Chapter 1.   Introduction

1.1.   Introduction

South Africa is a developing country with one of the highest socio-economic income inequalities in the world (UNDP, 2007b) with more than 43% living below the poverty line (The Presidency, 2007) and 23.6% unemployed (Statistics South Africa, 2009). Social and economic development consequently underlies most of the government initiatives. Among the principal avenues identified towards achieving emancipation and development is the use of Information and Communication Technology (ICT) in government, i.e. through e-government (PNC on ISAD, 2008, Republic of South Africa, 2001a).

South Africa has been bold enough to admit that despite the open and active sponsorship and support for e-government, the expected benefits and development outcomes are far from being realised (Harris, 2006, Republic of South Africa, 2006b, South Africa, 2006).

Information Systems (IS) researchers argue that the failure of most ICT initiatives designed to achieve development is because they do not take into account the important contextual aspects of the implementation environment, and in many instances adopt overly deterministic business models (Avgerou, 2009, p. 14, Madon et al., 2007, Walsham, 2003, Walsham, 1997).

South Africa's policy for e-government identifies three business criteria for success: interoperability (cross-functionality across different departments); ICT security (dealing with the security of government electronic systems and information); economies of scale (achieving this includes investments in research and development to developing local skills with the ability to produce internally), and the elimination of duplication (abolish unnecessary duplication of similar IT functions, projects and resources) (Republic of South Africa, 2001a).

This thesis proposes that the success criteria of e-government along the ICT technical metrics of interoperability, security, economies of scale and duplication are overly deterministic. These criteria do not take into account any of the development inclinations of the South African government and hence contribute difficulties in realising the expected benefits.

1.2. The Development Inclination of the South African Government

The development inclination of the South African government, its high unemployment, and poverty are often attributed to the recently ended apartheid era. Apartheid, which literally means *separateness,* was a system of governance between 1948 and 1994 in which the government consciously enacted and actively implemented repressive and discriminatory policies of legalised and forced segregation between races. Segregation spanned all levels of society and governance, from where a person was allowed to walk to the type of education he received. As a result, by the time South Africa became a democracy in 1994, the public service, which is the institution responsible for the implementation of government policy, was grossly inefficient, mismanaged and corrupt (Askvik and Bak, 2005). The apartheid era created significant divisions and mistrust between society and public institutions (Askvik and

Bak, 2005) resulting in profound demands on the new democratic government of 1994 as well as on the citizens for a radical transformation to an inclusive relationship (Rakate, 2006).

With the fall of apartheid, South Africa enacted a new Constitution as the supreme law in 1996. The founding provisions of the new Constitution are grounded in the values of "human dignity, the achievement of equality and the advancement of human rights and freedoms, non-racialism and non-sexism, supremacy of the constitution and the rule of law and in universal adult suffrage" (Republic of South Africa, 2008b). The new Constitution called for a radical transformation in government from the previous apartheid style where government administrators made decisions without consultation to a more democratic style where decisions must be made participatively. Towards transformation, the government through the new Constitution of 1996 has brought into effect a number of policy reforms in an effort to "heal the divisions of the past and establish a society based on democratic values, social justice and fundamental human rights" (Republic of South Africa, 2008b).

1.2.1   Batho Pele

The transformation of government formally began in 1995 with the White Paper on the Transformation of Public Service (Republic of South Africa, 1995), hereafter abbreviated to WPTPS. The WPTPS established the institutional framework that would guide the introduction of new policies and the implementation of the new constitutional mandates.

It was shortly followed in 1997 by the White Paper on Transforming Public Service Delivery, labelled as the Batho Pele White Paper (Republic of South Africa, 1997). The Batho Pele White Paper specifically aimed at creating a participative model of governance.

The Batho Pele White Paper was adopted into policy in 2002 and branded *Batho Pele*. The adage *'We belong, we care, we serve'* became the belief set to guide government when delivering services. Batho Pele, which literally means "People First", has a developmental and emancipatory perspective, similar to the United Nations Development Program (UNDP) human development philosophy. The similarity is reflected in the title of UNDP's reports "People First: The Human Development Reports" (UNDP, 2008).

Batho Pele is grounded on eight principles and has three defining themes (Table 1.1) all directed at emancipating citizens to participate with government in decision making. The eight principles of Batho Pele are consulting users of service, setting service standards, increasing access to information, ensuring courtesy, providing more and better information, increasing openness and transparency, remedying mistakes and failures and getting the best possible value for money (Republic of South Africa, 2008a).

Table 1.1: The Themes of Batho Pele (Republic of South Africa, 2008a)

Theme	The Corresponding Policies and Acts
Overarching/transversal legislative frameworks	The Constitution of the Republic of South Africa of 1996 (as amended). The White Paper on the Transformation of the Public Service of 1995 (WPTPS) Public Service Regulations of 1999 and 2001
Access to information	Open Democracy Act of 2000 Promotion of Access to Information Act of 2000 Electronic Communications and Transactions Bill of 2002 E-Government Strategy of 2001
Transforming public service delivery	White Paper on Transforming Public Service Delivery of 1997 Promotion of Administration Justice Act (AJA) of 2000 Public Finance Management Act of 1999

The two policy papers, the WPTPS and Batho Pele, formally set the stage for a radical transformation of government to a development and emancipatory model which corresponded more to the harmonious South African philosophy of Ubuntu.

1.2.2 Ubuntu

Ubuntu is an indigenous South African philosophy that comprehends individual existence as being inseparable from the collective through warm and filial relationships. Ubuntu is short for the Nguni proverb *Umuntu ngumuntu ngabantu* which literally translated means "a person is a person through their relationship to others" (Swanson, 2007, p. 55). The notion of Ubuntu subsumes an individual's personality, place and provision as having everything to do with the collective – we are who we are because we come from and belong to a certain collective. Any attempt to define Ubuntu in an English sentence reduces its deep indigenous

meaning (Swanson, 2007, Mbigi, 1997, Hanks, 2008). Ubuntu is an African awareness of being. The philosophy of Ubuntu is clearly an African collectivist philosophy which lies in sharp contrast to the more individualistic and self-centred Western philosophies (Olinger et al., 2007, Hanks, 2008). The core values of Ubuntu are communalism, interdependence, humanness, sharing and compassion (Broodryk, 2002). Ubuntu does not imply that individual choice is lost and resigned to traditional leaders, but means that traditional leaders carry the burden to express the choice of the individuals as a collective interest.

The notion of Ubuntu is growing in popularity and has been applied as an African solution to African problems such as poverty, political strife and trade (Olinger et al., 2007, p. 33). In the South African public sphere, Ubuntu has been applied to politics, business, corporate governance, restorative justice, and conflict resolution and reconciliation (Olinger et al., 2007, Van Binsbergen, 2002, Mbigi, 1997).

Batho Pele is an embodiment of the values of Ubuntu. The adage Batho Pele itself expresses the Ubuntu philosophy in prioritising the interests of the citizen according to the quality of life, rather than on the neo-liberal basis of "fiscal discipline, reduction of public expenditure and the quantity of outputs with the number of services delivered" (Maserumule, 2007, p. 90). The evident misalignment between the deterministic South African approach to e-government (Section 1.1) and the living reality of a government inclined towards development triggered in the researcher the question about how e-government in South Africa could be contextualised within the spirit of Ubuntu for human development.

1.3. Research Background

The research reported here emerges from the researcher's involvement in a longitudinal research project entitled '*Enabling access to human rights through thought processes and web-based Group Support Systems (GSS) tools*' which centred on creating an awareness of the Promotion of Administration Justice Act 3 of 2000 (PAJA) through the use of Group Support Systems. A Group Support System (GSS) is a type of ICT system which is specially designed to facilitate people working together towards a goal (Dennis et al., 2001a). The longitudinal research project is henceforth termed the *PAJA Project*.

The PAJA is one of the important Acts that supports South Africa's Batho Pele approach to government (Table 1.1). The PAJA seeks to overcome the historical apartheid injustices by empowering the public to expect from government a reasonable opportunity to make representations before receiving a negative decision (an administrative action), to ask for written reasons and/or challenge the government.

In the PAJA Act, an administrator is any person who has the empowering provision to make decisions on behalf of government, which such decision (or the failure to make a decision) can negatively affect an individual or the public. The PAJA promulgates the constitutional right to lawful, reasonable and procedurally fair administrative action. By lawful, the PAJA Act stipulates that a government administrator should have the empowering provision to make decisions on behalf of the government. By reasonable, the administrator should give potentially affected individuals or the public an opportunity to make representations before the negative decision is made. By procedurally fair, the negative decision should be free from any real or apparent bias by following a set of procedures.

The PAJA Project realised that most people in South Africa, both in government and the public, are not aware of the PAJA and how it empowers them (Republic of South Africa, 2006a, Wooding and Phahlamohlaka, 2005, Alexander and Phahlamohlaka, 2005, Reed, 2005, Republic of South Africa, 2007b). The newness of the policies and acts, and the historically segregated education system where the African majority were prevented from learning certain educational subjects such as mathematics and science, means that most people in South Africa are not only unaware of the policies which are meant to empower them but also need to learn how to implement the policies.

During the PAJA Project the researcher became increasingly interested in whether he could develop a theory or framework to explain the divergent situations he came across about how e-government could lead to the emancipation of people from different forms of deprivation such as poverty, disease and oppression.

1.3.1　Role of the Researcher

The researcher is an active member in the PAJA Project where he has been ethnographically immersed participating overtly and covertly since 2004. In March 2004, when searching for a research topic for his Masters in Information Technology dissertation, Dr. Jackie Phahlamohlaka had just completed his PhD in Information Technology on a decision-justification framework and its implications for Group Support Systems usage and design (Phahlamohlaka, 2003, Phahlamohlaka and Roode, 2001). Dr. Jackie Phahlamohlaka was submitting a revised application entitled '*Enabling access to human rights through thought processes and web-based Group Support Systems (GSS) tools*' to the National Research Foundation (NRF) of South Africa for six years' funding. The funding was awarded and research formally began in 2005. The aims of the PAJA project are:

- To explore innovative ways in which web-based GSS could enable access to human rights by ordinary South African citizens and;

- To explore, as part of this access seeking process, efficient forms of engagement between ordinary citizens, administrators and managers.

The PAJA project was guided by the primary research questions:

- How best can the ordinary South African public be enabled and empowered to exercise their constitutional rights espoused by the Administrative Justice Act?

- Can thought processes and web-based technologies be used to support this enablement?

- To what extent would web-based technologies be considered relevant in this process?

- Are these technologies considered potentially valuable in enhancing a better understanding and implementation of the Act?

From the PAJA Project aims, the researcher inferred that ICT could be used to emancipate people and he ascertained that development was a topic of great personal interest. He became a member of the PAJA Project in April 2004 but without the accompanying student funding

since the NRF was as that time not able to make funds available for a non-South African citizen (the researcher is Ugandan). The financial implications were not significant as he was already a self-funded student. Though not formally assigned a role within the PAJA Project he became actively involved in establishing contact with research participants, research members, research sites, and in coordinating all the administrative functions of the PAJA Project. He completed the Masters in May 2005 just when NRF was approving his funding as a student affiliated to the PAJA Project. His Masters topic "*Enhancing procedural fairness in administrative action of the Administrative Justice Act of South Africa using web-based Group Support Systems*" (Twinomurinzi and Phahlamohlaka, 2005) was presented at a conference on online deliberation.

Having completed the Masters, but with a deeper and broadened interest on how e-government could contribute to development, in September 2005 he decided to enrol for the PhD in Information Technology. He identified that he would be able to use the research, social and economic resources of the PAJA Project to conduct the investigation. Particularly, he inferred from the first two primary research questions, when juxtaposed, that the PAJA Project was also seeking to understand how e-government could contribute to development.

In 2006 the PAJA Project expanded to add a third aim:

- To identify and harness opportunities for sustained collaboration and interaction by communities who would use web-based GSS tools within e-government contexts in South Africa.

The third aim was added because IS researchers were increasingly critical of the inconsistent results from GSS research (Nunamaker Jr et al., 1997, Briggs et al., 2001b). A new approach was beginning to emerge in which the process of interaction and the influence of facilitation were considered an important aspect of GSS research. This new approach is called Collaboration Engineering (Briggs *et al*., 2003). Collaboration Engineering posits that it is better to train practitioners in the relevant facilitation skills and group dynamics so that they can use ICT tools such as GSS technology to create a repeatable collaborative process (Section 5.5.2).

1.4. Problem Statement & Research Questions

As the researcher progressed through the PAJA Project and reviewed literature on Development, ICT4D and e-government, four issues stood out:

Development is dependent upon the perspective which is adopted, e.g. traditional economists consider development as an indicator of Gross Domestic Product while others consider it as the freedom to make choices (Byrne and Jolliffe, 2007, Avgerou, 2009)

There is a rapidly growing demand for ICT4D theory and inquiry, as evidenced by the rise in academic and practitioner conferences and/or journals with either a special track or entire publication dedicated to ICT4D (Avgerou, 2008).

Consistent with ICT4D, there are dangers and problems that have resulted from developing countries blindly adopting IS approaches which have worked in developed countries (Alexander and Phahlamohlaka, 2007, Avgerou, 2003, Kanungo, 2004, Odedra-Straub, 2003, Wade, 2002, Young and Ridley, 2003, Walsham, 2001).

African developing contexts are characterised by the collectivist nature of society (Eaton and Louw, 2000, Triandis et al., 1990, Mbigi, 1997). The collectivist culture is largely ignored when researching African environments yet is critical to understanding the contextual process of ICT implementations towards human development (Eaton and Louw, 2000, Hofstede, 1980). The collectivist nature, called Ubuntu (Section 1.2.2), surfaces strongly in South Africa's approach to government Batho Pele (Section 1.2.1).

The thoughts culminated into seeking to develop an explanatory theory or framework that could account for how e-government could be harnessed contextually in the spirit of Ubuntu to lead to improvements in human development. Ethnographers refer to such thoughts as the 'grand' research question because it is deliberately wide and not hedged in with firm hypotheses, research designs, sub-questions and instruments (Atkinson *et al.*, 2001a). As the PAJA Project progressed the researcher clarified the grand research question delimiting its scope and internal structure (Hammersley and Atkinson, 1995) into the finer primary research

question: **How could ICT be used to facilitate policy implementation in a human development context?**

The thesis delineates the journey in the transition of the research question and the findings of the investigation. The rich ethnographic data from the observations, electronic logs, videos, questionnaires, interviews and field visits during the PAJA Project were analysed using Grounded Theory to develop a substantive theory that could explain how ICT could be used to facilitate policy implementation in the spirit of Ubuntu. The substantive theory is the primary contribution of the thesis.

1.5. Contributions to Knowledge

The extent to which the substantive theory that emerges from the research contributes to knowledge was judged using the seven questions proposed by Whetten (1989, p. 494-495) on what makes a contribution: *Who cares*? *What's new*? *Why now*? *Why so*? *Well done? Done well? So What?*

1.5.1 Theoretical Contribution

The thesis addresses the two growing IS Research areas of ICT for Development (ICT4D) and e-Government. The substantive theory proposes an explanatory framework on how ICT can be used to facilitate policy implementation within a development context in the spirit of Ubuntu. The substantive theory partially contributes as a first step in addressing the need for theory in ICT4D to guide and evaluate research while taking into account the context within which the development must occur (Heeks and Bailur, 2007, p. 243, Avgerou, 2009, p. 14, Madon et al., 2007, Walsham, 2003). As a guide, the substantive theory lends itself to a critical-interpretive approach and an action research strategy. As a lens, the substantive theory infuses the contextual collaborative nature of society in Africa in the spirit of Ubuntu pointing to the role of ICT.

The research develops qualitative generalisations against theory, rather than against populations as seen in statistical generalisations (Barrett and Walsham, 2004, Walsham, 1995, Lee and Baskerville, 2003, Ruddin, 2006). Generalisation in Grounded Theory, as

used in the research for data analysis, is achieved by engaging the substantive theory with formal theories (Eisenhardt, 1989, p. 545, Urquhart et al., 2009, p. 17, Strauss, 1987b, p. 282). The internal validity and generalisable value of the substantive theory was demonstrated through the theoretical lenses of Actor Network Theory and Habermas' Theory of Communicative Action.

1.5.2   Practical Contributions

The main practical contribution has been the actual evidence of human development. The research has shown that ICT can be adopted within a government setting while at the same time retaining the values of the collectives in which the government hopes to make a positive impact. Problems such as unemployment and poverty can then be tackled collectively with government in the African spirit of Ubuntu and reach solutions which are socially and practically acceptable.

The substantive theory further suggests how e-government can be contextualised within the spirit of Ubuntu and raises the plausibility of creating an e-government strategy that is inclined to development, similar to government.

1.6.   Structure of the Thesis

The thesis is organized into eight chapters. Chapter 1 substantiates the motivations and background for the thesis. Chapter 2 considers the method of inquiry for the research, ethnography, and the Grounded Theory analysis approach used to make sense of the rich ethnographic data. The Grounded Theory method is applied across Chapters 3-5.

Chapter 3 provides an account of the research setting in which the researcher was immersed, as well as the broader background of South Africa with its important historical, political and contextual factors that affect it today. Chapter 4 is dedicated to the rich data that were collected. Chapter 5 reviews the literature on Development, ICT4D and e-Government from a global perspective relating it to the South African context. The analytic memos derived in Chapters 3-5 then feed into creating the substantive theory derived in Chapter 6.

As required in Grounded Theory, Chapter 7 engages the substantive theory with the two formal theories typically used by IS researchers in similar studies that seek to innovate ICT for the purpose of development within the local contexts: Actor Network Theory and Habermas' Theory of Communicative Action (Avgerou, 2009). Chapter 8 provides a discussion on the usefulness of the substantive theory for research and for practice, ending with the thesis conclusions, contributions to knowledge, limitations and areas for further research.

The thesis makes a clear distinction between the terms Information System (IS) and Information and Communication Technology (ICT) since they are actively used to convey different meanings. ICT focuses on the physical tools used to perform specific tasks, while IS goes beyond the specific tasks to include the context within which ICT is used. The thesis adopts the view of an Information System (IS) as a socio-technical system consisting of people, data, processes, hardware and software interacting together to provide the required information (Bentley *et al.*, 2007). Information and Communication Technology (ICT), on the other hand, refers strictly to the technological tools, hardware and/or software of the Information System.
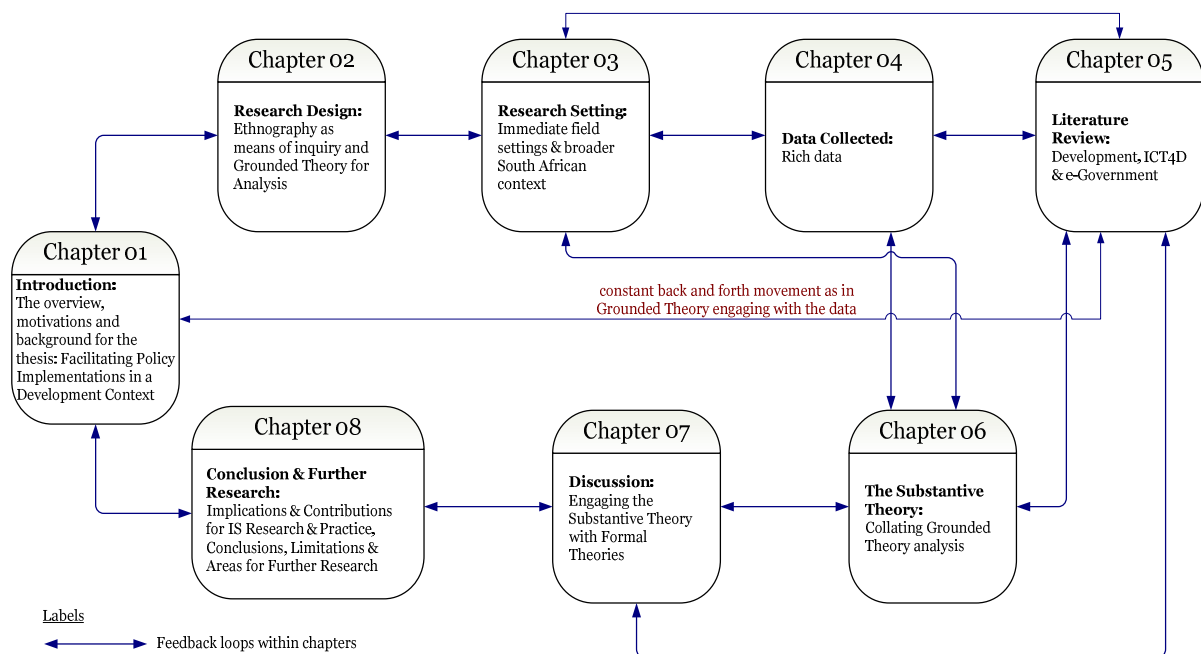

Figure 1.1.1: Thesis Structure

Chapter 2.   Research Design

2.1.   Introduction

Chapter 1 introduced the thesis aims and its initial motivations in investigating how e-government can contribute to human development, citing the collectivist nature of society in South Africa. Chapter 2 describes the means of inquiry which was used to carry out the investigation, i.e. the research design and the approach used to analyse the rich data using Grounded Theory Analysis.

Chapter 2 is organised into four sections: Section 2.2 justifies the selection of ethnography from the different competing research designs. Section 2.3 defines ethnography and the different scholarly and methodological approaches to ethnography. Section 2.4 describes the qualitative analysis approach, i.e. Grounded Theory, and how the methodological choices affect the remainder of the thesis. Section 2.5 summarises the chapter showing the influences of the ethnographic immersion on the research question.

Research design connects the researcher in the empirical world to the material to be investigated and addresses how the researcher will answer the two critical questions of representation and legitimacy (Denzin and Lincoln, 2005, p. 25). Research design is the "glue that holds the research project together" (Trochim, 2006, p. 1) or is the manner in which to structure the research in such a way that all the parts work together to address the central research question, from providing the guidelines that connect the research to the strategies of enquiry, and then to the methods of collecting data. There are two approaches to research design; the qualitative approach and the quantitative approach.

In quantitative research designs there are two primary elements that are measured; the characteristics of the subjects and the variables (independent and dependent) defining the research question (Hopkins, 2000, Creswell, 2009). Hence quantitative research designs are either descriptive or experimental. In descriptive studies, the phenomenon under investigation is usually measured once, while in experimental studies the phenomenon is measured before and after the experiment (Hopkins, 2000).

Qualitative research designs are often not as explicitly clear as in quantitative designs. Rather, qualitative research designs focus on the primary research question, the purposes of the study, the information that can appropriately answer specific research questions, and which strategies are most effective in obtaining this (LeCompte and Preissle, 1993, p. 30, Denzin and Lincoln, 2005, p. 25). Five basic questions must be answered in the qualitative research design:

- How will the design connect to the paradigm or perspective being used? That is, how will empirical materials be informed by and interact with the paradigm in question?

- How will these materials allow the researcher to speak to the problems of praxis and change?

- Who or what will be studied?

- What strategies of enquiry will be used?

- What methods of research tools for collecting and analysing empirical data will be utilised? (Denzin and Lincoln, 2005p. 376).

Qualitative research designs are commonly classified as one of five means of inquiry; ethnography, grounded theory, case studies, phenomenology and narrative research (Creswell, 2009, p. 12). In ethnography, the researcher studies a phenomenon within its cultural settings over a prolonged period of time. In grounded theory, the researcher develops a general theory based on a constant comparison between categories that emerge from collected data. Case studies explore in depth a phenomenon within a specific time frame. Phenomenological research makes inferences based on the lived experiences of the individuals or groups under investigation usually over a prolonged period of time. In narrative research, the researcher describes phenomenon based on views of participants in collaboration with the researchers own views (Creswell, 2009, p. 12).

The thesis identified with ethnography as the 'glue' that could connect the pieces of the investigation into how e-government could lead to development. This is not to say that some of the characteristics from the other classifications such as grounded theory, case study and

narratives were not borrowed to enhance the approach adopted, but ethnography was the predominant means of inquiry.

2.2. *Ethnography*

Ethnography is a qualitative research design where the researcher is involved by "participating, overtly or covertly, in people's daily lives for an extended period of time, watching what happens, listening to what is said, asking questions – in fact, collecting whatever data are available to throw light on the issues that are the focus of the research" (Hammersley and Atkinson, 1995, p. 1). Ethnographers unearth the basis of human social actions before they assign meaning to behaviours and beliefs (Schensul et al., 1999, p. 1) and rather than hide from situations that arise in the contextual situations, ethnographers create "window(s) of opportunity" (Zuboff, 1988).

Ethnography as a research tradition has its roots in anthropology and sociology. It was first proposed by Bronislaw Malinowski in his study of native enterprise in Melanesian New Guinea published in 1922 (Atkinson *et al.*, 2001a). For Malinowski, insight can only be understood from within a context.

Since 1922 a divergent number of ethnographic schools each with its own epistemology of ethnography have arisen (Atkinson et al., 2001a, Sanday, 1979, Charmaz and Mitchell, 2001). The diversity has led to little agreement on an absolute definition of ethnography. Sanday (1979) distils three distinct schools; the holistic, semiotic and behaviouristic schools. The holistic school believes that the researcher must be able to empathise with the people living in the research context. In the holistic school, living just like the local people is necessary. The semiotic school, with the greatest adherent Geertz (1988, , 1983, , 1973), does not believe that empathy is a necessary condition for the researcher; they believe that it is enough for the researcher to be able to make sense of the lifestyle of the people within the context to search out and analyse meanings. The behaviouristic school focuses on creating deductive propositions based on pre-selected functional and relevant categories.

Despite the differences, there remains an underlying point of agreement between all the schools; ethnographic research involves having first-hand experience and exploration of a

particular social setting, predominantly on the basis of observation and participation (Atkinson et al., 2001a, p. 4, Sanday, 1979, p. 527). The ethnographer should be able to become conversant with the norms of the people living within the studied context to the point that the behaviours of the people now make sense (Harvey and Myers, 2002).

The thesis identified with the semiotic school of ethnography. The researcher, as an active member of the PAJA Project (Chapter 1) has had close personal relationships with the people involved in the context for more than three years, to the point of unearthing meaning about the lifestyle of the people within their social contexts.

2.2.1 Ethnographic Epistemology

In practice, ethnographers do not necessarily agree with the positivist notion that valid knowledge resides only in the intellect. Ethnographers argue that it is immensely difficult to "plan, choose and have purposes as they (ethnographers) pick their way among the great mass of events around them, and they must do so in ways that will themselves change as they learn more about them" (Rock, 2001, p. 30). Hence ethnographic research is neither passive nor is it neutral, but rather "interactive and creative, selective and interpretive, illuminating patches of the world around it, giving meaning and suggesting further paths of enquiry" (Rock, 2001, p. 30). Taken as such, ethnographic research does not start from "fixed conditions and a clear vision of what lies ahead but changes with each stage of enquiry so that many important questions only emerge *in situ*" (Rock, 2001, p. 30).

Likewise, Fetterman (1989) remarked that "ethnographic work is not always orderly. It involves serendipity, creativity, being in the right place at the right or wrong time, a lot of hard work, and old-fashioned luck" (1989p. 12). In fact, ethnographers discourage the notion of being hedged in with firm hypotheses, research designs and instruments – these only serve to blind the researcher to the world (Atkinson *et al*., 2001a). It is only during the process of research, as the researcher develops and transforms the research problem that its scope is clarified and delimited and its internal structure explored. It is during this process of inquiry that the real research problem is actually discovered, and in most cases is different from the overshadowed problem; "in ethnographic research the development of research problems is
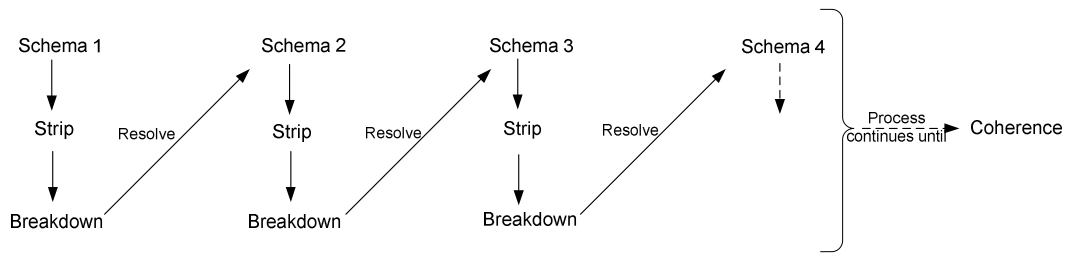
rarely completed before fieldwork begins; indeed, the collection of primary data often plays a key role in that process of development" (Hammersley and Atkinson, 1995p. 37).

In this thesis, the original area of interest was exploratory in nature in understanding how e-government could lead to human development. As the PAJA Project progressed and data were collected, it became evident that government chiefly provides for development through its policies. It is the implementation of the policies within a social context that is problematic and in many cases the policies themselves are neither understood by the citizens nor the government administrators who are responsible for implementing them (Republic of South Africa, 2007b). This is how the research problem evolved to become much clearer in creating a framework that could explain how ICT could facilitate policy implementation within a development context.

2.2.2   Theory in Ethnography

Agar (2006) notes that studying humans ethnographically requires an intensive personal involvement and "an improvisational style to meet situations not of the researcher's making, and an ability to learn from a long series of mistakes" (p. 12). Agar (2006) recommends using attributes of existing theory to guide ethnographic research as *strips* that can serve as observable points for the researcher to test his understanding of the research phenomenon. During the ethnographic immersion into the research phenomenon, the researcher will invariably meet disjunctions between the traditions within the research phenomenon and the theory guided expectations; the disjunction signals a breakdown. That is, when a *strip* of the theory is not understood in relation to tradition, a breakdown has occurred. Once a breakdown is identified, something must be done about it and the process of moving from breakdown to understanding is called resolution. In resolution, the theory is modified or a new theory is constructed before trying again. This process of resolution continues until all breakdowns are resolved, resulting in what is called coherence. A coherent resolution can be known to have been reached when the resolution can "1) show why it is a better resolution than others that can be imagined 2) tie a particular resolution in with the broader knowledge that constitutes a tradition and 3) clarify and enlighten, to elicit an "aha" reaction from the members of the different traditions that make up the ethnographic encounter" (Agar, 1986, p. 22). The process is diagrammatically depicted in Figure 2.1 below.

Schema 1   Schema 2   Schema 3   Schema 4

Strip   Resolve   Strip   Resolve   Strip   Resolve   Process   Coherence
                                                                        continues until

Breakdown   Breakdown   Breakdown

Figure 2.1: The Process of Breakdown, Resolution and Coherence in Creating a Schema

Some of the theories that were explored as part of the ethnographic process are: Amartya Sen's Capabilities Approach, Social Shaping of Technology (particularly Actor Network Theory), Diffusion of Innovations, Structuration Theory, Manfred Max-Neef's theories on human development, and Habermas' Theory of Communicative Action.

2.2.3   Ethnography in the Information Systems Field

Harvey and Myers (2002) hold that the tension between IS researchers and IS practitioners revolves around the process of generating knowledge – between relevance and rigour. IS researchers are more concerned with generating knowledge which can be generalised a-contextually and a-historically, while IS practitioners are interested in generating knowledge which can be used expeditiously within a specific context.

Ethnography has increasingly gained recognition and support in IS research and practice despite the tensions. Ethnography, in its ability to support the process of generating knowledge for both IS groups, provides a design that alleviates the tensions evidenced by the growing number of IS researchers and practitioners adopting ethnography (Denzin and Lincoln, 2005, p. 14-15, Myers, 1999).

2.2.4   Limitations of Ethnography and Thesis Proposed Solutions

Despite its growing popularity ethnography has been shown to be problematic in five ways; methodologically in 'going native', in the random data collection, the lack of an entry and exit strategy, the data analysis and write up, and on how to generalise the findings.

2.2.4.1 'Going Native'

'Going native' is when the researcher enters the field without pre-formatted guidelines (Atkinson *et al*., 2001a). In such instances it is important to give attention to issues of bias and identify ways of ensuring the accuracy of data (Schensul *et al*., 1999).

To overcome the limitation within the semiotic school, the researcher maintained a level of reflexivity throughout the PAJA Project (Atkinson et al., 2001b, Rock, 2001, Hammersley and Atkinson, 1995) and made explicit his biases, rather than ignoring them (Hammersley and Atkinson, 1995). He made explicit the development-oriented agenda during sessions with the supervisors, at papers presented at international academic conferences (Twinomurinzi, 2007, Twinomurinzi et al., 2009, Twinomurinzi and Phahlamohlaka, 2005, Twinomurinzi and Phahlamohlaka, 2009) emanating from the research as it progressed and in discussions with peers. The explicitness meant that bias was minimised and enabled him to continually examine his interpretations of the data.

2.2.4.2 Lengthy unfocused forays into the field

The 'nativity' mentioned above in turn usually results in lengthy unfocused forays into the field (Atkinson *et al*., 2001a). The researcher therefore needs to make a choice between depth and breadth – the wider the area of study, the less the depth, and vice versa (Hammersley and Atkinson, 1995).

The researcher opted for depth for one main reason; as a non-South African who cannot speak any of the indigenous languages, the researcher realised it would be an uphill battle to establish new research sites. The researcher realised that it was better to put to great advantage the existing PAJA Project network. Besides, the PAJA Project was longitudinal and its research sites were going to be maintained for a long period of time – until 2011.

2.2.4.3 Superficial and Random Data Collection

There is often a risk that the researcher will collect useless data (Atkinson *et al.*, 2001a) since the ethnographic data that needs to be collected is not known before hand (Harvey and Myers, 2002, p. 179). It is important therefore to reflect on the significance of data as it is

collected, the data's implications for further data collection (Atkinson et al., 2001b, Rock, 2001, Hammersley and Atkinson, 1995) and then reformulate the research questions as the research advances. In so doing data collection and interpretation are treated as interlaced processes (Atkinson *et al.*, 2001b).

This problem was dealt with in two ways; through peer reviewed papers and through the use of Grounded Theory for analysis. As the research progressed, the peer reviews received from the supervisors and from academic peers in international conferences papers necessitated a critical reflection on the primary research question. Grounded Theory analysis requires an iterative approach to data collection and analysis. As new meanings are inferred from the data, the data to be collected is refined iteratively. As a result, useless data is ignored as the analytical process progresses for data which contributes to the research (Section 2.4).

2.2.4.4 The Moral Realities of Working in the Field

Gaining access to a field can be quite complicated since there is a need to become involved in peoples lives. Once the access is gained another problem emerges; how to disentangle from the relationships (Atkinson *et al.*, 2001a). Ending relationships made in the field is even more complex as the researcher can easily be considered a member of the family. It is important for ethnographic researchers to deliberate on how to gain access to the research setting using available networks and later how to quit honourably (Hammersley and Atkinson, 1995, p. 65).

The researcher gained access to the research settings using the existing social/research network of the PAJA Project. The researcher did not consider quitting the field as an option since the people the researcher interacted with became more than just research participants, but human beings with real needs.

2.2.4.5 Analysing Data from Ethnography

The analysis and the writing up of the text from ethnographic research is problematic, seeing that a rich set of data is collected (Rock, 2001, p. 37). Grounded Theory is identified as helpful to analyse the plethora of data collected in ethnography (Lofland and Lofland, 1984, Glaser and Strauss, 1999, Glaser, 1978). Grounded Theory helps to compare data with data

at the beginning of the research, not after all the data are in, and compare the same data with categories that emerge from the data. Further, it can be used to demonstrate the relationships that exist between the categories.

The researcher adopted Grounded Theory (Section 2.4) to make sense of the rich data collected. Through Grounded Theory, the researcher ensured a demonstration of the relationships between the categories that emerged from the data into a substantive theory.

2.2.4.6 Generalising from Ethnography

Some IS researchers have pointed to the problem of generalising from ethnography (Harvey and Myers, 2002, p. 179, Wes and Dave, 2004). However, it is possible to generalise from ethnography to theory in the same way that case studies are generalised to theory (Yin, 2003, Walsham, 1993, Hammersley and Atkinson, 1995).

By using the Grounded Theory requirement of comparing the substantive theory with existing formal theories (Chapter 7), the thesis increased the generalisable incisiveness of the research (Eisenhardt, 1989, Urquhart et al., 2009).

2.2.5 Defending the Means of Inquiry

In summary, ethnography offered the ideal research design for the thesis and adequately contributed answers to the five criteria presented in Section 2.1 (Denzin and Lincoln, 2005, p. 376) for selecting a research design:

What strategies of enquiry will be used? The research adopted Ethnography for conducting the research and Grounded Theory for evaluating the rich data collected.

How will the design connect to the paradigm or perspective being used? That is, how will empirical materials be informed by and interact with the paradigm in question? Through Ethnography, the research could gather a rich set of data, whereby the data could be analysed using Grounded Theory, resulting in a substantive theory which was contextually based. The substantive theory, emerging in Chapter 6, is informed by and within the qualitative paradigm of the research.

How will these materials allow the researcher to speak to the problems of praxis and change? Through ethnography, the researcher was in direct contact with the research phenomenon and had the ability to observe changes as they occurred.

Who or what will be studied? Chapter 3, 4 and 5 describe the research setting and the individuals, both government administrators and citizens, the cultural settings, the interpretations of the world and the changes that occurred over the three years as a result of interacting with the phenomena.

What methods of research tools for collecting and analysing empirical data will be utilised? Chapter 4 is dedicated to data collection. These methods included electronic and physical logs, observations, structured and unstructured interviews, questionnaires, meetings, video recordings, and research documents. Grounded Theory was adopted as the appropriate qualitative data analysis tool (Section 2.3).

2.3. *Data Analysis*

Qualitative analysis, particularly Grounded Theory, is increasingly gaining recognition in IS research as a preferred means to generate new insights and knowledge (Trauth and Jessup, 2000, Walsham and Sahay, 1999, Baskerville and Pries-Heje, 1999, Hughes and Jones, 2004, Urquhart, 2007). The human factor is, however, the greatest strength as well as the fundamental weakness of qualitative inquiry and analysis (Patton and Patton, 2001, p. 433). An important requirement in qualitative analysis is therefore to make the procedures as explicit as possible, and to "monitor and report (one's) own analytical procedures and processes as fully and truthfully as possible" (Patton and Patton, 2001, p. 434, Strauss and Corbin, 1998, p. 266).

2.3.1 Grounded Theory

Grounded Theory (GT) techniques have been shown to be helpful when analysing massive amounts of data collected in ethnographic research (Charmaz and Mitchell, 2001, p. 161) design by:

Comparing data with data from the beginning of the research, not after all the data is in

Comparing the data with emerging categories, and

Demonstrating relations between concepts and categories (Lofland and Lofland, 1984, Glaser
        and Strauss, 1999, Glaser, 1978).

At the time of the establishment of Grounded Theory by Barney G. Glaser and Anselm L.
Strauss (Glaser and Strauss, 1965), qualitative methods were considered inferior, contentious,
and contrary to the existing contemporary positivist views about the relationship between
data and theory (Kelle, 2005). Glaser & Strauss (1965) proposed Grounded Theory as a four
step qualitative technique from which theory emerges from data, rather than data emerging
from theory (Willis, 2007). Step one involves coding the data using unique identifiers (codes)
which serve as reminders for key points of the data. In step two, the codes are brought
together into categories based on similarity of the concepts which the codes possess with each
others. Step three requires that relationships between the categories are inferred to create a
substantive theory. In step four the substantive theory that has emerged from step three is
employed to explain the phenomenon.

The Grounded Theory of 1965 was, however, not prescriptive on the methodology. In an
attempt to remedy the non-prescriptive problem of the methodology of Grounded Theory,
there arose sharp divisions between the two pioneering authors. The divisions resulted in two
well defended yet divergent views on the methodology of grounded theory.

2.3.2   Methodologies of Grounded Theory – Emergence vs. Forcing

According to Strauss and Corbin (1990, Strauss, 1987a) the methodology of Grounded
Theory begins with open coding followed by a coding paradigm to generate theory from data,
guided by a theoretical perspective. However, Glaser (1992) considered it absurd and untrue
to the fundamental spirit of Grounded Theory to begin with a theoretical perspective before
conducting research. For Glaser (1992), a theoretical perspective results in the substantive
theory being biased – a researcher should have no bias before entering into the field. Glaser's
(1992) approach may require expertise in sociology. Kelle (2005, p. 1) refers to these
divergent approaches as a conflict between whether categories emerge (Glaser, 1992) or are
forced out from empirical data (Strauss, 1987a).

The researcher adopted Strauss and Corbin's (1990) methodology of Grounded Theory because the researcher started out with a theoretical perspective (the theoretical perspective that how ICT could lead to development) prior to entering into the research field.

2.3.3 Grounded Theory Methodology by Strauss and Corbin

Strauss and Corbin's (1998) methodology of Grounded Theory starts with open coding where concepts that fit the data are produced. It is followed by axial coding where the derived concepts are investigated for causal relationships (Borgatti, 2008, Kelle, 2005). The approach ends with selective coding where an assumed core category is selected and related to the other categories systematically into a substantive theory (Borgatti, 2008, Kelle, 2005). The quality of the substantive theory is dependent on the process through which the theory is formulated from the data (Borgatti, 2008). Hence, the next section illustrates the analytical processes of the coding paradigm so that the application of the coding are explicit in Chapter 3 (Research Setting), Chapter 4 (Data Collected), Chapter 5 (Literature Review) and Chapter 6 (The Substantive Theory).

2.3.3.1 Open coding

Open coding is the analytical process where concepts with their properties and dimensions are conceived from the data (Strauss and Corbin, 1998, p. 101). Concepts are an important part of qualitative analysis as they focus the attention of the researcher and provide a platform to discern relationships with other concepts. There are many finer steps in open coding (Figure 2.1) which can be summarised as two fundamental steps (Borgatti, 2008):

Conceptualising - The activity of conceptualising to discover concepts and their accompanying properties and dimensions. Conceptualising is more of an art of abstraction than it is a science. The data are broken down into discrete ideas, events, objects, and acts, and then given a name that represents them as a category.

Digging deeper behind words – Adjectives and adverbs that describe the concepts are identified. A microanalysis "line-by-line" reading is applied to each word, sentence and paragraph (Strauss and Corbin, 1998, p. 57, Coyne, 2009, p. 17).

2.3.3.2 Axial coding

Axial coding is the process of making statements about the relationship between concepts (phenomena), conditions and actions/interactions (Table 2.1). These relational statements are the sub-categories and are referred to as theoretical memos. This stage of Grounded Theory is termed 'axial' because coding occurs around the axis of the category, linking categories at the level of properties and dimensions (Strauss, 1987b). During axial coding, the data that were fractured during open coding are re-constructed. In this process, categories are related to the sub-categories using a combination of deductive and inductive thinking (Borgatti, 2008) following the causal relationships paradigm of structure and process (Strauss and Corbin, 1998). Chapter 6 presents Table 6.1 which summarises the theoretical memos made during the axial coding.

Table 2.1: The Causal Relationship Framework (Borgatti, 2008; Kelle, 2005:5)

Element	Description
Phenomenon	This is what in schema theory might be called the name of the schema or frame. It is the concept that holds the bits together. In Grounded Theory it is sometimes the outcome of interest, or it can be the subject.
Causal conditions	These are the events or variables that lead to the occurrence or development of the phenomenon. It is a set of causes and their properties.
Context	Hard to distinguish from the causal conditions. It is the specific locations (values) of background variables. A set of conditions influencing the action/strategy. Researchers often make a quaint distinction between active variables (causes) and background variables (context). It has more to do with what the researcher finds interesting (causes) and less interesting (context) than with distinctions out in nature.
Intervening conditions	Similar to context. If one likes, one can identify context with *moderating* variables and intervening conditions with *mediating* variables. But it is not clear that Grounded Theorists cleanly distinguish between these two.
Action strategies	The purposeful, goal-oriented activities that agents perform in response to the phenomenon and intervening conditions.
Consequences	These are the consequences of the action strategies, intended and unintended. Note that Grounded Theorists don't show much interest in the consequences of the phenomenon itself.

The memos created from axial coding were rigorously developed as the data were collected and formed the basis of the substantive theory derived in Chapter 6. The memos are the researcher's record of analysis and perceptions for further data collection.

Stages in the analysis process

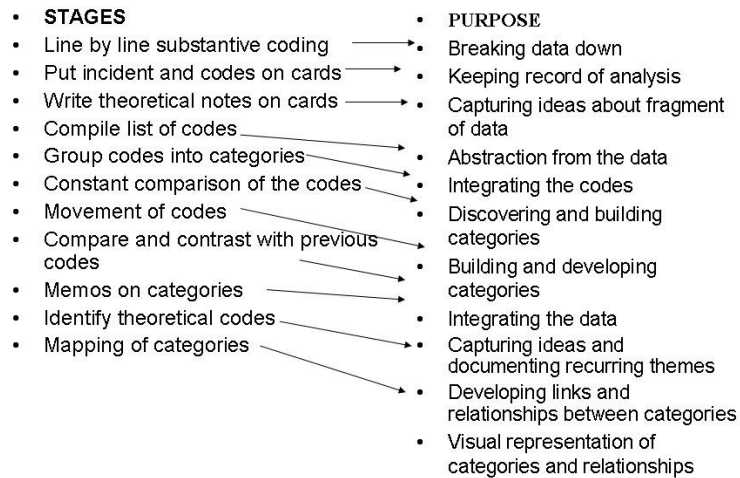| STAGES	PURPOSE
• Line by line substantive coding	• Breaking data down
• Put incident and codes on cards	• Keeping record of analysis
• Write theoretical notes on cards	• Capturing ideas about fragment of data
• Compile list of codes	• Abstraction from the data
• Group codes into categories	• Integrating the codes
• Constant comparison of the codes	• Discovering and building categories
• Movement of codes	• Building and developing categories
• Compare and contrast with previous codes	• Integrating the data
• Memos on categories	• Capturing ideas and documenting recurring themes
• Identify theoretical codes	• Developing links and relationships between categories
• Mapping of categories	• Visual representation of categories and relationships

Figure 2.2: Stages in the Analysis Process (Coyne, 2009:17)

The process of open and axial coding is performed in Chapters 3-5.

2.3.3.3   Selective Coding

Selective coding is the systematic process of integrating, refining and relating the sub-categories around core categories, resulting in the substantive theory (Figure 2.2).
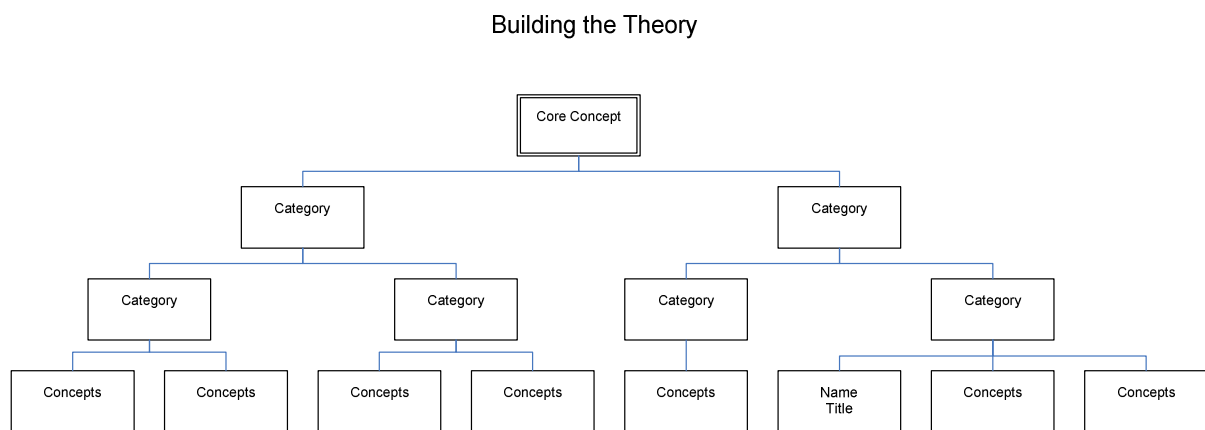
Building the Theory

Figure 2.3: Building the Theory (Coyne, 2009:18)

The Strauss and Corbin (1990, Strauss, 1987a) approach adopted in the research advocates for the use of an existing formal theory to serve as a theoretical lens in selecting the core concepts. For example, Orlikowski (1993) drew from structuration theory while Adam and Urquhart (2009) drew from social capital theories. The capabilities approach to development emerged as the ideal formal theory to inform the core categories in this thesis (Chapter 5).

Chapter 4 on the data collected and Chapter 5 on the literature review are infused with Grounded Theory's comparison and coding paradigm while making as explicit as possible the analytical processes and the relations that emerged between concepts and categories. Chapter 6 presents the culmination of the analysis by presenting the substantive theory on how ICT can facilitate policy implementation in a development context. The obligation of Grounded Theory to engage the substantive theory that finally emerges with pre-existing theory (Strauss, 1987a) is done in Chapter 7.

2.4. *Summary of Research Design*

In summary, ethnography provided an appropriate means of inquiry by immersion into a research setting through which the researcher was able to explore how e-government could lead to human development and later to refine the grand research question to focus on how ICT could facilitate policy implementation in a development context.

Grounded Theory offered the ideal analytical approach to make sense of the rich ethnographic data and to derive a theory that could explain what the researcher came across in the field. Chapter 3 turns to the research setting in which the researcher was ethnographically immersed.