CHAPTER 1

Orientation to the study

"The whole failed history of modern educational reform has addressed the 'needs of the child'. It has hardly paid any attention to the work of the teacher, the one critical player in the school who makes the biggest difference" (Marantz-Cohen, 2002, p. 532).

1.1 Introduction

This study is an inquiry into the experiences of teachers as they use information and communication technology (ICT) to mediate policy in their classroom practice. Teachers are significantly situated at the point where policy meets practice. This study investigates how teachers appropriate[1] the South African national e-education policy in their teaching and learning repertoire. Currently much research in this field of study is based on the nature and focus of the national ICT policy (Plomp et al., 2009; Kearns, 2002), the rationale for introducing ICT into schools (Hawkridge, 1990), the application of ICT in teaching and learning (Cuban, 1998; Bekker, 2000), teacher training and changed pedagogy (Kozma & Anderson, 2002), as well as ICT infrastructure and access (Farrel & Wachholz, 2003). There is, however, very little research on how education policy on ICT is implemented in schools. Accordingly, in this study I ask how education policy on ICT influences teaching and learning in South African schools.

As facilitators of learning, teachers and teaching arethe foundation upon which the future democracy rests. Both teachers and teaching play crucial roles in shaping student learning within a socio-cultural context. In South Africa the National Department of Education (DoE) introduced the e-education policy with the intention to change teacher pedagogy and learner achievement through the use of information and communication technology (Department of Education, 2004). The policy aims to "transform learning and teaching through information and communication

[1] "Appropriation" is defined as "the ways that creative agents interpret and "take in" elements of policy, thereby incorporating these discursive resources into their own schemes of interest, motivation, and action, their own "figured worlds" (Levinson et al., 2009, p. 799)

technologies" and thus to contribute to the economic growth and social development of the country. The basic tenet of the policy is that through ICT, schools will improve their level of functioning, teachers will change their teaching pedagogies and student learning will improve.

This chapter provides an overview of the current study and consists of four sections. First, the chapter addresses the "what", the "why", and the "how" of the study. It attempts to offer an orientation to the study, by presenting the introduction and background context, the rationale, problem statement and research questions that guided the study. Second, a general synopsis of the two paradigmatic lenses and the theoretical framework that underpin this study is presented. Third, the researcher assumptions, conceptualization of terms, research design and methodologyare explained. And fourth, the chapter concludes withensuing chapters of this study.

1.2 Background context

The post apartheid era in South Africa fuelled huge changes in the education system and resulted in a barrage of new education policies for schools (Sayed &Jansen, 2001). Since South Africa's first national democratic elections in 1994, the government has issued several curriculum-related reforms to "democratise education" (Jansen& Christie, 1999). In 1997, a comprehensive reform called Curriculum 2005 with the philosophical paradigm of "outcomes-based education" (OBE) underpinned the new education system. Teachers were at the very heart of this new policy initiative, as they had to implement the new curriculum innovation and adopt new policy mandated methods for teaching and learning. Coupled with the new curriculum, teachers had to radically change their mindsets with respect to the OBE paradigm. In 2002, another curriculum reform was initiated by government, called the revised national curriculum statement (NCS) (Department of Education, 2002), which still embraced the tenets of OBE. The NCS did not make provision for the use of ICT (Blignaut & Howie, 2009), but encouraged curriculum integration, where appropriate,in order to achieve educational outcomes. However, the core curriculum did not provide guidelines on ICT in teaching and learning, and learning outcomes were not aligned with the use of ICT (Holcraft, 2004). Recently, the minister of

education announced another educational reform, namely "curriculum 2025" (Mahlangu, 2010), which implies further changes to curriculum delivery.

Computers were introduced in South African schools during the 1980s, primarily in independent schools and some well resourced public schools (Howie et al., 2005). Since then ICT has become commonplace in most schools, and in particular public schools (Plomp et al., 2003). The Technology Enhanced Learning Initiative (TELI) of the Department of Education was the first initiative to provide a planning document that introduced guidelines for the integration of technologies into teaching and learning at educational institutions (Howie et al., 2005). ICT for teaching and learning gradually made its entry into a broader range of schools, without schools being ready to exploit its usefulness to improve the quality of teaching and learning. Yet, political rhetoric and government policy advocated for teachers to use computers regardless of the context that practitioners in particular and schools in general found themselves (Surty, 2007; Pandor, 2007; PNC on ISAD, 2007).

The use of ICT in schools and its integration into teaching and learning had and continue to enjoy wide political, educational and scholarly attention. Annually, school governing bodies, government and private sector partnerships apportioned larger education fiscal budgets for the acquisition of ICT in schools (Evoh, 2007). Prior to the formulation of the national ICT policy in education, many schools had already identified the need to implement ICT in their teaching and learning practices. Czerniewicz and Hodgkinson-Williams (2005) indicate that the uptake of ICT in schools continued regardless of the lack of policy support. In 2004, the White Paper on e-education (Department of Education, 2004) (hereafter referred to as e-education policy), as the first formal education policy on ICT, paved the way for ICT implementation in South African schools. Numerous ICT initiatives in education had not reached schools and reforms seemed to favour the implementation of broader curriculum reforms over e-education policy (Blignaut & Howie, 2009).

1.3 Rationale for the study

During my latter years in the teaching profession, it was evident that teacher beliefs, attitudes and leadership were integral factors in the culture of teaching and learning. As a principal, I was integral to a process that employed a top-down hierarchy to implement policy mandates, more specifically the various curriculum reforms that impacted on the classroom practice of teachers. I found that while research argued for the inclusion of actors in the decision making process of policy formulation (Sutton & Levinson, 2001; Dyer, 1999; Elmore, 1980; Cuban, 2001), the nature of educational reform efforts continued to exclude teachers as educational professionals. Thus, to my mind educational policy reform did not reflect the realities of teaching and learning in classrooms.

Having worked in the field of education at all levels of the education system, and particularly as a principal of a school, I had become sensitive to how teachersas mediators translate policy into practice on the classroom floor. In 2006, I began work as a lecturer in a faculty of education. Mymain focus of scholarship was computer integrated education. Coupled to this I have an enduring interest in how ICT policy is implemented in classrooms. It seemed to me that ICT policy implementation was an emergent field of expertise, sharing similarities with other education policies but unique in terms of its own implementation complexities. This, together with my awareness of ICT initiatives in most schools, created an intellectual puzzle of how teachers appropriate ICT policy to influence teaching and learning.

A growing body of literature on bottom-up policy implementation asserts that negotiation and interpretation of policy by teachers is crucial to practice (McLaughlin, 1987; Hamann & Lane, 2004; Spillane, 1998; Sutton & Levinson, 2001; Elmore, 1980). Many varied descriptions and explanations of policy in practice are given prominence by researchers: McLaughlin (1987) posits that policy is a process of “bargaining and negotiation” by local actors. Spillane (1998) suggests that policy in practice takes place through “sense making” and Sutton and Levinson (2001) explain policy in practice as an “appropriation” of policy by actors. What is consistent in the literature, is that the practice of policy is determined by actors situated at the point of

policy implementation and may be different to policy as conceived by the policymaker (Hamann & Lane, 2004). A review of literature in the field of national ICT policy implementation revealed that this is a little understood phenomenon that has not been significantly explored. In this regard I pursued an exploratory approach to investigate how teachers are implementing the e-education policy in their classroom practice.There are few studies on educational policy implementation in the international area. Elmore (1980, p. 601) claims, "when one looks to the implementation literature for guidance, there is not much to be found". Dyer (1999, p. 46) argues that,

> *Policymakers looking to research on implementation studies will unfortunately find the cupboard somewhat bare, for among the 'meagre literature on implementation' there are few studies of education policy implementation in developing countries.*

Similarly, in South Africa there are few studies on educational policy implementation (Jansen & Christie, 1999; Sayed, 2002; Tickly, 2003; Sayed & Jansen, 2001), and even less research on educational ICT policy implementation. Of the research conducted in the field of policy implementation, none has utilized the backward mapping model to generate insights into the "blackbox" of processes involved in implementing policy. In the context of this study, where comparatively little is known about the ICT in education policy implementation process, the use of a socio-cultural approach to policy studies (Sutton & Levinson, 2001) and a backward mapping model (Elmore, 1980) to investigate policy implementation may generate numerous insights into the dialogue of policy implementation.The use of these two complementary methodological paradigms in a bottom-up implementation study may further contribute to our improved understanding of policy implementation and open new strategies to achieve policy mandates.

1.4 Statement of the research problem

Global national ICT in education policies placed education as the central actor to pursue and attain national ICT objectives. Most countries in the world have an existing blueprint for integrating ICT in schools. Similarly, South Africa attempted to keep abreast with global trends and developed the mentioned national ICT policy

(Department of Education, 2004) encapsulating a progressive vision to catapult the country into the 21st century. The infiltration of ICT into classrooms has prompted government policy in South Africa and policymakers all over the world to claim that ICT can improve the quality of teaching and learning (Reynolds, Trehane, & Trip, 2003). The South African ICT policy in education is a recent policy in comparison with international trends within the context of developed and developing countries. The e-education policy (Department of Education, 2004) is exceptional in design in that it evidently includes all rationales as delineated by Hawkridge (1990) namely, social, pedagogic, vocational and catalytic rationales. In contrast other countries pursue educational ICT policies with selective focus on particular rationales to initiate ICT integration into school curriculum development (Cox & Marshall, 2007; Tondeur, van Braak, & Valck, 2006).

Numerous provincial initiatives, for example, Gauteng online[2] and Khanya[3], were taken by the South African government in partnership with the private sector to provide schools with access to ICT infrastructure. This was done in an attempt to meet the 2013 goal of the e-education policy to transform all schools into e-learning schools and to develop ICT competent learners (Department of Education, 2004, p. 17; Wilson-Strydom, Thomson, & Hodgkinson-Williams, 2005). Governments, including South Africa, are gradually shifting policy focus to realise "learning with technology" as opposed to "learning about technology" (Jonassen, Peck & Wilson, 1999).Other non-government programmes such as Intel's (Teach to the Future), Microsoft's(Partners in Learning), and government programmes (SchoolNet, South African Institute for Distance Education (SAIDE), Thutong educational portal) are initiatives to respond to the e-education policy.

A review of the extant literature on policy implementation indicates that most research in this field endorses a top-down approach to policy implementation studies. Much research focuses on teachers as conduits of policy (Fitz, 1994;Harrison et al., 2002; Rosekrans, 2006; Culp et al., 2003) and not on how better to engage teachers in the implementation of policy (Marshall, 1997; Walsh, 1984).My study utilises a

[2]Gauteng online - Gauteng provincial government initiative for provisioning and ICT access to schools
[3]Khanya -Western Cape provincial government initiative for ICT provisioning and ICT access to schools

backward mapping approach (Elmore, 1980) in which teachers are not merely viewed as policy imbibers but as interpreters, decision makers and constructors of policy. The problem of policy implementation then arises as to how the national e-education policy translates into practice in schools for teaching, learning and institutional effectiveness? How are teachers interpreting and implementing the national policy on e-education? And, what are the contextual issues that influence policy implementation?

Within a developing country context, there is little research that governments can draw on about the policy implementation process (Dyer, 1999). Similarly, in South Africa, little is known about policy implementation. Consequently the country cannot afford "wasted resources" that can result from misjudging the ease of policy implementation (Dyer, 1999; Fullan, 2001; Elmore, 2004; Sutton & Levinson, 2001; Levinson, Sutton & Winstead, 2009).Misjudging the ease of policy implementation may be one of the most common planning errors made by governments, particularly in developing country contexts (Dyer, 1999; Haddad, 1994). If implementation stages are not well planned, local actors may resist policy or unexpected policy outcomes may result, particularly as abstract policy moves across multiple implementation stages (Dyer, 1999). Furthermore, in developing country contexts emphasis seems to be placed on policy formulation rather than on implementation (Jansen, 2001). Thus, policy formulation is seen as distinctly different to policy implementation which is viewed as a policy add-on.

However, it is the practice of actors that determines the limits and success of policy implementation (Smit, 2001). Most policy related research focuses on policy analysis, implying a top-down approach that begins with the policy intent and views policy implementation as being regulated by the policymaker. In my study, policy implementation research focused on bottom-up processes to determine whether the policy intent had the desired effect (Dyer, 1999).

1.5 Research questions

My main research question is: How does education policy on ICT influence teaching and learning within South African schools?

Sub-questions:

- How do teachers appropriate educationpolicy on ICT in schools?
- What is the ability of the hierarchical unit (principal, district and province) within the education system to affect the behaviour of the teacher that is the target of the policy?
- What resources does this unit (principal, district and province) require in order to have that effect?

1.6 Paradigmatic perspectives

1.6.1 Methodological and epistemological paradigm

Methodologically my lens identifies my view as a qualitative inquirer. The lens through which I conducted this study establishes my decisions and sense-making of how long I remained in the research field, whether data collection was saturated with respect to themes and categories, and how the analysis of data would advance into narratives to support the argument (Creswell & Miller, 2000) (See chapter 3). I establish myself as a qualitative inquirer by assuming that reality is socially constructed as perceived by participants in this study. This lens was useful in representing multiple perspectives of participants' realities. In this regard I employed 'member checking' to assess whether I captured participants' interpretations accurately. MetatheoreticallyI am drawn to the tenets that govern social constructivism as my worldview. This epistemological paradigm shaped the choice of procedures employed in the study (Guba & Lincoln, 1994). The social constructivist epistemological paradigm advocates that reality exists through people's subjective social experiences of the world. In this study a social constructivist paradigm afforded me the opportunity to interpret teachers' perspectives of policy implementation. This paradigm offered a lens to explore the experiences of participants in their local context.

1.6.2 Theoretical framework: Socio-cultural approach to policy studies

This section outlines the socio-cultural approach to policy studies and its relevance to the inquiry of teachers' experiences in implementing the e-education policy.The socio-cultural approach to policy builds on the ontological, epistemological, and methodological assumptions of my study. The socio-cultural approach to educational policy is distinguished by various characteristics, namelypolicy as a socio-cultural practice, policy as agency and, policy as a practice of power.

1.6.2.1 Policy as a socio-cultural practice

How individuals construct knowledge and locate their experiences is dependent on the socio-cultural context of the individual. The socio-cultural approach seeks to expand our understanding of the cultural, contextual, and political dimensions of education policy. According to Sutton and Levinson (2001, p. 1), the socio-cultural approach to education policy studies redefines the notion of policy as "a complex social practice, an ongoing process of normative cultural production constituted by diverse actors across diverse social and institutional contexts". Particular attention is given to the cultural meanings people use to interpret their experience and to generate social behaviour. Policymakers and recipients of educational policy are cultural beings with unique value systems, beliefs, attitudes and identities that influence the policy process. Processes of policy formation occur across many social contexts.

The socio-cultural approach views policy as a social practice that categorises and shapes actors at various levels of the system depending on the context and perceptions of the actors at each level (Sutton & Levinson, 2001). As an ongoing social practice, policy is applied in ways that are particular to specific situations, and within these situations there exists an interaction in which the social actors, policy, and situations inform one another. In this way, the cultural phenomenon to be studied is constituted by the way in which the policy, practices, social actors, and the present social definition mutually constitute the situation. This view suggests that policy can be somewhat incongruent at different levels of organization in educational institutions, and as an official policy moves across multiple settings in a school, it is appropriated

by various social actors, thus it can and often does, take on many forms.The current study focuses on teachers' experiences as implementers of the e-education policy and in this regard a socio-cultural approach attends to the "cultural meanings people use to interpret their experience and generate social behaviour" (Sutton & Levinson, 2001).

1.6.2.2 Policy as agency

Contrary to policy that exists as the official tool of government, officially authorized and supported by enforcement mechanisms, policy formation also occurs across other varied social contexts. Policy may develop spontaneously and informally in places not officially mandated with making policy. Schools may enact their own policy to determine appropriate procedure and conduct, which may be "documented and codified, or it may exist in unwritten form, through ongoing institutional memory and practice" (Levinson, Sutton & Winstead, 2009, p.770). The socio-cultural approach to policy studies is used in my study to emphasize the validity of local, unauthorised forms of policy, as developed in schools.

Practice on the other hand, takes place within particular situations across varied social contexts, "practice gets at the way individuals, and groups, engage in situated behaviours that are both constrained and enabled by existing structures, but which allow the person to exercise agency in the emerging situation" (Sutton & Levinson, 2001, p. 3). How teachers mediate and understand the e-education policy depends on their beliefs, attitudes and professionalism which in turn influence their social interactions. In this regard qualitative socio-cultural research into the everyday practice of teachers conceives the policy process as a spontaneous response to socio-cultural contexts, in which "the purposeful practice of diverse social actors reinstates agency across all levels of the policy process, making it possible to see policy not only as a mandate but also as a contested cultural resource" (Sutton & Levinson, 2001, p. 3). Elmore and McLaughlin (1988) posit the notion that implementation shapes policy and that the attention is focussed more on the meaning of policy in the lives of those affected by it.

Policy can also be a practice that works on the view of the self in relation to the policy context. Policy within an institution is constantly 'negotiated' and 'reorganised' by the actors in their daily repertoire of institutional life. Aligned with the socio-cultural epistemological view of constructing knowledge through social and cultural participation, teachers' perceptions of e-education and what decisions they make relevant to the policy also influence their view of self. The socio-cultural approach to policy analysis further notes that as policy filters down to be implemented at varying levels within the school context, the local actors at the lowest level of implementation may modify their actions in adherence to policy, or purposefully delay implementation or simply resist policy directives through inaction. Policy thus needs to be analyzed in terms of how people appropriate its meanings. Appropriation focuses on the way teachers "take-in" and incorporate elements of policy into their existing frames of reference, namely professional confidence, professional interpretation and professional consciousness.

1.6.2.3 Policy as a practice of power

The socio-cultural approach explains policy as a "practice of power and interrogates the meaning of policy in practice" (Sutton &Levinson, 2001, p.1). Policy making, in itself, is directly linked to issues of power by means of the power dynamics that the language of policy encourages through implementation in schools and classrooms (Levinson, Sutton & Winstead, 2009). Levinson and Cade (2002, p. xiii) define policy as "the exercise of power in the distribution of rewards and resources". Sutton and Levinson (2001) focus on policy actors across a variety of levels and at various sites. Policy implementation is a practice of social relations between the policymaker, those who implement policy, and the learners and teachers who are influenced by such decisions (Sutton & Levinson, 2001; Levinson, Sutton & Winstead, 2009; Cade, 2003).

Sutton and Levinson (2001) give special attention to the multiple modalities through which policy is formulated and appropriated. For example, as province and district interpret e-education policy, particular meanings and subsequent decisions are made that affect the local school. In turn, the administration at the local school then

interprets these meanings within their own individual knowledge and school context. The teacher then mitigates these meanings along with her own understandings that are influenced by school power dynamics regardless of the original intent of policymakers. The socio-cultural approach to policy can provide a clear exploratory understanding of how policy mandates influence the realities of policy implementation in schools. In mysphere of study national government created the e-education policy, while provinces were mandated to implement the policy objectives within the established systemic structures and schools.

1.6.2.4 Summary

A synopsis of empirical literature on the socio-cultural approach to education policy studies revealed a number of features: First, local actorsattach cultural meaning to interpret their experience and to generate social behaviour. Second, local actors engage in situated behaviours which may be inhibited or promoted, but allows for agency to be exercised. Third, local actorsfocus attention on the meaning of policy in their lives. Fourth, local actorsassign different meaning to the same words (or text) in policy. Fifth, local actors'resistance to policy may be conceived as a kind of appropriation, in that it may culminate in the need for alternative policy. Sixth, local actors appropriate meaning to policy, and analyse policy. And seventh, local actors are agents of change generating new and enabling policy to suit their local context and understanding.

1.7 Research assumptions

From literature I formulate a number of assumptions (Sutton & Staw, 1995) relevant to the current study. First, once policy has been formulated it will be implemented (Smith, 1973). Second, policy that is officially authorized and backed by government enforcement mechanisms filters in a linear fashion from macro to meso to micro levels in the education system (Younie, 2006; Harrison et al., 2002; Lim, 2007). Third, actors at these various levels are knowledgeable about authorized policy, and implement policy according to guidelines (Bell & Stevenson, 2006). Fourth, teachers may modify their actions in adherence to policy, or purposefully delay

implementation or simply resist policy directives through inaction. Fifth, systemic structures provide sustained policy support and resources to teachers (McLaughlin, 2005). And sixth, the practice of policy is determined by actors situated at the point of policy implementation and may be different to policy as conceived by the policymaker (Hamann & Lane, 2004). I revisit these research assumptions in chapter six.

1.8 Conceptualization of terms

The following terms are used in the title of this study or in the design of the researchquestions, and warrant a definition as used in this study.

- **Government policy**

Levinson,Sutton and Winstead (2009, p. 5) define policy as a "normative cultural discourse with positive and negative sanctions, that is, a set of statements about how things should or must be done, with corresponding inducements or punishments". Furthermore,Levinson, Sutton and Winstead (2009, p. 769) indicate that policy defines reality, orders behaviour and may or may not allocate resources. In the context of this study, government policy is what Sutton and Levinson (2001) define as being officially authorized mandates that are supported by "enforcement mechanisms of government". Policy may also be developed in agencies or offices that are "constitutionally charged with making policy". According to Sutton and Levinson (2001) authorized policy is principally a concern of the sovereign state and "policy may be documented and codified or it may exist in unwritten form, through ongoing institutional memory and practice". According to Bell and Stevenson (2006), state policy (national or local), has an impact on what happens at schools, and on the lives of the people that work in these institutions.

- **Appropriation**

I use the term appropriation as defined by Sutton and Levinson (2001). Levinson, Sutton and Winstead (2009) adopt the word "appropriation" as an alternative to

"implementation". Accordingly, they define "appropriation" as "the ways that creative agents interpret and "take in" elements of policy, thereby incorporating these discursive resources into their own schemes of interest, motivation, and action, their own "figured worlds" (Levinson et al., 2009, p. 799). Appropriation is a kind of taking of policy and making it one's own. Sutton and Levinson (2001) indicate that the process of appropriation occurs when authorized text or policy is mediated by various means and various institutional contexts to which it applies. Appropriation takes into account local actors' sense making in the implementation of policy, but goes further "[to] point to the possible recursive influence of local actors on the formation of authorized policy, even as it recognizes and valorises rather more local, unofficial types of policy formation that are the outcome of these actors' encounter with authorized policy" (Levinson et al., 2009, p. 799).

- **Information and communication technology (ICT)**

I used Newhouse's (2002) broad definition of information and communication technology. ICT is typically used to refer to computer technologies but also other technologies used for collection, storage, manipulation and communication of information. The White Paper on e-education defines ICT as the convergence of information technology and communication technology.

- **Ability**

In this study I define "ability" as having the power to perform an act whether innate or as a result of learning and practice (Drislane & Parkinson, 2010). Ability was indicated by systemic policy outputs such as guidelines, mission and vision statements, and initiatives of the hierarchical unit.

- **Hierarchical unit**

Hierarchical unit as a construct is defined as a group of interacting, interdependent elements (principal, district and province) forming a complex educational

organizational whole. A hierarchical unit regularly interacts as a unified whole towards the achievement of a goal. Furthermore, within the context of the current study, institutional hierarchy is ranked according to level of political authority and power bestowed upon it by national government mandates (Drislane & Parkinson, 2010).

- **Educational system**

Within the context of the current study, the educational system consists of primary and secondary school education (In South Africa - general education and training band) over which provincial and local districts exercise administrative control (Education in South Africa, 2010). The ICT policy and resource support to schools were aspects of the district and provincial e-learning directorates that were of significance in my data.

- **Affect the behaviour of the teacher that is the target; to have that effect**

The term “affect the behaviour” as used in this study implies to “have an influence on” the “overt or covert observable and measurable activity of the teacher” (Drislane & Parkinson, 2010). The “teacher that is the target” of the policy implies educational policy reform that is intended for teachers to implement. Observation of teachers’ classroom practices was the essence of identifying change in pedagogic behaviour.

The term “effect” means any result of another action. In this study the effect was identified as the change in behaviour of teachers’ practice as a direct consequence of district, province and principals’ ability to do so. During interviews the effect of policy on behaviour was indicated byteachers’ reference to:e-education policy, e-education circulars, ICT curriculum integration plans, lesson plans,ICT teaching and learning resources, principal’s e-learning support and the e-learning system. In observation of teachers’ ICT-classroom practices the effect of policy on behaviour was indicated by ICT integrated teaching and learning.

- **Resources**

According to Levinson et al. (2009) policy defines reality, orders behaviour, and may allocate resources. In this regard resources may satisfy a particular policy implementation need, like: financial, physical, policy, guidelines, training or expertise development.

1.9 Research design and methodology

According to Lincoln and Guba (1985, p. 221) “research design is the plan, structure, and strategy of investigation conceived so as to obtain answers to research questions and to control variance”. The design is therefore all that the researcher does from writing the research problem and questions, determination of cases, sampling participants, data gathering and analysis. In chapter 3, I provide a comprehensive discussion of the research design and methodology. Figure 1.1 below gives a synopsis of the research design, strategy of inquiry and phases of inquiry. Subsequently a brief summary of the research process and phases of inquiry areoutlined.

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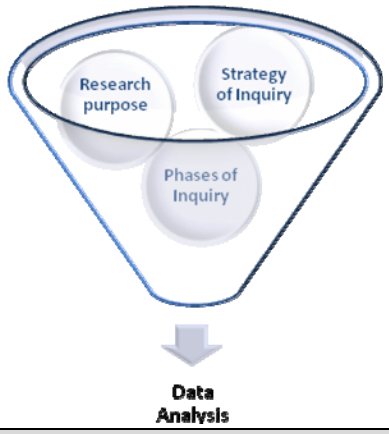
<tr><td colspan="6"> 
</td><td>Triangulationthrough multiple methods of data collection, multiple data sources and the use of two complementary theoretical approaches</td></tr>
<tr><td colspan="2">Research purpose</td><td colspan="5">Strategy of Inquiry</td></tr>
<tr><td colspan="2" rowspan="3">Qualitative exploratory design</td><td colspan="5">Instrumental case study based on backward mapping principles</td></tr>
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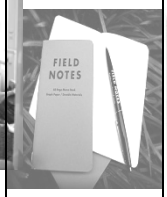
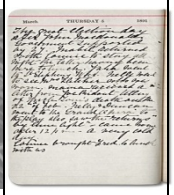
<tr><td>Method and instrument</td><td>  </td><td>  </td><td>  </td><td> 
</td><td>  </td><td>  </td></tr>
<tr><td></td><td>Interview</td><td>Observation</td><td>Informal conversa-tional interviews</td><td>Field notes</td><td>Researcher journal</td><td>Document review</td></tr>
<tr><td>Participant</td><td>Semi-structured face-to- face interviews: teachers (6), principals (3), district (1), province (2)</td><td>Observation of teachers’classroom practice</td><td>Informal interviews with teachers</td><td>To reconstruct the accounts of teachers, or salient events within context (school) of study.</td><td>Deepen my understand-ding of the research processes and to make my work more public</td><td>Interpreta-tion of text in artefacts; policy documents etc. Teacher, Principal</td></tr>
<tr><td>Analysis of data</td><td>Grounded theory methods</td><td>Qualitative video analysis approach</td><td>Manual process of coding and categoriza-tion of the data</td><td colspan="2">Content analysis as a method that is commonly applied to narrative data</td><td>Content analysis and textual analysis of extant text</td></tr>
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Figure 1.1: Research design, strategy of inquiry and data collection methods

1.9.1 The research process and phases of inquiry

I used an exploratory qualitative design aligned to a social constructivist methodology in this study. The focusof the inquiry was not on teachers per se but bounded by the process of teacher policy appropriation and thus an instrumental case study approach was appropriate (Silverman, 2006). I followed backward mapping case study principles (Elmore, 1980).

The cases for the study were defined by schools with teachers using ICT to teach the national curriculum. I purposefully selected three schools from diverse socio-cultural settings for maximum variation (Glesni, 2007). The three primary schools, located in the Gauteng province of South Africa, provided the research sites for this study: a former model C[4] school, atownship[5] school and an independent[6] school. The purposeful selection of teacher participants (n=6) for the study was done through defined criteria. Principals (n=3) at each school, district (n=1) and provincial (n=2) leaders at specific directorates, were purposefully selected as essential participants to backward mappingprinciples.

Semi-structured face-to-face interviews (Fontana & Frey, 2005) represented the main data collection method. I conducted classroom observations of teachers' classroom practices, in which I positioned myself as a reactive observer (Angrosino, 2005). Interviews and classroom observations took place over a period of eighteen months. I conducted informal conversational interviews (Peräkylä, 2005) with teachers throughout the research period. I used field notes to record observations (Fontana & Frey, 2005). I used a researcher journal, to remain focused on the research problem (Hebert, 2002). The analysis of documents (Denzin & Lincoln, 2005)also constituted empirical material. (See Chapter 3 for a synopsis of selected documents).

[4] Former model C schools were public schools (classified prior to 1994) catering mainly for white learners
[5] Township schools are schools that are currently situated within 'black' communities
[6] Independent schools are autonomous private schools that receive minimal state subsidy and target affluent communities.

I analyzeddata using constructivist grounded theory methods (Glaser & Strauss, 1967; Charmaz, 2001). Codes were generated from data analysis software (Atlis.Ti^{TM}) and continuously modified by the treatment of the data "to accommodate new data and new insights about those data" (Sandelowski, 2000, p. 338). The extensive codes were further analyzed *a priori* to identify data related to key concepts in the research questions and through open coding (Miles & Huberman, 1994). This was a reflexive and interactive process that yielded extensivecodes, themes and categories. I conducted multiple readings of the data, organizing codes and themes into higher levels of categories within and across the interviews, observations, and other sources of data (Merriam, 1998).

1.9.2 Enhancing the quality of the study

In an attempt to enhance the quality of this study I implemented strategies of dependability, authenticity, credibility, confirmability, and transferability (Creswell & Miller, 2000). As the social constructivist lens views reality as socially constructed, that which we see is our interpretation and that which others report to us is their interpretation of social experiences of the world (Gasson, nd). Emerging from this view of the world, I endeavoured to ensure that findings were dependable and authentic. To ensure dependability of my findings, I made explicit the processes through which findings were derived. In this regard I maintained an audit trail by defining in detail the procedures that I employed in data collection and analysis. For authenticity, I ensured that findings were related to the main participants in the research context, namely teachers, principals and systemic officials.

According to Creswell and Miller (2000), credibility refers to the extent to which different stakeholders may make the same inferences from the data, and the extent to which the researcher represents the reality from the viewpoint of participants, other researchers and external peers. The choice of validity procedures for a study is dependent on the researcher's lens and paradigmatic assumptions (Creswell & Miller, 2000). In this study I attempted to reflect accurately on participants' account of the social phenomena and to ensure that this account would be credible to them. In this regard I employed various procedures (Guba, 1981; Creswell & Miller 2000) to

ensure credibility, namely triangulation across data sources and methods; noting instances of disconfirming evidence; use of a researcher reflexive journal; member checking; maintaining an audit trail; and, describing context, participants and themes in rich and thick detail.

Although no study can provide findings that are universally transferable, the aim of research is to produce information that can be shared and applied beyond the study context to other settings (Guba, 1981). In this regard I collected rich and thick data that may permit comparison of this study context to other possible contexts. To enhance transferability, I provided thick description of the study context such as demographics of the participants. Furthermore, I employed purposeful sampling that was not intended to be typical or representative. Thus descriptions, notions, and theories within the specified settings may be used for transferability without the findings of the study being transferable. In an attempt to represent findings that reflected participants' experiences (and not mine) within the context of the study, I used a method of constant reflexivity. In applying the construct of confirmability (Gasson, nd; Guba, 1981) I acknowledge my implicit influences, beliefs and biases as part of a social context that may affect the phenomenon under study. To limit my biases and prejudices in the social context, I recorded my reflections in a researcher journal. Triangulation of data, as already noted in credibility, was also applied as a strategy for confirmability. Quality criteria are addressed comprehensively in chapter three.

1.9.3 Scope and limitations

This study focussed on teachers in primary schools and the policy administrators at school level and beyond the school's boundary. The study also focussed on experiences of teachers as they appropriate education policy on ICT in their teaching repertoire. This study did not include teachers, principals andlearners at secondary schools. This study identified and investigated primary school teachers that were teaching the national curriculum through the use the ICT and does not include the experiences of teachers teaching ICT as a standalone subject discipline.

This study embraced an instrumental case study approach to provide insight into how teachers appropriate ICT policy on education, and with no intention to drawing generalizations beyond the context of this study (Stake, 2005, p.461). I followed qualitative research methods as a systematic and reflective process in the generation of new knowledge that may be contested, shared or imply transferability beyond the current study context (Multerud, 2001). In this regard, I did not intend to generalise the findings of this study to other contexts. However, the insights gleaned could contribute to inform education on policy implementation at schools and how teachers appropriate education policy.

1.9.4 Ethical considerations

Just like any research that involves human behaviour, measures were taken to ensure that all ethical concerns with regard to voluntary participation, informed consent, confidentially and anonymity were adhered to (Christians, 2005; Cohen, Manion &Morrison, 2006). Care was therefore taken to protect the personal dignity and confidentiality of the teachers who were the main participants in the study. Christians (2005, p. 144) suggests that participants must agree to voluntarily participate "without coercion" with "full and open" disclosure of information by the researcher. This was achieved through an introductory interview explaining the objectives, nature of the study, how results would be released and used, and allowing participants to check and confirm their [inter]views before reporting in the study (Moss, 2004; Lemmer & van Wyk, 2004). Furthermore, no actual names of participants were indicated in reporting their views and practices.

Before entering the field, I first sought the permission from the relevant department of education in Gauteng Province in South Africa. Next I solicited the approval of principals at various research sites. Before conducting interviews and observations I sought participating teachers' approval as well as the approval oflearners' parents, district and province leaders. Finally learners were issued with letters of assent explaining their level of participation. All participants completed a consent form to indicate their voluntary participation and right to withdraw from the study at any time

without giving any explanation (See Appendices A, A2-A5). Chapter Three, gives a detailed exposition of this section.

1.10 Outline of chapters

Chapter 1

In this chapter an overview of this study is provided. The overview includes a brief background context, justification for the study and the context of the three schools. Also included in this chapter are the problem statement and the associated research questions. This chapter explains the assumptions on which this study was based and concludes with the theoretical framework that acts as a scaffold for this study. Finally, I note the strategies for ensuring credibility and the ethical considerations of anonymity and confidentiality.

Chapter 2

This chapter focuses on the review of the literature on empirical studies that relate to this study. A core interest in the review of the literature is to establish what is already known in the field about my proposed study. The review was primarily undertaken to identify the debates in the field with particular interest in existing gaps and silences in the field that gave credence to this study.

Chapter 3

Chapter three describes the research design. In this chapter the meta-theoretical and methodological paradigms that underpin this study are presented. The methodological grounding is pursued in depth by explaining the selection of cases, research sites and participants. The chapter expands on the methodology for sampling, instruments of data collection and the research process. This chapter includes an in-depth explanation of the process of data analysis and concludes with issues of trustworthiness to enhance the quality of the study.

Chapter 4

This chapter draws on the emerging themes that were identified through data analysis. It is through these themes that experiences of six participant teachers are narrated and analyzed. Principally the research question of how teachers appropriate education policy on ICT in schools is addressed. The main focus of this chapter was on analysing data obtained from teachers as a unit of analysis. The chapter is concluded by conducting a literature control against the results of data analysis.

Chapter 5

Chapter five similarly draws on the emerging themes that have surfaced through data coding and categorization. The emergent themes represented the experiences of principals and those of district and provincial e-learning participants. The main focus of this chapter was on analysing data obtained from systemic structures beyond the teacher. The chapter is concluded by conducting a literature control against the results of data analysis.

Chapter 6

This chapter presents a summary of the key findings and foregrounds these findings against the theoretical framework of this study. The literature research assumptions are revisited in light of findings of this study. New knowledge that emerged from this study and suggestions for further research are presented. The chapter concludes with recommendations for policy implementation to improve teaching and learning.

1.11 Conclusion

There is significant interest by government, both in South Africa and internationally to increase the use of ICT in teaching and learning. It is well documented that most developed and developing countries have made either systemic changes or incremental changes by restructuring, modifying or enhancing their policies on ICT and curriculum to illustrate their commitment to pursue their education agenda and

rationale. In this regard numerous studies focus on government intentions in policy formation, and much research emphasis is on policy implementation as policy traverses from the intention of the policy maker to the classroom of the teacher. Very little policy implementation research especially in ICT policy on education is positioned at the classroom level, where focus is on the teacher who is at the crossroads of policy and practice. This study sought to inquire from a bottom-up analysis of policy implementation beginning with understanding teachers who are situated at the point of implementation.

In this opening chapter, I have presented an introduction to the study. This included among other aspects, the background, the problem statement, study objectives, research questions, rationale and significance of the study, delimitation and limitations of the study. A brief description of the research design, data gathering strategy, instruments, research sites, study sample, strategy of inquiry and analysis of the gathered data was also outlined. In chapter two I present a literature review of debates in the field.