the availability of resources, but recommends the focus to be on how the resources can translate into meaningful benefits for individuals. Based on the recommendations of Zeng and Walsham (2008), the Capability Approach looks at the failure to derive meaningful benefits from ICT as a deprivation of the educators' freedoms and therefore in need of being addressed. Based on the Capability Approach, this empirical study asks the following questions:

- What abilities and/or well-being do educators generate from the technology available?
- What factors impact on the educators' utilisation of ICT in curriculum delivery in the schools?

This study uses the Khanya project (Western Cape Province, South Africa) as a case study. In South Africa, there have been a number of initiatives to make the technologies available in schools and to equip educators with ICT skills to be used in the curriculum delivery. The Khanya project is one of the initiatives in the country. The project, which started in 2001, has been equipping schools with information, communication and audiovisual technology to improve teaching and learning, or curriculum delivery. According to the project, "by the start of the 2012 academic year, every educator in every school of the Province will be empowered to use appropriate and available technology to deliver curriculum to each and every learner in the province" (Khanya, 2008). According to the 2008 report 59% of schools in the province each had a computer laboratory, 11% of these schools were being facilitated, 70% of educators were trained and 71% of learners had access to ICT in their schools (Khanya, 2008). Anecdotal evidence as well as research conducted in Khanya schools in the province (Miller, Naidoo, & van Belle 2006) show that not all ICT-trained educators are using the technology in their teaching. Using Sen's Capability Approach, we analysed empirical data that we collected through interviews with educators in Khanya schools as well as Khanya personnel who are managing the project.

The study makes a practical contribution in that it seeks to contribute towards improving the utilisation of ICTs for curriculum delivery in developing countries. Even though the study uses a single case study of the Khanya project, it is hoped that the findings will be relevant to other similar projects in South Africa as well as in other developing countries.

2 IMPORTANCE OF ICT IN TEACHING AND LEARNING

There have been a plethora of studies on the importance of ICT in teaching and learning. Louw, Muller and Tredoux (2008) argue that ICT holds much promise for use in curriculum delivery. Thus, technology can effectively improve teaching and learning abilities, hence increasing learners' performances. As Castro (2003) and Cawthera (2000) posit, ICT has the means to aid in the preparation of learners by developing cognitive skills, critical thinking skills, information access, evaluation and synthesising skills. Similarly Hardman (2005:100) argues that "placing this new technology in schools could help alleviate the deepening crisis, enabling shifts in pedagogical practices and thus potentially benefiting students' learning".

There are a number of learner-specific motivational aspects which are attributable to the use of ICT education. These aspects include enhanced commitment to the learning task, enhanced enjoyment and interest, increased self-esteem and increases in independence and confidence (Cox *et al*, 1999). Furthermore, Cox *et al* (1999) show that many educators perceive ICT as a tool for improving the presentation of material, for making lessons more fun for the learners and for making administration more efficient. In addition, ICT provides fast and accurate feedback to learners (Becta, 2003). It is also believed that the use of ICTs in education could promote 'deep' learning and allow educators to respond better to the different needs of different learners (Lau & Sim, 2008).

According to Newhouse (2002), ICT-supported learning environments could be beneficial to a constructivist teaching approach. One of the most important components of the constructivism theory of learning is the concept of proximal learning, which accepts that a learner constructs his/her own knowledge for which scaffolding is initially required. The scaffolding could be provided by a tutor or computer. Thus, the technology can be used to help create the types of learning environments and the types of support for learning that are known to be ideal; these are argued to have been ignored or failed to be widely implement in the past (Newhouse, 2002:10).

While ICTs may be used to either maintain a learning environment or used to support the learner in the constructivist classroom, it is advocated that a blend of instruction and construction is employed. For instance, DeCorte (1990) posits that the need for balancing the approaches when using the ICT in schools:

3 FACTORS IMPACTING ON EDUCATORS' USE OF ICT IN TEACHING

The educators' use of ICT and subsequent integration of technology into their teaching and learning is dependent on a number of factors. Such factors include teachers' readiness, confidence, knowledge and ability to evaluate the role of ICT in teaching and learning, and lack of skills to be able to use the ICT equipment (Manson, 2000; Lau & Sim, 2008). In most cases, the shortcomings result in lack of confidence among teachers in utilising ICT in curriculum delivery (Tella, Tella, Toyobo, Adika & Odeyinka, 2007). It is also argued that school leadership is critical. Other significant factors are the teachers, curriculum planning, technical support, the students, the actual use of ICT, training and personal development, the school council, the budget and the learning technologies committee (Manson, 2000:1).

Slaouti and Barton (2007) have also shown that hurdles such as access to equipment, time pressures, lack of mentors and opportunities for apprenticeship have an impact on educators' ability to utilise

ICT in teaching and learning. Cox *et al* (1999) argue that some educators do not use ICT in their teaching because they (the educators) are computer-phobic. Some of the causes of the phobia are:

- psychological factors e.g. having little or no control over the activity, thinking that they might damage the computer, and feeling that one's self-esteem is threatened;
- sociological factors such as ICT being regarded as a solitary activity, the perception that one needs to be clever to use one, and the fear of being replaced by the computer;
- operational factors such as the technology being beyond one's abilities, having to cope with unfriendly jargon, and the likelihood of the technology going wrong (Cox *et al*, 1999).

It can be surmised therefore that teachers need to be equipped with basic skills for trouble-shooting to improve their confidence when using computers (Maddin, 1997). In addition, Schiller (2003) highlights the link between on-site technical support and staff development, whereby the support can assist educators who wish to learn as they go, hence developing new technology skills whenever required.

4 CAPABILITY APPROACH

The perspective of limited access or use of ICT as deprivation of capabilities provides a conceptual basis for this paper. Consequently, we employed a Capability Approach as a conceptual lens to examine the educators' situation regarding ICT for teaching and learning. The Capability Approach has been developed, refined and defended over a period of time by Sen in different articles (Sen, 1984; 1985; 1987; 1992; 1993; 1999; 2000). The approach is directly concerned with what people are effectively able to do and to be, taking into account the resources which they have access to. In other words, the approach focuses on individuals' capabilities and freedom. Sen (1999) defines the term 'freedom' as effective opportunities individuals have to live the sort of lifestyle they have reasons to value. According to Sen (1993), in social evaluations and policy designs the concern should be on individuals' capabilities, on the quality of their lives and on freeing their lives from obstacles.

The Capability Approach to a person's advantage is concerned with evaluating it in terms of his or her actual ability to achieve various valuable functionings as a part of living. The corresponding approach to social advantage – for aggregative appraisal as well as for the choice of institutions and policy – takes the set of individual capabilities as constituting indispensable and central part of the relevant informational base of such evaluations (Sen, 1993: 30).f

Based on the approach, Zheng and Walsham (2008) argue that people should look at poverty not only as lowness of income but also as 'impoverished lives', i.e. the deprivation of the freedom to be involved in important activities that one might wish to choose. Thus the Capability Approach centres not on the income level per se but rather on the capabilities which individuals may fail to enjoy due to low income levels e.g. access to education, participation in economic life and autonomy in decision-making. According to Sen, human development should be perceived as a process of expanding individuals' capabilities. The approach explicitly takes into account environmental conditions, social pressures and conversions which are some of the basic concepts that we are using since the study has been designed to mainly use the basic concepts of the Capability Approach as a sensitising tool.

4.1 Key concepts of the Capability Approach

The approach seeks to understand transformation of *commodities* into valuable beings and doings, i.e. *vectors of functionings or capability sets*. From the vectors of functioning, individuals choose capabilities or functioning which they would like to achieve. The choice of specific subsets of functionings creates a given level of *well-being*.

4.1.1 *Functionings and capabilities*

Functionings and capabilities are the central concepts of the Capability Approach. The term *functionings* “reflects the various things a person may value doing or being” (Sen, 1999: 75), i.e. valuable states that lead an individual to well-being (e.g. being safe, having an educated mind, having a good job). Functions are related to commodities but they describe an individual’s beings and doings. On the other hand, *capabilities* refer to “the alternative combinations of functionings that are feasible for her to achieve. Capability is thus a kind of freedom - the substantive freedom to achieve alternative functionings combinations (... the freedom to achieve various lifestyles)” (Sen, 1999: 75). That is, capabilities describe the actual opportunities open to an individual. The two terms are interrelated but have different meanings:

Functioning is an achievement, whereas a capability is the ability to achieve. Functionings are, in a sense, more directly related to living conditions, since they are different aspects of living conditions. Capabilities, in contrast, are notions of freedom in the positive sense: what real opportunities you have regarding the life you may lead (Sen, 1987: 36).

Sen does not propose or endorse a fixed list of capabilities; instead he argues that the choice and importance of capabilities depend on personal value discretion which could be influenced by the nature and purpose of the exercise. The flexibility of the framework permits researchers to develop and apply it in different ways (Alkire, 2002: 8-11).

4.1.2 *Well-being and agency*

Well-being is an evaluation of anything in an individual’s situation, i.e. evaluation which is focused on the individual’s being (Gasper, 2002). However, for Sen ‘well-being’ refers only to one’s own gratification and is distinct from the pursuit and fulfilment of one’s ideals and commitments. On the other hand, he defines agency as an individual’s ability to pursue and realise what he/she values and has reason to value, or, in other words, the freedom to set and pursue one’s own goals and interests (Sen, 1985). Well-being may be one of the goals and interests the individual is pursuing. The individual is viewed as an agent thus “someone who acts and brings about change” (Sen, 1999: 19). He/she is viewed as an agent and not as a patient whose well-being (or its absence) is the only concern (Robeyns, 2005). Consequently, the Capability Approach is not solely concerned with the possession of material resources (albeit these could be essential to achieve goals and interests), but rather a person’s real opportunity in achieving his/her well-being and freedom and agency freedom. The two freedoms are interrelated in that the deprivation of one often has the causal impact on the other (Zheng & Walsham, 2008).

4.1.3 *Commodities, freedom and capabilities*

In this study, we needed to understand the relationship between commodities (resources), functionings and capabilities. The commodities in this study are the computers in the Khanya laboratories, the functionings are the uses educators make of the commodity at their command, and capabilities are freedoms and/or the real actual possibilities open to the teachers who were given the Khanya laboratories in their schools. However the extent to which individuals can generate capabilities from commodities is influenced by conversional factors namely:

- personal characteristics e.g. mental and physical condition, literacy and gender
- social setting characteristics e.g. social norms (like rule of behaviour, materialism etc), social institutions (like political rights, public policies etc), and power structures (like hierarchy, politics) and
- environmental factors e.g. climate, infrastructure, resources and public goods (Sen, 1992).

According to Zheng and Walsham (2008), achievement of functionings is a result of the individual’s choice to select from the capabilities available, subject to individual’s preferences, social pressure and

other decision-making mechanisms. It should be noted that these are again affected by personal, social and environmental factors.

4.2 Limited use of technology as a capability deprivation

Literature shows that there is limited use of ICT in schools. According to Bingimlas (2009: 237), “the act of integrating ICT into teaching and learning is a complex process and one that may encounter a number of difficulties known as barriers i.e. any condition that makes it difficult to make progress or to achieve an objective”. The barriers could be viewed as deprivation of the educators’ capabilities. The objective being analysed in this study is limited access and use of ICT by educators in schools. The perspective of limited access or use of ICT as deprivation of capabilities provides a conceptual basis for this paper. Taking this approach, we can explore the use/access of ICT by educators in Khanya Schools by addressing the following questions:

- Which capabilities do the educators value in the use of ICT in schools?
- Who may be disadvantaged by the deprivation of these capabilities?
- What are the relations between different types of capability deprivations?

In this case, the Capability Approach provides a set of concepts to unpack the relationship between ICT and its limited use in teaching as capability deprivation. This is elaborated in Table 1.

Commodity/resource	The type of technology? The characteristics of technology are relevant to teaching?
Conversion factors	Personal factors e.g. training Social factors e.g. social institutions, social norms, politics Environmental factors e.g. infrastructure, resources
Agents	Whose capabilities are deprived? e.g. educators, learners
Capabilities	The capabilities the learners and educators are deprived of Well-being freedom: e.g. education, utilisation of technology etc. Agency freedom e.g. taking advantage of available resources, policy making

Table 1: Concepts for unpacking: ICT and its limited use as capability deprivation (Zheng & Walsham, 2008)

The perspective of limited access and use as capability deprivation will be used to illustrate two aspects of the phenomenon Firstly, limited access and use of ICT in schools could be due to unavailability of the technology in schools. Secondly, limited access and use of ICT may be due to relational factors and results from types of capability failure other than the deprivation of the usage of the technology.

4.3 Concepts as used in the study

An educator may be able to use a Khanya laboratory (commodity) at school to deliver curriculum using the technology (functioning). If, however, the educator is unable to use the Khanya laboratory (e.g. due to lack of skills), then the availability of the commodity at the school would not result in the functioning vis-a-vis using ICT for teaching. However, the access to the technology coupled with the educator’s personal characteristics (ICT training etc), creates the capability for the educator to incorporate ICT in his/her teaching whenever necessary. Furthermore, let us suppose that the educator values this capability for making teaching and learning interesting – thus having this capability contributes to both the educator’s and learners’ happiness (self-fulfillment) or well-being.

5 RESEARCH DESIGN

This study employs an interpretive approach. We are interested in exploring factors which may lead to educators' deprivation from effectively using ICT for curriculum delivery in the Khanya schools. Therefore, we collected and analysed empirical data using a qualitative research approach. Qualitative research is defined as "the use of qualitative data such as interviews, documents and participant observation data to understand and explain social phenomena" (Myers, 1997). According to Myers, qualitative research methods are designed to help researchers understand people and the social and cultural contexts within which they live. In addition, Rubin and Babbie (1989) argue that the qualitative approach is eminently effective in determining the deeper meaning of experiences of human beings and in giving a rich description of the specific phenomena that are being investigated in reality. Hardman (2005:102) also notes that "interviews can be useful tools for unpacking motives and experiences". We used semi-structured interviews to explore the deeper meaning of experiences educators in Khanya Schools place on their use of ICT for curriculum delivery.

5.1 Participants and sampling

Interview respondents for the study were drawn from four randomly sampled high schools in the disadvantaged areas of the Western Cape. The schools were sampled from those that are under the Khanya project, hence we have called the institutions 'Khanya Schools'. Fourteen educators from the randomly sampled schools were interviewed about the utilisation of computer laboratories and the factors which may contribute to capability deprivation of educators in their schools. At least three of the interview respondents from each school were educators of the subjects, Mathematics and English, which Khanya recognises as the focus of the schools. One Khanya management and one Khanya Public Partnerships personnel were also included in the study in order to understand how they expect the schools to utilise the ICT.

5.2 Data gathering and analysis

We conducted in-depth interviews with all the participants. All the interviews were audio recorded and then transcribed. The transcription process helped us get closer to the data – we were able to think about what the interviewee was saying and how this was said. Then we read each typed transcript several times while listening to the corresponding audio tape to ensure accuracy of the transcription and to come to a better overall understanding of each participant's experience. The process of transcribing and listening also prompted additional questions for subsequent sets of interviews.

Then we did a detailed systematic qualitative analysis, case by case. We read and examined each transcript over and over, each time annotating the text with initial comments pertaining to conversion factors and capabilities affected. After this we extracted and listed themes. The themes were then clustered in a meaningful way by looking for connections between them to develop super-ordinate themes.

6 RESULTS

It was noted that the integration of ICTs in the curriculum delivery was generally low. The analysis revealed a number of conversion factors that led to insufficient or no integration of ICT in the Khanya schools, hence leading to the capability deprivation of educators and learners to effectively deliver curriculum and to receive quality education using the technology respectively. The factors can be grouped into personal, social and environmental factors. Table 2 summarises the identified conversion factors and the capabilities affected by the factors.

Commodity	Agents	Conversion factors	Capabilities deprivation	
			Well-being freedom	Agency freedom
Khanya lab	Educators	Personal factors: <ul style="list-style-type: none"> • ICT training 	To be able to use ICT	
		Social factors: <ul style="list-style-type: none"> • capability to access and use technology • freedom to access technology 	To teach using ICT without barriers	To be engaged in the policy-making of the computer lab To take advantage of computer technology
		Environmental factors: <ul style="list-style-type: none"> • technical support for using the technology • sufficient equipment 	To have facilitation with regards to ICT in all subjects	To effectively deliver curriculum using technology available at school
	Learners	Environmental factor: <ul style="list-style-type: none"> • Conducive learning environment 	To receive quality education	

Table 2: *A summary of identified conversion factors and capabilities affected*

6.1 Personal factors

Our analysis shows that low levels of ICT literacy amongst the educators was one of the factors that contributed to their limited use of the technology. Thus, though the schools in this study had computers which could have been the most important commodity for teaching and learning, not many educators were incorporating the technology in their curriculum delivery. The Khanya project trains educators in the Khanya schools on how to use ICTs in curriculum delivery. However, it appears that the training was inadequate since many educators were still not skilled or confident enough to use the technology. This finding is in line with Lau and Sim (2008:20) who show that, “despite the apparent benefits of the use of ICT for educational purposes ... the learning potential of ICT is deprived as many teachers are still not fully ICT-literate and do not use it in their teaching.” Therefore, it may be argued that the technology provides the educators with a limited set of potential functionalities due to insufficient ICT training they have received.

6.2 Social factor

It was also noted that the rules set by the Khanya project on who can use the technology and what it can be used for affected the level of usage and the benefits derived from the technology. We noted that in some instances, depending on subjects (fields of study), educators could not access computer laboratories due to the Khanya rules. Some educators in the study claimed that the policies about the usage of the computer laboratories were unfortunately imposed on the schools and on the educators in the schools who were not included in the drafting the policies. The educators thought they were deprived of their capability to participate in such policy-making. As reported by one of the Khanya Public Private Partnerships, the Khanya laboratory at a school is set up with a given focus e.g. on Mathematics or on the English language. On this point one educator lamented that:

They [Khanya] prescribe who can use it and who cannot use it and when it can be used and when it cannot be used and all these things. ... the rules attached to Khanya are too strict, there is no freedom whatsoever, if they say the Maths people can use it then only the Maths people can use it.

In addition, it was reported that Khanya provides ICT facilitation only for the given subjects, which are the focus of the school. This implies that the educators of other subjects in the institution are disadvantaged as they are not provided with any ICT support from Khanya. Since the schools in the

sample were disadvantageded, the equipment provided by Khanya was the only equipment they had and these disadvantageded schools had no alternative arrangements for those excluded from the Khanya technology.

From the analysis we see that at one level the educators of the subjects which the respective schools focused on are included in the Khanya laboratory while the educators of other subjects are excluded from taking advantage of the available technology. At another level, however, all educators (including those of the subjects the schools focused on) in the school may have been included in the Khanya laboratory unfavourably because their agency freedom to participate in the policy making for the ICT at their own institution is restricted. This reflects what Sen (2000) posits:

Exclusion from the process of governance and political participation is indeed an impoverishment of human lives, no matter what our per capita income may be.

Further, since the laboratories could only be opened during the periods permitted by the Khanya policy on the use of the same, it resulted in some educators not having a chance to develop their skills on the technology for teaching, as reported by one educator:

The red tape around the use of the laboratories prevents the educators from having the opportunities to get into the laboratories the hours that they need to actually get familiar to the system ...

In the case of educators, this may result in some not developing confidence and/or developing a fear of using the technology due to the way the policy is made and imposed on them. No doubt the educators may feel 'unfavourably included' in the project because they have the ICT at their school but do not have the freedom to use it whenever they need it.

What we see here is that the subject focus restrictions lead to the educators of the other subjects lacking freedom to take advantage of the computer technology. This lack of freedom could be seen as a constitutive of, and contributor to capability deprivation. Since the educators of the other subjects may not be allowed access to the Khanya laboratories, they are deprived of agency freedom in terms of being unable to take advantage of the available technology to utilise it in teaching. Similarly, the learners are deprived of the freedom to benefit from computer-supported education in the other subjects.

6.3 Environmental factors

The analysis also shows that some of the educators, who have the right to use computer laboratories in the Khanya Schools, did not have sufficient technical support regarding the use of the technology for teaching. Educators complained that the Khanya project technical support was not readily available and this was negatively affecting their use of the technology for teaching. One educator narrated that:

... if you have a hiccup here you contact them, they will decide one day when they are going to come. They give you a little reference just to keep you quiet and whether they are going to come today, tomorrow or next year doesn't matter ... you just need to wait ... the support isn't that great from their [Khanya's] side.

Because in some cases the support did not come on time, the educators' agency freedom to make effective use of ICT in their work was curtailed. Inadequate technical support, to an extent, discouraged some educators from planning to use the technology for their teaching. The educators did not want to get to the laboratory and face a technical fault which could not be rectified because there was no technical support at school. Unavailability of the technical support indirectly contributed to reduced well-being on the part of the learners in terms of receiving high quality education.

It was also noted that the number of computers available at the schools was not sufficient as a number of learners shared a computer during lessons. On this issue one educator said:

On average our class sizes are 40 plus learners ... the Khanya lab has a capacity to support 25 learners only. There are only 25 computers in the lab.

The Khanya personnel in the study agreed with the educator above stating that the number of computers in the schools was one of the factors which limited technology teaching and learning. He said:

... if you got 2000 kids in a school and you have 25 or 30 computers, it is absolutely no good. You need far more or in fact you need technology in the classroom so that you can have an impact.

An insufficient number of computers, coupled with limited technical support created an environment which was not conducive to effective technology-aided teaching and learning.

7 CONCLUSION

Using the Khanya project as a case study, this study looked at the factors that may affect the integration of ICT in teaching and learning. In this study we have used Sen's Capability Approach as a conceptual basis of looking at ICT capability deprivation among educators in Khanya schools. Given the commodity which, in this case, is the computer laboratory, we have analysed the conversion factors which could enable or hinder the educators from converting the resource (technology) to capabilities. The analysis of the data shows a number of conversion factors in the schools, which are not right or not in place for the educators to realise their capabilities. These factors include:

- insufficient ICT training to enable the educators to use the technology for teaching confidently and effectively
- lack of freedom for some educators to access the laboratories
- inadequate technical support for the educators who are using the ICT for teaching and learning
- insufficient equipment (computers) in the laboratories which leads to the learners crowding in front of the few machines results in an environment unconducive to learning

Since these are the factors that limit the educators from achieving their capabilities from the ICT available in their Khanya schools, there is need for the school authorities and the Khanya project to address these conversion factors. The factors need to be improved in order for the educators to effectively use the technology for curriculum delivery, hence improving the quality of education for the youth in the province.

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