2011

Integrating technology in classroom practices: the influence of teacher professional identities in secondary schools in Lesotho

Mathabo Julia Chere-Masopha

*University of Wollongong*

---

**Recommended Citation**

http://ro.uow.edu.au/theses/3543

---

Research Online is the open access institutional repository for the University of Wollongong. For further information contact Manager Repository Services: morgan@uow.edu.au.
UNIVERSITY OF WOLLONGONG

COPYRIGHT WARNING

You may print or download ONE copy of this document for the purpose of your own research or study. The University does not authorise you to copy, communicate or otherwise make available electronically to any other person any copyright material contained on this site. You are reminded of the following:

Copyright owners are entitled to take legal action against persons who infringe their copyright. A reproduction of material that is protected by copyright may be a copyright infringement. A court may impose penalties and award damages in relation to offences and infringements relating to copyright material. Higher penalties may apply, and higher damages may be awarded, for offences and infringements involving the conversion of material into digital or electronic form.
Integrating technology in classroom practices: the influence of teacher professional identities in secondary schools in Lesotho

A thesis submitted in fulfillment of the requirements for the award of the degree

Doctor of Philosophy

from

University of Wollongong

by

'Mathabo Julia Chere-Masopha

STC (NTTC), BA ED (NUL) MSc (Educational and Training Systems Design)  
(University of Twente)

Faculty of Education  
2011
DECLARATION

I, Julia Chere-Masopha, declare that this thesis, submitted in fulfillment of the requirements for the award of Doctor of Philosophy, in the Faculty of Education, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other institution.

Julia Chere-Masopha
30 July 2011
ABSTRACT

This thesis examines the influence of teachers' professional identities on their practices with technology in secondary school classrooms in Lesotho. In this study, teacher professional identity is viewed in three landscapes: personal and professional (personal and professional aspects of professional identity which are specific to individual teachers), situational (aspect of schools in which teachers work), and contextual (socio-economic and cultural context of schools). These three landscapes are influential on teachers work in terms of the teaching strategies and resources teachers use in the classroom.

Using mixed-method approach (quantitative and qualitative methods), the study surveyed and interviewed student teachers who were upgrading their teaching qualifications, in the Faculty of Education at National University of Lesotho. The study investigated the views of these student teachers on teaching and learning with technology in secondary schools in Lesotho. A total of 159 students were surveyed, from which 14 were recruited for in-depth interviews. Both methods (survey and in-depth interviews) collected information on these student teachers about their personal and professional aspects, their views on technology conditions in everyday life, their views on the conditions of technology in teaching and learning, and their views on the general conditions of teaching and learning in schools in Lesotho.

Before the study was conducted the questionnaire and the interview protocols were piloted using teachers from three secondary schools in Lesotho. Comments and suggestions from these teachers were incorporated in both instruments prior to the data collection phase.

The main finding of this study is that secondary teachers in Lesotho infrequently integrated technology in their classroom activities because of personal, professional, situational and contextual factors. Personal and professional factors included limited exposure these teachers had to technology and their lack of knowledge about technology resources and their uses. Factors that were situational involve the absence of technology facilities and resources, school curriculum that did not integrate technology, and limited knowledge and skills required to
integrate technology in teaching and learning. Contextual factors were comprised of poorly
developed and almost absent national technology infrastructure, a lack of a national policy for
technology in teaching and learning, limited knowledge about technology in teaching and
learning and a lifestyle that did not value technology integration in the core activities in everyday
life.

The main recommendations of the study is that technology projects intended for schools should
consider aspects of landscapes of professional identity that are specific to individual teachers,
schools and socio-economic and cultural context as established in this study.

Like most studies, this study is subject to some limitations including the research methods used
and sampling of participants.
ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to all the people who have helped me get to this point. Completing this thesis would be next to impossible without their help. To these people I am deeply grateful.

The guidance of Associate Professor Susan Bennett and Dr Shirley Agostinho has been very crucial for the development through to the completion of this thesis. I am grateful for their critical comments and suggestions, and their words of encouragement when the going was tough.

Dr Lisa Kevin’s critical comments were also helpful in the shaping of this study and greatly appreciated.

The support of Staff and student teachers in Faculty of Education at National University of Lesotho during data collection is also greatly appreciated.

I would also like to express my sincere thanks to the staff and my fellow research students in the Faculty of Education for valuable comments and suggestions during Faculty colloquiums.

The proof reading and editing of the thesis would have taken a lot longer without the dedication of Dr Bright Honu and the editing skills of Ms Karley McKeowen. Thank you both.

Lastly, but not the least I extend my sincere gratitude to the families of professor Martin Tsamenyi and Gail Hood for providing me with accommodation on the days of supervision and Faculty colloquiums; and to Mpho Masopha (my son) who, even though he had minimal understanding of research, provided continuous support and words of encouragement on those days when everything seemed to go wrong.
CONTENTS
DECLARATION .................................................................................................................. II

ABSTRACT..................................................................................................................... III

ACKNOWLEDGEMENTS ................................................................................................. V

CHAPTER 1: INTRODUCTION .................................................................................... 1
SECTION 1: Background .................................................................................................. 1
SECTION 1.1: Educational technology in developing countries ......................................... 2
SECTION 1.2: Teachers’ perceptions and professional identity ........................................... 7

SECTION 2: Research questions .................................................................................... 13

SECTION 3: Definitions of terms .................................................................................... 14

SECTION 4: Research context and participants .............................................................. 15
SECTION 4.1: Participants’ recruitment .......................................................................... 17

SECTION 5: Research design ........................................................................................... 18

SECTION 6: Significance of the study ............................................................................. 19

SECTION 7: Limitations .................................................................................................. 20

SECTION 8: Thesis structure ........................................................................................... 21

CHAPTER 2: LITERATURE REVIEW ......................................................................... 23
SECTION 1: Technology in education ............................................................................. 23
SECTION 1.1: Definition ................................................................................................ 24
SECTION 1.2: Benefits of technology in education ........................................................... 26

WEB RESOURCE ......................................................................................................... 32
SECTION 2: Technology projects in schools: ‘successes’ and ‘failures’ ............................... 33
SECTION 2.1: Non-teacher related factors ...................................................................... 35
SECTION 2.2: Teacher-related factors ................................................................. 44
SECTION 2.3: Linking non-teacher related and teacher related factors ............ 45
SECTION 2.4: Studies on teachers’ professional identities and practices ........... 47
SECTION 2.5: A synopsis of success and failures of technology in the classroom .... 48
SECTION 3: Teacher identity and research methods ........................................ 49
SECTION 4: Investigating teachers and their classroom practices in Lesotho ....... 50
SECTION 5: Summary ...................................................................................... 52
CHAPTER 3: METHODOLOGY ......................................................................... 53
SECTION 1: Theoretical framework: The theory of teacher professional identity and classroom practice ................................................................. 53
SECTION 1.1: Identity ....................................................................................... 54
SECTION 1.2: Teacher Professional identity ..................................................... 55
SECTION 1.3: Landscapes of professional identities ........................................ 57
SECTION 2: Research design and mixed methods ......................................... 60
SECTION 2.1: Mixed method models .............................................................. 61
SECTION 2.2: The research contexts and the participants .............................. 63
SECTION 2.3: Ethical issues ........................................................................... 67
SECTION 3: Data Collection .......................................................................... 68
SECTION 3.1: Design and validity of research instruments ............................ 69
SECTION 3.2: Process of data collection ......................................................... 74
SECTION 4: Summary ..................................................................................... 94
CHAPTER 4: SURVEY RESULTS .................................................................... 95
SECTION 1: Participants’ personal, educational and professional characteristics .... 96
SECTION 1.1: Personal characteristics ................................................................. 96
SECTION 1.2: School education ............................................................................ 99
SECTION 1.3: Professional characteristics .......................................................... 103
SECTION 1.4: Summary ....................................................................................... 117
SECTION 2: Technology conditions in everyday life ............................................. 119
SECTION 2.1: Current technology conditions ....................................................... 119
SECTION 2.2: Technology conditions before the participants became teachers .... 130
SECTION 2.3: Summary ....................................................................................... 137
SECTION 3: Technology conditions in teaching and learning ............................... 138
SECTION 3.1: Current technology conditions ....................................................... 138
SECTION 3.2: Technology conditions before the participants became teachers .... 151
SECTION 3.3: Summary ....................................................................................... 157
SECTION 4: General teaching and learning conditions ......................................... 159
SECTION 4.1: Current teaching and learning conditions ...................................... 159
SECTION 4.2: Teaching and learning conditions before participants became teachers 171
SECTION 5: Summary ......................................................................................... 181
CHAPTER 5: INTERVIEW RESULTS .................................................................... 182
SECTION 1: Participants’ individual profiles ......................................................... 183
SECTION 2: Technology conditions in everyday life ............................................. 187
SECTION 2.1: Current conditions ...................................................................... 187
SECTION 2.2: Technology conditions before the participants became teachers .... 205
SECTION 2.3: Summary ....................................................................................... 211
SECTION 3: Technology in teaching and learning .......................................................... 212
SECTION 3.1: Current technology conditions ............................................................. 212
SECTION 3.2: Conditions before the participants became teachers ......................... 229
SECTION 3.3: Summary .............................................................................................. 236
SECTION 4: Conditions in teaching and learning ....................................................... 237
SECTION 4.1: Current conditions .............................................................................. 237
SECTION 4.2: Conditions before the participants became teachers ......................... 249
SECTION 4.3: Summary .............................................................................................. 258
CHAPTER 6: DISCUSSION OF THE RESULTS ........................................................... 261

SECTION 1: Key Findings .......................................................................................... 263
SECTION 1.1: Participants’ perceptions of technology in teaching and learning ....... 263
SECTION 1.2: Aspects of professional identity which influenced teachers’ perceptions 265
SECTION 2: Conclusions and implications ................................................................. 275
SECTION 3: Limitations ............................................................................................ 279
SECTION 4: Recommendations for further research .................................................. 280
SECTION 5: Summary of key findings ...................................................................... 281

APPENDICES ............................................................................................................. 283
APPENDIX I: A brief description of socio-economic conditions, education and pathway to teaching in Lesotho ................................................................................. 284
APPENDIX II: Letter of Ethics approval by the University of Wollongong ............... 294
APPENDIX III: Questionnaire ................................................................................... 295
APPENDIX IV: Semi-structured interview protocol1- background information and everyday use of technology ......................................................................................... 317
APPENDIX V: Semi-structured interview protocol 2 - Technology in teaching and learning ................................................................. 321

APPENDIX VI: Semi-structured interview protocol 3 - Views and experiences about teaching and learning .................................................. 324

BIBLIOGRAPHY .................................................................................................................................................................. 327
LIST OF FIGURES

Figure 3.1: Formation of teacher professional identity.........................................................57

Figure 4.1: Participants' Age (n=159)..................................................................................97

Figure 4.2: Years of primary and secondary Education (n=154)..........................................100

Figure 4.3: Years in which the participants completed college training (n=158)..............105

Figure 4.4: A cross tabulation of computer confidence and skills of....................................117
LIST OF TABLES

Table 1.1: ICT Infrastructure indicators in Lesotho .......................................................... 4
Table 1.2: School ownership in Lesotho ............................................................................. 11
Table 2.1: 21st Century skills and use of technology ............................................................. 28
Table 2.2: Constructivism and technology integration ......................................................... 29
Table 2.3: Functions of web resources ................................................................................. 31
Table 2.4: How web resources support constructivism–based teaching and learning programs. ................................................................................................................. 32
Table 3.1: Questionnaire and interview protocol structures .................................................. 70
Table 3.2 Distribution of questionnaires .............................................................................. 77
Table 3.3: Example of how coding and analysis of interview data were carried out in Stage 1 ..................................................................................................................... 90
Table 4.1: The age of the participants (n=159) ..................................................................... 98
Table 4.2: The gender of the participants (n=159) ............................................................... 98
Table 4.3: Type(s) of schools attended ................................................................................. 102
Table 4.4: Location of Schools attended .............................................................................. 103
Table 4.5: College qualifications (n=158) ........................................................................... 107
Table 4.6: Year of study at NUL (n=158) ........................................................................... 108
Table 4.7: Number of years of teaching experience (n=156) .............................................. 110
Table 4.8: Type(s) of schools taught (n=159) ...................................................................... 111
Table 4.9: Computer skills of the participants (n=159) ....................................................... 114
Table 4.10: Computer skills versus computer education cross tabulation (n=159) .......... 114
Table 4.11: Participants' computer confidence (n=159) ..................................................... 116
Table 4.12: Participants access to technology in the everyday life (n=159) ....................... 120
Table 4.13: Importance of technology to the participant (n =159) ...............................122
Table 4.14: Participants confidence of technology use in the everyday life (n=159) ...........123
Table 4.15: Technology knowledge and skill need in the everyday life (n=159) ............124
Table 4.16: Technology access in the community (n=159) ........................................125
Table 4.17: technology access by participants versus other members in the community ...126
Table 4.18: Technology uses in the community (n =159) .............................................127
Table 4.19: Technology uses by the participants and in the community .......................128
Table 4.20: Technology uses in the industry and business sectors ...............................129
Table 4.21: Familiarity with technology before becoming teachers (n=159) .................131
Table 4.22: The stage at which technology became important before they became teachers (n=159) ........................................................................................................132
Table 4.23: Importance of technology in the various stages of the participants lives (n=159) ........................................................................................................................................134
Table 4.24: Technology skill and knowledge of the participants before becoming teachers (n=159) ........................................................................................................................................135
Table 4.25: Participants competence to carry out technology applications before they became teachers (n=159) ........................................................................................................136
Table 4.26: Participants access to technology for classroom use (n=159) ......................140
Table 4.27: Participants’ access to technology in the everyday life and for classroom use (n=159) ........................................................................................................................................140
Table 4.28: Students level of access to technology (n=159) ...........................................142
Table 4.29: Technology importance for students (n=159) ..............................................143
Table 4.30: Participants' frequency of use of technology (n=159) ....................................144
Table 4.31: The Frequency of technology use by other teachers (n=159) ......................146
Table 4.32: A comparison of participants’ and other teachers’ frequent use of technology ..................................................................................................................................................146
Table 4.33: How other teachers value technology resources for their students (n=159) ....148
Table 4.34: School policies and technology use in teaching and learning (n=159) ..........149
Table 4.35: Communities views about technology in teaching and learning (n=159)........150
Table 4.36: Available technology resources before the participants became teachers (n=159) ................................................................................................................................................153
Table 4.37: Technology access before teachers became teachers (n=159) ......................154
Table 4.38: Technology importance to the participants when they were students (n=159)155
Table 4.39: Present and past views of the participants about technology in teaching and learning (n=159) ..............................................................................................................................................156
Table 4.40: Stages at which technology became important .............................................157
Table 4.41: Participants' interpretation of teaching (n=159) .........................................160
Table 4.42: Important elements of teaching (n=159)......................................................161
Table 4.43: Typical instructional lessons of the participants (n=159) ............................162
Table 4.44: Participants’ descriptions of successful teaching (n=159) ............................163
Table 4.45: Influences on the teachers’ instructional strategies (n=159) .......................165
Table 4.46: Administrations' interpretation of good teaching (n=159) ..........................167
Table 4.47: Administration's views of a good teacher (n=159) ........................................168
Table 4.48: Students’ views about a good teacher (n=159) ............................................169
Table 4.49: A good teacher in the local communities (n=159) .......................................170
Table 4.50: Participants' interpretation of learning before they became teachers (n=159)172
Table 4.51: A typical instructional lesson when participants were students (n=159) ....174
Table 4.52: A comparison of participants’ interpretation of learning as students and their experience of a typical lesson (n=159) .................................................................174

Table 4.53: Views about successful learning during primary and secondary education (n=159) .........................................................................................................................176

Table 4.54: Participants’ past views about a good teacher (n=159) .................................................................177

Table 4.55: Conditions during teacher training (n=159) ....................................................................................178

Table 4.56: Views about the beliefs in the community in the past about a good teacher (n=159) .................................................................180

Table 5.1: Summary of participants profiles ..................................................................................................187

Table 6.1: Access to Information and communication technology indicators in Lesotho Form 2000 – 2009 ........................................................................................................289
CHAPTER 1: INTRODUCTION

This study investigated the influence of professional identities of secondary School teachers in Lesotho on their use of technology in the classroom. Particularly, the study investigated the influencing aspects of three landscapes, which are personal and professional to individual teachers, situational to their work, and contextual to the schools. Personal and professional aspects included teachers’ personal and professional profile, situational included technology conditions in the schools and are situational to teachers’ work. Contextual aspects are in the local communities in which schools are located and teachers lived.

The results in this study explain how these landscapes work together to influence classroom practices with technology in the classroom. It is intended that this information will provide a better understanding of how teachers work and factors to consider when planning technology initiatives in schools. Furthermore, that this understanding will provide a better chance for these technology projects to succeed. That is, such projects could use the results of this study to inform their implementation strategies, particularly the strategies that can support teachers in their everyday professional decision-making when planning and implementing instruction.

This chapter positions this study schools owned by churches in the area of educational technology and explains its significance. It begins by providing background to the study and explaining the setting in which the study was conducted and the research methods adopted. The research questions that guided this study are stated and the limitations of the findings are summarised. The final section outlines the structure of this study.

SECTION 1: Background

In contemporary societies, digital technology resources have been viewed as a panacea to long existing problems in education. This view alleges that, teaching that properly integrates digital technology resources engages learners in such a way that they participate in the creation of knowledge, and that through this engagement learners are able to acquire knowledge and skills necessary in the modern societies and their labour markets. As a result of this perspective, digital
technology resources have entered the classroom in one way or another. They have been brought in by policy-makers (at the school or national level) and other stakeholders such as parents and school managers. This came as a response to on-going demands that contemporary school education should integrate digital technology resources. Digital technology resources have also been brought in the schools by other bodies from outside the educational system such as non-governmental organisations and funding bodies with similar perspectives. From these efforts, there have been expectations that the availability and access to digital technology resources in the classroom will result in teachers integrating such resources in their work more than they did with analogue technology resources (Cornu, 2003). These aspirations are as important in developing countries as they are in Western or ‘rich’ countries.

SECTION 1.1: Educational technology in developing countries

While the main focus in the literature, particularly from Western and rich countries, appears to be about technology making instruction more effective for students’ learning; in developing countries the concerns and interests about technology in education have been different. Technology has been viewed as a panacea for economic and political problems existing in the educational systems in developing countries. That is, technology is viewed as capable of solving problems of access to education, teacher recruitment, cost of education, and school graduate employment (Klees, 1995). As a result, studies that investigated how technology has been used in developing countries in the past have not necessarily focused on the classroom. For example, studies that looked at how interactive radio and educational television were used in developing countries, reported that these technology resources were used primarily to solve socio-economic and political problems such as: reaching learners who cannot easily access education and those in remote areas, educating as many children as possible with fewer teachers and locations, making education accessible and affordable, and providing in-service training for teachers at a distance (Shrestha, 2000)
However, since the emergence of digital technology resources, there have been many initiatives and funding opportunities for technology projects in schools in developing countries. Most of these projects are from regional and international non-government organisations and agencies from Western and ‘rich’ countries. For example, projects such as World Links program, The Digital Education Enhancement Project (DEEP), e-Africa, the ICT Commission of the New Partnership for Africa’s Development (NEPAD) are found in many African countries and are either funded by international bodies or Western and rich countries. All these projects aim to assist developing countries to bridge what Hawkins (2002) describes as a “digital divide” that has caused an imbalance in educational opportunities between students in the West and students in developing countries. Unlike interactive radio and educational television, these projects are funded to explore the potential use of digital technology resources to support teaching and learning programs, and professional development of teachers. There is also a growing interest in how technology could be used to benefit learners’ education. This interest also results from the observation that even in developing countries labour market demands are also changing in these countries. Similar to other countries, labour markets in Lesotho have also begun to require school graduates who can use technology competently to increase productivity and creativity. However, there have been many challenges that have been in the way of success of technology projects in Lesotho. These include:

- Lack of National policy in Education that clearly defines the nation’s vision on education
- Lack of national ICT policy that is specific to teaching and learning. For example, there is national ICT policy in Lesotho, but this policy only makes reference to ICT in education and is not explicit on the vision of ICT in teaching and learning in Lesotho (Farrell, Isaacs, & Trucano, 2007).
- Lack of national infrastructure: technology infrastructure is elementary and rudimentary.

Table 1.1 shows the figures of available ICT infrastructures and users (see Table 1.1)
### Table 1.1: ICT Infrastructure indicators in Lesotho

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed lines</td>
<td>48,000 (2005)</td>
</tr>
<tr>
<td>Cellular</td>
<td>245,100 (2005)</td>
</tr>
<tr>
<td>Radio broadcast stations</td>
<td>AM 1, FM 2, shortwave 1 (1998)</td>
</tr>
<tr>
<td>Television broadcast stations</td>
<td>1 (2000)</td>
</tr>
<tr>
<td>Internet hosts</td>
<td>168 (2006)</td>
</tr>
<tr>
<td>Internet users</td>
<td>43,000 (2005)</td>
</tr>
</tbody>
</table>


- lack of human resource capacity to support technology projects and programmes in schools;
- lack of fiscal resources;
- lack of learning content on the Internet that is locally and contextually relevant;

There are also other problems faced by the Lesotho government, and which are indirectly related to the success of technology projects in Lesotho. They include:

- limited access to education to a large number of Basotho children. Currently, it is estimated that 25 percent does not attend school. This particularly happens in rural areas and from families living below poverty line. Problems that affect the schooling of children in Lesotho include:
  1. stress,
  2. poverty,
  3. child homelessness and abandonment that result from divorce and death mainly through HIV/AIDS, and increasing numbers of orphaned and vulnerable children becoming heads of families;
  4. The costs of school attendance, books, uniforms, and educational materials which are unaffordable to many families;
- gender imbalance that favours girls in schools;
- insufficient supply of well-educated local teachers;
Chapter 2

- insufficient literacy and numeracy programs, particularly for adults;
- lack of vocational and technical programs that provide school graduates with employability skills;
- losing experienced teacher supply through HIV/AIDS in addition to other causes of attrition such as retirement or transfers to other sectors;

These conditions position themselves as educational priorities that the government of Lesotho need to address first before they could start thinking about how they can support technology in teaching and learning.

There have been observations that technology projects that are introduced in schools in developing countries do not take into considerations the conditions in the schools in developing countries such those outlined in this section. These observations suggest that digital technology projects in schools in Africa, have failed recognise these problems and to “transfer” digital technology resources to suite the existing conditions in the schools. Rather, they have “uprooted” and “transplanted” technology resources from the West and ‘rich’ countries into the classrooms (Unwin, 2005; Odedra, Bennett, Goodman, & Lawrie, 1993; Shrestha, 2000). One criticism, according Shrestha (2000) is that these projects have failed to “transfer” technology from the Western and rich countries into the African classrooms, rather, they “uproot” and “transplant” technology into the African classroom. As a result, most of these projects have been unsuccessful. There have also been comments that this approach is not a new trend, that a long line of innovations and reform projects in education (also in other parts of Africa) have been unsuccessful or could not be maintained because of this approach. They failed to acknowledge the problems that are unique to socio-economic and cultural conditions in Africa (Odedra, 1993). Rather, the innovators have been interested in “leap-frogging” technology in Africa in order to catch up with the West (see Unwin, 2005; Shrestha, 2000). This criticism go further to point out that because technology is not value free (Hodas, 1993; Norman, 1999; Shrestha, 2000), when it is “uprooted” from Western and rich countries, and “transplanted” in developing countries, it is often accompanied by needs and requirements that are based on the beliefs, values and practices from where it originates. As a result, it conflicts with the existing conditions in the classrooms in Africa. For example, there are technology projects that have been implemented in schools that require an abundance of resources, continual maintenance and a low student to teacher ratio.
The point made is that the demands imposed by technology projects are unrealistic to the classroom conditions in schools in Africa. For example, student-teacher ratios in these countries could be as high as 80:1 (Hawkins, 2000), small school budgets that are not able to buy more technology resources or to continue to maintain those brought along by the projects; also as observed by Unwin (2005) and Hawkins (2000), government budgets in these countries are overstretched by basic demands such as health, literacy and eradication of poverty (Unwin, 2005; Hawkins, 2000). Therefore, they are not able to increase school budgets so that they can maintain these technology projects. On the basis of this argument are recommendations that donors and funders of technology projects recognise the existing conditions in African schools and design projects which are likely to succeed in these (Unwin, 2005; Hawkins, 2000).

Numerous studies investigation has been done about technology in the classroom. Studies that have been involved in these investigations have concluded that Technology projects that are introduced in schools in developing countries may not be able to address classroom conditions which are at national level such as national policies, improvement of infrastructure and increasing the size of school budgets. This is because, such conditions are the results of wider national socio-economic and cultural conditions that can only be resolved at that national level. These may include governments: increasing school budgets, formulating policies at national and school level which outline educational mission and goals, ICT mission and goals at system level, at school level and classroom level. However, information which could be available to these projects on the conditions that exist at school level, classroom level, or teacher level, may be useful in their design and implementation which are suitable for existing conditions in the classroom.

Because teachers are important element of classroom practices (Fullan & Stiegelbauer, 1991), this study intended to investigate the perceptions of teachers on the use of technology resources in teaching and learning, how these perceptions are influenced by their professional identities. This investigation is based on the view that, this information could be used in the design and implementation of technology projects in schools in Lesotho.
SECTION 1.2: Teachers’ perceptions and professional identity

Teachers are an important and central element to the success of innovations intended for the classroom (Fullan & Stiegelbauer, 1991; Van Braak, 2001; Watson, 1997; Jones, 2002; Cox, Preston & Cox, 1999). Their perceptions of change in the classroom are as important as their perceptions of useful teaching and learning strategies. Factors that affect teachers’ perceptions include those that are personal, professional and unique to individual teacher, working conditions found in schools, and socio-economic and cultural conditions in the external environments of the schools. Combined, these factors shape teachers' professional identities, and which in turn influence teachers' perceptions of their profession. (cf. Van Braak, 2001; Beijaard, 1995; Beijaard, Meijer, & Verloop, 2004). Factors which influence which teachers’ perceptions of their profession could be viewed as aspects of teacher professional identity.

Described by Epstein (1978, p.101), identity is a concept which represents the process by “which the person seeks to integrate [their] various statuses and roles, as well as [their] diverse experiences, in a coherent image of self”. Being specific to professional identity, Wenger (2006) describes professional identity as “an engagement with the world” in which people make choices about what is, what should be and how it should be. Such choices are usually influenced by what people had experienced and know about their past (histories), how they link such experiences with their present, and how and the degree at which they interact in their professional communities. It is through these interactions that teachers develop perceptions of who they are and who they want to become at cognitive and sociological levels. These perceptions also justify their commitment to their professional practice and the means which they use to execute their professional activities (Bejaard, 2006).

Factors which influence teachers’ perceptions of their profession include experiences in the past and present lives of teachers, and their interactions with others in their professional communities. These factors also depend on the teachers’ personal and professional characteristics as individuals, the working conditions in the schools and the socio-economic and cultural conditions in communities in which teachers live and which schools are located. It is these factors which influence teachers’ perceptions of their profession such as selecting teaching and
learning strategies, teaching resources that support these strategies, and the strategies they use to integrate these resources.

1) Personal and professional aspects of teacher professional identity

There is evidence in the literature to suggest that aspects of teachers’ individual personality and professionalism are responsible on how they view their profession. As explained by Barty (2004), the “individuality of every teacher impacts the teacher’s philosophical beliefs, and ultimately the pedagogical approaches the teacher uses in the classroom” (p.1). The personal and professional aspects that identify a teacher as an individual include: gender, age, personal histories and experiences in the everyday life, professional experiences in the classroom; knowledge and skills in their everyday personal and professional lives (cf. Mumtaz, 2000; Handal, 2004); philosophical beliefs on teaching and learning; high confidence in the use of teaching and learning strategies; attitudes and beliefs (used interchangeably with perceptions and views) on the efficacy of resources they use, and perceptions they have of their abilities to integrate such resources (including technology) in their practice.

Although these aspects are ascribed to individual teachers, they could also be shared by others in the teacher's professional community and sometimes in the local communities. Hence, also observed by Sato and Kleinsasser (2004), when these aspects are shared at the level of professional community in which a teacher interactions with others, they:

...create a web of relationships within school’s workplace. ... [and in turn,] this web creates the culture that provides for the types of interactions that occur, and the manner in which most of the teachers practice, and the beliefs that are held by the teachers both collectively and individually (p.812).

These interactions were first observed by Bourdieu (1979) who refers to them as “habitus” of practice and says they are “a system of durable, transposable dispositions”. Elaborating on this observation, Zevenbergen, (2006) indicates that habitus of practice predisposes teachers to act, think and behave in particular ways. They can change and reshape the practices of one who enters a specific context. The descriptions of habitus by Bourdieu and others appear similar to the descriptions of professional identity described in the literature. For example, Zevenbergen (2006) also describes both (professional identity and habitus of practice) as, “product[s] of
history which [are] both of product[s] of, and [produce], individual and collective practices” (p. 617).

Literature that documents personal and professional aspects of school teachers in Lesotho and factors that affect their perceptions as individual is very scarce. However, there is some information about professional profile of teachers in developing countries which is viewed also applicable to school teachers in Lesotho. Such information is provided by Oplatka (2007) and Trucano (2005). They suggest that in developing countries:

- teachers hold low pre-service qualifications;
- they have limited opportunities to participate in in-service training;
- they view teaching as transmission of knowledge and;
- teachers’ classroom practices strictly adhere to prescribed curriculum and textbooks, summative assessment of achievements, and conservativeness;

Trucano (2005) also observes that teachers in these countries lack practical knowledge and skills to integrate technology in their practices. The observation of Trucano of teachers’ involvement in professional development activities is that,

teacher training often involves one-off, topic-led, short-term training programmes that aim to develop specific skills of teachers, but which do not necessarily comply with professional standards of competency development” [and] most teacher-training programmes in Africa involve the development of basic ICT skills, sometimes as an end in itself, although in some cases these include the application of ICTs as a learning tool for teachers (p.20).

2) Working conditions in schools and teacher professional identity

Working conditions in schools also influence how teachers perceive their profession. Such conditions include the resources available and accessible, school policies and management, the curricula, the types of learners in the school, and the general culture of teaching and learning in the school (see Cuban, 1986, 2000 & 2001; Watson, 1997; Sato and Kleinsasser, 2004). Also, and as indicated in the previous section, professional perceptions of individual teachers do not exist in a vacuum. There is a technical environment that is formed by other teachers' perceptions
about teaching. in the school that is formed by other teachers' perceptions. This environment forces individual teachers to align their perceptions along those of co-workers and school leadership and management (Sato and Kleinsasser, 2004). It is this technical environment that also influences any teacher who enters it, those new or experienced and who join in as newcomers from outside. It forces the newcomers to redefine their professional perceptions and align them with those that already exist in this environment.

School conditions that are likely to influence how school teachers in Lesotho perceive their profession include school ownership, policies, and resources of schools. For example, in Lesotho, most of teachers work in the schools owned by churches. Churches are the main providers of primary and secondary education in Lesotho because they own most of the schools (see Table 1.2). Only few schools are owned by the government or the community. Therefore, this gives churches a greater power to determine the type of education they provide in their schools and how it should be delivered by teachers. For example, churches may push their perceptions through school policies that focus on their ethos, forcing teachers to align their professional perceptions and practices along those reflected in these policies. Further, schools in Lesotho are mostly funded by their owners. Where they are funded by the government, such funding is in a form of teaching grants. However, most of churches in Lesotho are poor. Hence As school owners, they are not able to meet all the needs in their schools. It follows therefore that, they that schools that are owned by churches would lack teaching and learning resources which teachers can use to enrich their professional practice.
Table 1.2: School ownership in Lesotho

<table>
<thead>
<tr>
<th>School type</th>
<th>Primary (n)</th>
<th>Percent (%)</th>
<th>Secondary (n)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>61</td>
<td>4.5</td>
<td>21</td>
<td>9.4</td>
</tr>
<tr>
<td>Community</td>
<td>55</td>
<td>4.1</td>
<td>12</td>
<td>5.4</td>
</tr>
<tr>
<td>LEC *</td>
<td>481</td>
<td>35.5</td>
<td>68</td>
<td>30.5</td>
</tr>
<tr>
<td>RCC (Catholic)*</td>
<td>509</td>
<td>37.6</td>
<td>79</td>
<td>35.4</td>
</tr>
<tr>
<td>ACL*</td>
<td>176</td>
<td>13.0</td>
<td>29</td>
<td>13.0</td>
</tr>
<tr>
<td>AME*</td>
<td>24</td>
<td>1.8</td>
<td>5</td>
<td>2.2</td>
</tr>
<tr>
<td>Other</td>
<td>47</td>
<td>3.5</td>
<td>8</td>
<td>3.6</td>
</tr>
<tr>
<td>Private</td>
<td>2</td>
<td>0.2</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Total</td>
<td>1,355</td>
<td>100.0</td>
<td>223</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: * denotes church-owned schools.


Large classes which teachers in Lesotho schools are another factor that could be influential on teachers’ perceptions of their profession. Observed by Hawkins (2001–2002), student -teacher ratio which could be as high as 80:1 in some classes in developing countries. Therefore, preferences of teaching strategies and resources by teachers working with these classes are likely to differ from those that they would have perhaps choose if they are teaching smaller classes.

3) Socio-economic and cultural conditions in the local communities of schools and teacher professional identity

Another type of factors that are likely to influence teachers’ professional perceptions is socio-economic and cultural conditions in the external environments of the schools, particularly in the communities in which schools are located. These include social, such as resources available and used, national policies and curricula, and beliefs on teaching and learning. Viewed by Pelgrum and Plomp (1992), is that where technology resources are widely available and used in the communities, they are likely to be ‘pushed’ in the schools through national policies by stakeholders of education in the communities, or ‘pulled’ in the schools by school leadership and management. It also follows that where such resources are not commonly available and used, there are usually no initiatives that emerge locally and which influence school and national
policies. This is the case with technology in the local communities in most of African schools, including those in Lesotho. For example, highlighting technology situation in the communities in Africa, Odedra, Bennett, Goodman and Lawrie (1993) refer to Sub-Saharan Africa (the region in which Lesotho is situated) a “technological desert”. In view of Visscher’s suggestion (1999) that schools inherit socio-economic and cultural conditions which exist in their local communities, it would be expected that technology resources and knowledge would be almost absent in schools in Lesotho. Therefore, teachers’ perceptions of technology use in their profession may be shaped by lack of technology exposure. This may also suggest that teachers’ perceptions may lack knowledge of the capabilities and benefits of technology in their profession and in the societies' everyday life.

The conditions of development and sophistication of the infrastructure (electricity and communication infrastructure) which technology use relies on could also be influential on resources available in schools, and how they are accessed and used by teachers. Developing countries are characterised partly by poor development and maintenance of such infrastructure. In some parts of Lesotho, particularly in the urban and peri-urban areas, the conditions of these infrastructures are functional but basic. In some peri-urban and most of rural communities, these infrastructures are almost absent. In view that almost 83 percent of Lesotho is rural, there is an assumption that schools in most part of Lesotho lack technology facilities. Therefore, because schools usually inherit perceptions of teaching and learning from their local communities, it is reasonable to assume that in the schools in these communities, there would be very little technology use or even knowledge in schools located in the rural areas in Lesotho.

Another cultural aspect likely to be inherited by schools from their local context is perceptions of teaching and learning. Usually, these perceptions are reflected in the national policies and curriculum which schools use in their curricula. Reported by Trucano (2005), in most of African countries and Lesotho included, (1) teaching and learning is viewed as transmission of knowledge by a teacher to students and (2) student assessment that focuses on recollection of facts disseminated during teaching. Therefore, teachers are also forced to align their teaching with this perception.
4) Linking influencing factors with landscapes of teacher professional identity

In the previous paragraphs, it has been demonstrated how each set of factors could affect teachers' perceptions. These sets of factors include: (1) personal and professional of teacher profile factors and that affect them as individuals, (2) conditions in schools in which teachers work, and (3) socio-economic and cultural conditions in the local communities of schools. The main purpose of the discussion in the previous paragraph about how each set of factors influence teachers’ perceptions of their profession was meant to illustrate the importance of including all these factors in the explanation of teacher professional identity, and how these factors are related in the influence teachers’ professional practice. Therefore, each set of factors could be viewed as a landscape of teacher professional identity. Each landscape defines a different set of aspects which contribute to teacher professional identity. For example, personal and professional landscapes comprise personal and professional aspects of individual teachers. School conditions which are also situational to teachers’ works form a situational landscape of teacher professional identity. A set of factors that describes socio-economic and cultural conditions in the local communities, and that influence how schools function, and ultimately teachers’ work could be viewed as contextual landscape.

There is a shortage in the literature of studies that investigated the teacher’s professional identity, particularly studies that describe the professional landscapes of teacher identity in Lesotho and how they influence teachers’ perceptions of their professional practice with technology. In the investigation, this study focused on the three landscapes of teacher professional identity as described in this study.

SECTION 2: Research questions

The purpose of this study is to investigate the perceptions of teachers in the secondary schools about technology in teaching and learning, and how these perceptions were influenced by their professional identities. This investigation was driven by one major question: how does teacher professional identity inform teachers’ perceptions of technology in teaching and learning in the secondary schools in Lesotho? From this question emerged the following research questions:

1. How do teachers perceive technology use in the classroom?
2. What factors influence teachers’ perceptions of technology integration in the classroom? More specifically:

2.1. What are personal and professional factors that affect teachers’ views of technology in the classroom?

2.2. What are situational factors that affect teachers’ perceptions of technology in the classroom?

2.3. What are the socio-economic and cultural factors that influence teachers’ perceptions?

SECTION 3: Definitions of terms

This section defines technology terms that are used in this study. These are educational technology, information and communication technology or digital technology.

**Educational technology:** Educational technology has proved a difficult concept to define. The number of definitions found in the literature is evidence of the efforts that have been made to define this concept (cf. Gentry, 1995). In this study, the term educational technology is taken to refer to the artefacts that exist in the learning environments and are intended to be integrated in teaching and learning programs to assist the process of teaching and learning. Such artefacts include textbooks, types of boards used in the classrooms, electronic and non-electronic devices, analogue and digital devices. However, the focus of this study is specifically on the perceptions of use of electronic devices (digital and analogue).

**Information and communication technology (ICT) or digital technology:** Information and communication technology has been applied in this study according to the definition by Crystal (1997) which considers information technology (IT), a term often used interchangeably with information and communication technology and as a concept that covers a range of electronic devices (digital and analogue) that can be used to transmit or communicate information. Digital technology refers to information and communication technology devices that are electronic and use digits to convey or communicate information as opposed to analogue technology resources that use radio waves. However, both Analogue and digital technology resources are capable of capturing, storing, processing, retrieving and transmitting information. In this study information
Chapter 2

and communication technology refers to both analogue and digital technologies. Where a specific type of technology resources are addressed, analogue or digital, then such references are made.

**Technology availability and accessibility:** In this study, technology availability and technology accessibility are taken to mean different things to the user of technology. In this study, technology availability means the technology resources available in the relevant environment and which could be accessible for to other people and inaccessible to others. For example, through technology resources could be available in a school. However, through school policies these resources could only be accessible to other teachers and inaccessible to others. For example, schools could have computer devices and decides that such devices would be available only to those teaching technology related subjects such as computer studies or information and communication technology. Even though Molenda (1996) and Becker (2000) talk about easy access, they support this explanation because they indicate that sometimes technology resources are not kept in the classrooms, making them inaccessible to teachers when they want to use them.

**SECTION 4: Research context and participants**

This study investigated the secondary teachers' perceptions of technology in teaching and learning in the schools in Lesotho and how teacher professional identity was responsible for these perceptions. To recruit teachers who were then practicing in the secondary schools when this study was conducted working could have been ideal participants for this study, as because then teachers would be in their natural workplace. However, taking this approach would mean travelling around the country to sample schools in the various geographical regions of Lesotho, such as in the highlands, in the foothills, and in the lowlands (see Appendix 1 about these regions). Further, even in these regions, economical locations of the schools such as urban, peri-urban and rural would be important in the sampling. Therefore, this would require a considerable investment of time and money for travelling. Time and money were the constraints in this study. For example, the timeframe set for data collection for this study was three months maximum, with the minimum expenses involved. On this basis, recruiting student teachers who were enrolled in the undergraduate teacher degree programs in the Faculty of Education at National
University of Lesotho (NUL) to upgrade their certificate or diploma qualifications from Lesotho College of Education (LCE) was viewed as alternative approach. These student teachers:

- had initial teacher training at teachers’ training college, formally known as, National Teachers Training College (NTTC) and now as Lesotho College of Education (LCE), where they received a Secondary Teacher Certificate (STC) or a Diploma in Secondary Education (DES);

- came from schools located in the various geographical and economical regions of Lesotho as described in the previous paragraphs; where they worked after graduating from Lesotho College of Education.

- all of them had their school education (primary and secondary) in schools in Lesotho;

- had two or more years of teaching experience in schools in Lesotho;

Teacher with this sort of combination of qualifications in the secondary schools in Lesotho could be more than 14 percent of the population of secondary teachers in Lesotho (World Bank, 2005). This was also supported by 2007/2008 student records in the Faculty of Education at NUL. These records showed that about one-third of the student teacher population was this cohort of students. The personal experience of the researcher in this study, who followed the same career pathway as these student teachers, also confirms that teachers with a combination of LCE and NUL teaching qualifications in schools in Lesotho form a considerable proportion of the secondary teacher population.

Selecting this cohort of student teachers with shared experiences was therefore important because, as observed by Sato and Kleinsasser’s (2004), teachers’ shared beliefs are important because they could define a technical working environment in the schools and which in turn influenced individual teacher's practices (see also Beijaard, Veloop, & Vermunt, 2000, Smits & Fritz, 2008). This view suggests that teacher population identified in this study could have a considerable influence on the teaching culture in secondary schools in Lesotho and as a result, the views of student teachers investigated in this study could reflect the beliefs held by a considerable proportion of secondary teachers in Lesotho.
SECTION 4.1: Participants’ recruitment

The student teachers identified for participation in this study were recruited from the Faculty of Education at NUL during tutorial classes. Nine tutorial classes were identified. These classes were for core courses in the teacher program. These courses were compulsory for students in each of the four years of study in the Faculty. These classes were visited with the permission of the course coordinators. In these classes, there were student teachers who did not meet the set criteria for participation in this study. For example, in these classes there were student teachers who had:

- school education only; or
- post school qualifications other than teaching; or
- College teaching qualifications but not from Lesotho College of Education; or
- teaching qualifications from Lesotho College of Education but not for teaching in secondary schools; or
- secondary teaching qualifications from Lesotho College of Education and had at least two years of teaching experience other than in Lesotho secondary schools; or
- secondary teaching qualifications from Lesotho College of Education and had teaching experience in Lesotho schools which less than two years;

Therefore, during recruitment in the tutorial classes identified student teachers who did not meet the criteria for participation were asked to leave the class. Those that meet the criteria as described in the previous paragraphs were invited to participate in this study. Those who met the criteria but did not want to participate were also asked to leave.

Out of 500 student teachers identified, only 213 student teachers volunteered to participate in the survey, and 16 of which also volunteered to participate in a series of three interviews. The Survey of this study was conducted during tutorial classes immediately after the recruitment and student teachers had agreed to participate. For the survey, 213 questionnaires were distributed, of which only 159 were filled and returned.

Interviews were conducted after the survey over a period of three months. Sixteen student teachers who also participated in the survey, volunteered to participate in the interviews. Of these
16, only 14 turned up for all the scheduled interviews (three for each participant). The other 2 student teachers (of the 16 who volunteered to participate) did not show up for some of their interview meetings. Therefore their interview participation was disqualified and the data collected from them was not used in this study.

SECTION 5: Research design

This study investigated perceptions of secondary teachers in Lesotho on technology in their teaching profession and how teacher professional identity influenced these perceptions. The study used a mixed research methods approach that combined quantitative (survey) and qualitative (in-depth interviews) methods. This research strategy was chosen with the intention to conduct a wide and in-depth investigation which involved as many student teachers as possible; and which explored in-depth teachers’ perceptions of technology use in the classroom, and the influence of teacher professional identity on their perceptions. This influence would be described through the lenses of landscapes of professional identities of these teachers. It was the view of this study that combining survey and interview methods was appropriate and met the intentions of this study.

The study used QUAN-QUAL mixed method design. This research design approach combines quantitative and qualitative methods to collect similar data. Methods used in this study were survey (quantitative) and in-depth interviews (qualitative). These two methods used similar requesitons. For example, questions asked in the survey were also asked in the interviews. The only difference in these methods was how the questions were asked. Survey questions were closed ended and interviews were open ended. However, it is also important to note that these two methods were used independent of each other, and their findings in both methods carried equal weight. This approach is different from other designs in the mixed methods research approach. In other designs (QUAN-qual, QUAL-quant) the methods used are depended on each other, and are also influential on each others on the findings. Depending on the design, one method could be more important and carry more weight than the other. In the QUAN-QUAL design (quantitative - qualitative) used in this study, each research method is independent of the other, and they both carry equal weight and are used in the parallel fashion. That is why this design is also referred as parallel mixed method design.
In this study the survey and the interviews were both used to collect data that provide answers to the following two major questions:

1. How do teachers perceive technology use in the classroom?
2. What factors influence teachers’ perceptions of technology integration in the classroom?

More specifically:

2.1. What are personal and professional factors that affect teachers' views of technology in the classroom?
2.2. What are situational factors that affect teachers' perceptions of technology in the classroom?
2.3. What are the socio-economic and cultural factors that influence teachers’ perceptions?

In this study, 159 student teachers participated in survey, 14 of which also participated in a series of three interviews. The survey in this study was conducted first, then the interviews. The sequence in which data was collected by these methods in this study was not important because the two methods were independent of each other. For example, the interviews could have been conducted before the survey without affecting the findings of this study, as the design of this study was QUAN-QUAL mixed methods strategy. The survey was conducted first since it only required about 30 minutes to complete. Therefore, it was practical to conduct it immediately after the participants were recruited. The interviews required more time for preparation.

SECTION 6: Significance of the study

This study contributes to existing theory that teachers' professional identities influence their use choice of teaching and learning strategies and subsequently influencing their practices with technology in the classroom. The study provides “behind the scenes” information that explains why teachers choose to use particular strategies to integrate technology in the instruction. For example, the information in this study explains factors that teachers considered before deciding to integrate technology, and how this consideration finally affects their technology integration strategies in the classroom. This information contributes to the existing theory about teachers’
professional identities and classroom practices. This contribution is mostly significant to the theory of teachers’ professional identities and uses of technology in the teaching and learning programs because, although there is work done by few studies on teacher professional identity and classroom practice, information about how the underlying factors that are personal and professional, and socio-economic and cultural work together to influence teacher's perceptions and decision-making has been missing. It is also anticipated that the findings from this study would assist those who plan to design such projects; and such design would complement and at the same time improve the existing conditions in the classrooms in Africa, particularly those with similar conditions to Lesotho schools.

SECTION 7: Limitations

The limitations of this study are in the sample used to represent teachers in Lesotho. The teachers who participated in this study were temporarily removed from the classroom as they were studying in NUL to upgrade college qualifications to university undergraduate degree. As a result, could not be observed in the classroom, which is a natural setting of a teacher. Due to financial and time restrictions, the study relied on participants’ recollections of the past events related to technology in their practice. It is, therefore possible that participants’ recollections of the past practices and experiences in the classroom were not accurate. Possibly these recollections had been distorted by the limitations of the human memory that has problems of accurately recollecting and reporting on past facts and events. Thus, some information may have been missed or inaccurately reported by the participants. This may have compromised somewhat the validity of the information collected from the participants. To address this problem, the study could have involved other groups of people who have a stake in education in Lesotho. Such groups might have included teachers in the field, policy makers in education, students and parents. That is, the perceptions of these groups on how teachers in Lesotho work with technology and the influencing factors could have been investigated. The study could also have, instead of entirely depending on what the participants said, included other research methods such as classroom observations, field trips to the schools and local communities to observe and collect information from primary sources.
SECTION 8: Thesis structure

This study has six chapters. Chapter 1 introduces this study first by describing the research setting that has led to the conceptualisation of this study. The rationale for this study has also been explained. The chapter also provides an overview of the whole study. The remaining five chapters present and discuss in detail on the issues raised in this chapter.

Chapter 2 reviews the relevant literature with a particular focus on the philosophical views about technology in education, the views on the successes of technology projects in schools and the influencing factors. A teacher’s role and response to technology has been singled out as an influential element in the success of technology projects in the schools. Literature relating to teachers and technology in the classroom has been reviewed and the conclusion was made that teacher professional identity is important for teachers’ use technology in the classroom.

Chapter 3 explains the research methodology employed in this study. The chapter begins with a discussion of the mixed methods approach for the design for this study. This discussion explains what mixed methods approach is. It details the survey and in-depth interviews as research methods mixed in the design of this study. The instruments used to collect data, participants’ recruitment, and the actual procedures that were engaged to collect and analyse data in each method used are also described.

Chapters 4 and 5 present the findings of the study. The results that are presented in these chapters illustrate teachers’ perceptions of conditions that affect how they use and think of technology in their everyday personal and professional lives. Chapter 4 presents the survey results, while Chapter 5 presents the interview results. The survey results in Chapter 4 are also used in Chapter 5 to point out inconsistencies, to reaffirm or to question some of the findings.

Chapter 6 discusses the findings in response to the research questions of this study. The chapter first discusses the findings about teachers’ perceptions of technology use in the classroom, and relates these findings to the discussion of the literature reviewed in Chapter 2. This is followed by a discussion of aspects of teacher professional identity, with particular focus on the landscapes of professional identity, which influence teachers’ perceptions of technology in the classroom. This discussion is also linked to the literature reviewed in Chapter 2. The chapter also
discusses the implications for practice and suggests possibilities for further research work. Other supporting documents, to which readers may wish to refer to, are included as appendices at the end of this volume.
CHAPTER 2: LITERATURE REVIEW

This study investigated perceptions of Lesotho secondary teachers in of technology and how these perceptions are influenced by their professional teacher identity. Particularly, this study was conceived to demonstrate the importance of teacher professional identity in everyday classroom practices. The aim of this chapter is to contextualize this study in the research already done by others in the field of educational technology, particularly on the teachers’ perceptions of technology. This is achieved by a review of literature, and by demonstrating how research in this area has led to the point where investigating the role of professional identity on teachers’ perceptions of technology in the classroom in Lesotho has become important.

The chapter begins by positioning technology in the education of modern societies, with a brief overview of conceptual meaning and philosophical perspectives of technology in education. This is followed by a discussion of the uses of technology in the classroom and the factors that are associated with their successes or failures. A review of literature shows that teachers are one of the contributing factors to the success or failure of technology use in the classroom. Therefore, the chapter focuses on the teacher factor and discusses some of the factors associated with teachers’ use of technology in secondary schools in Lesotho. The concept of teacher professional identity is explored to demonstrate its importance on teachers’ perceptions. The chapter concludes with a discussion of the contribution of this study in the area of teachers’ perceptions of technology use in the classroom and the influence teacher professional identity has on these perceptions.

SECTION 1: Technology in education

Often technology in education is understood by many as media and communication hardware and software used in schools to enhance teaching and learning. However, technology in education means more than just this view. This section defines educational technology and describes some of the philosophies surrounding this concept. Furthermore, the section discusses how technology has been viewed and used in education.
SECTION 1.1: Definition
Various terms have been used to refer to technology in education. Such terms include “audiovisual and teaching aids,” “instructional technology”, “educational technology” and “interactive multimedia” (see Saettler, 1968, Gentry, 1995; Knezevich & Eye, 1970; Armsey & Dahl, 1973; Ely & Plomp 2006). This study adopts the term ‘educational technology’ as a generic term that encompasses a number of terms used in the field of educational technology. This is explained below.

There are multiple definitions in the literature for the term ‘educational technology’ because it has been difficult to arrive at a single definition that is acceptable and relevant to all of those who are in this field (Saettler, 1968, Gentry, 1995; Ely & Plomp 2006). According to Saettler (ibid), the problem of defining technology in education dates back to as early as 1900s. Many have been dissatisfied with the definitions that have been used to describe technology in education saying that: they are shallow; lack scientific descriptions; and they exclude other aspects of technology in education such as methods and techniques used in planning and delivery of teaching and learning programs, evaluation and selection of resources used in teaching and learning, and in the assessment of the instruction (Saettler, 1968). Hence, many definitions have been rejected by pioneers and notable figures in the field of educational technology for being one-dimensional in their description that lack depth in their meaning (ibid). Since Saettler’s observation, there have been many attempts to define educational technology. For example:

- Knezevich and Eye (1970) defined educational technology as “an effort with or without machines, available or utilized, to manipulate the environment of individuals in the hope of generating a change in behaviour or other learning outcomes” (p.16);
- Armsey and Dahl (1973) referred to educational technology as, “things of learning, the devices and materials which are used in the processes of learning and teaching” (p. vii)
- Association for Educational Communications and Technology (AECT) Task Force (1977) described educational technology as, “a complex, integrated process involving people, procedures, ideas, devices and organisation, for analysing problems, and devising, implementing, evaluating and managing solutions to those problems, involved in all aspects of learning” (p.164).
As late as 1995, Gentry made a similar observation as Saettler (1968) that defining educational technology remains a challenge and a definition which is acceptable to all groups is impossible. This view has also been supported later by Molenda (1996), Luppicini (2005), and Ely and Plomp (2006). In addition, Molenda (ibid) points out that this is because the concept of educational technology is often perceived differently by different groups:

To the majority (especially outside this field), technology is synonymous with mechanical and electronic tools. To others, especially specialists in the field, the term carries a broader meaning... (p.1912).

The problem of a definition of educational technology that is suitable to all is also highlighted by Ely and Plomp (2006) who maintain that technology is “an elusive” concept. They argue that the roots of educational technology are in many applied areas such as psychology, communications, management, and engineering. Therefore, the definition of educational technology is used in a variety of ways such as to describe professional practices, or even to limit the scope of professional activities. In view of the argument made by Ely and Plomp (2006) that people often define educational technology to match their purposes, the definition adopted by this study aligns with its purpose. This definition has been used by Ely and Plomp (2006) and it delineates educational technology as:

- aspects in the methodology of problem-solving;
- media tools that are integrated in the teaching and learning programs to facilitate core activities of such programs;
- a technique that is employed as a teaching and learning method in the activities based on non-electronic, analogue or digital media such as online interactive learning, or;
- a whole change in paradigm brought about by the importance of technology in teaching and learning.

In this definition, Ely and Plomp highlight the aspects of technology that are important for the focus of this study. These aspects are the techniques used by teachers to integrate media tools to improve the process of teaching and learning, and the teachers' general response to the new philosophies (change) about teaching and learning in modern communities.
SECTION 1.2: Benefits of technology in education

The origins of this study arose from the observation that in many communities and teaching and learning environments, digital technology resources are rapidly replacing analogue technology resources due to community demands that digital technology resources be integrated in teaching and learning (Fralix, 2001; Liikanena, Paul, & Toivanen, 2004; Rouvinen, 2006). This phenomenon is typical of the history of technology in education. History suggests that every time new technology resources emerge in communities their potential for benefiting education are also anticipated (Saettler, 1968; Cuban, 1986, 2000; Becker, 2000; Ely & Plomp, 2006). On the basis of these anticipations such technology resources are encouraged for use in teaching and learning.

1) Technology can make learning more effective and accessible

Analogue technology resources such as film, radio and television were viewed as capable of making teaching and learning more effective and more accessible. For example, film technology was valued for its ability to concretise learning content and ideas that were abstract to the learner (Saettler, 1968). This was first observed by Saettler who explains that, “much of the theorising behind the methodology of film use was based on the concept that pictorial is inevitably ‘real’, ‘concrete’, and ‘meaningful’. That is, the film medium not only brought visual reality but added concreteness through quality of motion” (p.118). At the time, these aspects of film were very important in teaching and learning because they supported the existing view that teaching and learning programs should have five stages in the following sequence: (1) actual reality, (2) pseudo-reality, (3) pictorial realism, (4) pictorial symbolism, and (5) verbal symbolism (see Saettler, 1968).

When radio and television entered the classroom, in addition to adding reality and concreteness to the learning content, they were also valued for their ability to broadcast teaching and learning

---

1 A brief timeline on technology in education is presented in Appendix 2. A detailed history, tracing educational technology since 1700 can be found in Saettler’s (1968) A history of instructional technology. Hawkridge’s (1996) Educational technology in developing countries, also presents some historical elements of educational technology in developing countries.
programs. These technology resources were viewed capable of providing access to education to many learners with minimal costs associated with utilisation of teachers. Thus, they could be used as a substitute for teachers in some circumstances to reduce educational costs. This was also observed by Cuban (1986), who commented that:

Passing on knowledge to students is the force that drives the engine of instruction. The question becomes how to teach information efficiently. Is there any mechanical or electronic device that is less costly than a teacher’s voice, with a class of thirty or more? (p.3)

According to Cuban (ibid), the use of technology in the classroom has always been linked to the need for improved teaching and learning programs in which students learn faster and teacher involvement is reduced.

2) Technology integration provides learners with relevant knowledge and skill

With the emergence of digital technology resources, efforts to use technology for effective teaching and learning have intensified. Also, there are new anticipations and aspirations about how digital technology resources can make education relevant and relate to modern society. This more recent perspective no longer restricts the benefits of digital technology resources only to effectiveness of teaching and learning programs, but now links such resources to the type and quality of knowledge and skills required in everyday life in a modern society. The current perspective is that digital technology resources should be integrated in teaching and learning programs with the intention to develop learners’ knowledge and skills relevant and functional in their prospective careers (Hawkins, 2002; Daly, 2001; Tinio, 2003). This new view could be seen as a testimony that such skills as functional literacy, inventive and critical thinking, and effective communication are considered critical in modern education (Tinio, 2003). Outlined by Tinio, “21st Century Skills include digital age literacy [that consists] of functional literacy, visual literacy, scientific literacy, technological literacy, information literacy, cultural literacy, and global awareness), inventive thinking, higher-order thinking and sound reasoning, effective communication, and high productivity” (p.6). Table 2.1 demonstrates how digital literacy functions and how they can promote learning.
Table 2.1: 21st Century skills and use of technology

<table>
<thead>
<tr>
<th>21st Century skills</th>
<th>Technology uses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Digital literacies</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Functional literacy</strong></td>
<td>decipher meaning and express ideas in a range of media: this includes the use of images, graphics, video, charts and graphs;</td>
</tr>
<tr>
<td><strong>Scientific literacy</strong></td>
<td>understand both the theoretical and applied aspects of science and mathematics;</td>
</tr>
<tr>
<td><strong>Technological literacy</strong></td>
<td>be competent in the use of ICT;</td>
</tr>
<tr>
<td><strong>Information literacy</strong></td>
<td>find, evaluate and make appropriate use of information;</td>
</tr>
<tr>
<td><strong>Cultural literacy</strong></td>
<td>learn and appreciate the meaning of multiculturalism in the modern society;</td>
</tr>
<tr>
<td><strong>Global awareness</strong></td>
<td>understand how nations, corporations, and communities all over the world are interrelated;</td>
</tr>
<tr>
<td><strong>Inventive Thinking</strong></td>
<td>adapt and manage in a complex, interdependent world;</td>
</tr>
<tr>
<td><strong>Adaptability</strong></td>
<td>be innovative and create new things;</td>
</tr>
<tr>
<td><strong>Creativity</strong></td>
<td>predict the outcomes where risks are taken;</td>
</tr>
<tr>
<td><strong>Risk-taking</strong></td>
<td>be creative problem-solver and logical thinker that make sound judgments;</td>
</tr>
<tr>
<td><strong>Higher-Order Thinking</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Effective Communication</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Teaming</strong></td>
<td>facilitate work in a team;</td>
</tr>
<tr>
<td><strong>Collaboration and interpersonal skills</strong></td>
<td>interact smoothly and work effectively with others;</td>
</tr>
<tr>
<td><strong>Interactive communication</strong></td>
<td>competently convey, transmit, access and understand information;</td>
</tr>
<tr>
<td><strong>High productivity</strong></td>
<td>prioritize, plan, and manage programs and projects to achieve the desired results; Ability to apply what they learn in the classroom to real-life contexts to create relevant, high-quality products;</td>
</tr>
</tbody>
</table>

3) Technology can promote constructivism in teaching and learning

Linked to the view that skills and knowledge are required in the modern society is the view of how digital technology resources should be used in teaching and learning so that learners acquire and practice these skills before they enter the labour market. Many believe that digital technology resources should be integrated in teaching and learning programs that are based on the principles of constructivism learning theory (see for example Ferguson, 2001; Neo & Neo, 2002; Herrington, Reeves, Oliver, & Woo, 2004; Jonassen, 1999; Dalgarno 2001). According to Dalgarno (2001) the principles that underpin the learning theory of constructivism are:

- People form their own representation of knowledge;
- People learn through active experience and learning occurs when they explore and uncover inconsistencies between current knowledge representation and their experience;
- Learning occurs within a social context, with interaction between learners, peers and other members of the learning community, and this becomes important part of the learning process.

On the basis of these principles, constructivists insist that learners should be actively engaged; that they should interact with their environment so that they can acquire information they need to create their own knowledge; and they should be able to assess and evaluate their own learning.

The view of Tinio (2003) is that teaching and learning programs that integrates digital technology resources are capable of achieving this argument. Promoting this view, Tinio (2003) discusses how ICT-based programs in teaching and learning can be designed based on constructivist principles and concurrently engages the learner in activities that are similar to those in the workplace. This discussion is summarized in Table 2.2.

Table 2.2: Constructivism and technology integration

<table>
<thead>
<tr>
<th>Constructivist practices</th>
<th>Technology-based instruction</th>
</tr>
</thead>
</table>
| Active learning          | • promotes learner engagement by providing a platform for student inquiry, analysis and construction of new information;  
                           | • mobilizes tools for examination, calculation and analysis of information  
                           | • provides “just-in-time” learning in which learners can choose what to learn when they need to learn it;  
                           | • provides learners with real-life problems to work on in-depth, making learning less abstract |

29
Constructivist practices | Technology-based instruction
---|---
**Collaborative learning** | and more relevant to the learner’s life situation; • encourages interaction and cooperation among students, teachers, and experts regardless of where they are; • models real-world interactions in which learners get opportunity to work with people from different cultures, thereby helping to enhance learners’ team work and communicative skills as well as their global awareness; • models learning done throughout the learner’s lifetime by expanding the learning space to include not just peers but also mentors and experts from different spheres; 
**Creative learning** | • promotes manipulation of existing information and the creation of real-world products; 
**Integrative learning** | • promotes a thematic, and integrative approach to teaching and learning that eliminates the artificial separation between the different disciplines, and between theory and practice; 
**Evaluative learning** | • promotes student-directed and diagnostic learning;


In the analysis of the Web as a delivery platform, Dalgarno (2003) demonstrated how digital technology resources promote and enhance teaching and learning which is constructivist oriented. In this work, first Web resources are identified and mapped to their functions (see Table 2.3). Resources such as the Hypertext Mark Language (HTML), Dynamic HTML, Java Applets and plug-ins such as Shockwave, which built the Web platform, also enable this platform to embed technology resources such as hypermedia, *simulation tools, Microworlds*, and *cognitive tools*. Because of these resources, Web-based teaching and learning programs can be interactive, allowing the learner to access information; to create and edit learning objects; and to simulate and model objects. Further, the communication tools that are also embedded in the Web platform allow the learner to communicate, while cognitive tools provide help and guide.
Table 2.3: Functions of web resources

<table>
<thead>
<tr>
<th>Web Resources</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypermedia (static text, graphics, video, etc.)</td>
<td>- information creation and editing</td>
</tr>
<tr>
<td>Computer mediated communication tools (CMC)</td>
<td>- communication</td>
</tr>
<tr>
<td>Simulation tools and Microworlds</td>
<td>- object or process simulation or modelling</td>
</tr>
<tr>
<td>Cognitive or artificial intelligent tools</td>
<td>- help and guide</td>
</tr>
</tbody>
</table>

Note: Data for this table was compiled from Dalgarno, B. (2001). Technology resources supporting highly interactive learning resources on the Web: An analysis. Journal of Interactive Learning Research, 12 (2/3), 153 -171

In the explanation of the benefits of using these resources, Dalgarno also explains how the resources in the Web platform can be taken advantage of to design teaching and learning programs that promotes the principles of constructivism theory of learning (see Table, 2.4). Teaching and learning programs that are Web-based use Hypermedia tools which are in the form of text, graphics and or audio. They include editing tools to allow the learner to engage in a self-paced exploration of information required for individual knowledge construction. For example, the learner uses available information in this platform: (1) as learning content and to create and edit learning documents, files and objects; (2) the learner uses communication tools to interact with peers and other members of the learning community to request for clarifications and help, or even to share ideas; and in the process, (3), the learner also uses simulation and Microworlds resources to model and simulate abstract ideas using cognitive tools for guidance in the deliberation, decision-making and task selection made in the process. Thus, Dalgarno asserts that teaching and learning Web-based programs “allow the learner to explore ideas, manipulate information, and construct their own presentation of knowledge and … support feedback on the learning process” (2001, p.153).
Table 2.4: How web resources support constructivism–based teaching and learning programs.

<table>
<thead>
<tr>
<th>Web Resource</th>
<th>Principles of Constructivism</th>
<th>Technology Support</th>
<th>Learner activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypermedia (static text, graphics, video etc.)</td>
<td>Self-paced exploration of information in a quest for individual knowledge construction</td>
<td>Editing tools</td>
<td>- Access learning content</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Create and edit learning documents, files and objects</td>
</tr>
<tr>
<td>Computer Mediated Communication tools</td>
<td>Learning within a social context and interacting with peers in the learning community</td>
<td>Communication tools</td>
<td>- Request clarification or help, share ideas, team work, etc.</td>
</tr>
<tr>
<td>Simulation and Microworlds</td>
<td>The learner explores, manipulates or constructs within a world and consequently to discover really or abstract concepts within domain</td>
<td>Modelling and concept map tools</td>
<td>- Model and simulate ideas</td>
</tr>
<tr>
<td>Computer cognitive or artificial intelligent tools</td>
<td>Assist knowledge construction process of learner through supporting metacognitive strategies the learner employs to improve comprehension, retention, and individual in the due process.</td>
<td>Guidance tools</td>
<td>- Facilitates deliberation and decision-making for learning goals and task selection</td>
</tr>
</tbody>
</table>

Note: Data for this table was compiled from Dalgarno, B. (2001). Technology resources supporting highly interactive learning resources on the Web: An analysis. Journal of Interactive Learning Research, 12 (2/3), 153 -171

Generally, the views in this section highlight the importance of technology in education, and how different perspectives have been advocated for technology use in the classroom. These views also explain the shift in perspective about technology from supporting education with technology for effectiveness and access, to relevant skills and knowledge, and to realising teaching and learning that is based on the principles of constructivism.

The next section describes how technology has been used in teaching and learning and explains the claims that teachers infrequently use technology in the classroom. Next, the factors that are associated with teachers’ infrequent use of technology in their profession are discussed.
SECTION 2: Technology projects in schools: ‘successes’ and ‘failures'

History suggests that, despite the views on the benefits of technology in teaching and learning (as discussed in the previous section), projects aimed at technology integration in the classroom have never been as successful as anticipated by technology enthusiasts (Saettler, 1968; Cuban, 1986, 2000). For example, Saettler (1968) and Cuban (1986) trace unsuccessful efforts for technology to be used in schools back to when film, radio, television and computers projects emerged in schools. They, say despite all the efforts in schools, the use of analogue technology resources in the classroom has been minimal, and technology in schools has failed to affect teaching and learning as has been anticipated by the technology enthusiasts (also Klees, 1995 and Molenda, 1996). Further, the few technology projects that had been reported as ‘successful’ in schools have been mostly experimental and could not be replicated on a larger scale. According to Saettler (1968), the success of educational programs through radio stations in the 1900’s in the United States was only in the experimental stage, and that many of these programs disappeared even before they could develop into full innovative programs that could be rolled out into other schools. Further, Saettler (ibid.) asserts that even some of technology programs proposed for schools simply failed to take off.

Notable is that Saettler (1968) and the early work of Cuban (1986) report mainly on the use of analogue technology resources such as film, radio and television, and computers which were rare and less sophisticated at the time (1960s - 1980s) compared to current times. Now that digital technology resources have emerged and are dominating the everyday life of modern communities, efforts to bring technology in the classroom for teaching and learning have intensified. There are more technology projects in schools than before, intended for teachers to integrate technology resources in their professional practices (Cuban, 2000; Molenda, 1996; Becker, 2000). However, despite advancements in the development of digital technology resources, similar observations, as those made during analogue technology projects today about the success of the current digital technology projects in schools, are also being made. These observations suggest that digital technology resources are not being integrated in teaching and
learning as anticipated by technology enthusiasts (see Cuban, 2000; Becker, 2000; Ely & Plomp, 2006). The claim is that they are infrequently used and they do not form part of the core activities in the teacher professional practice. It has also been observed that when teachers use these resources, they mostly use them as a tool that supplements teaching (Becker, 2000). Some of the more recent technology project evaluation reports, such as in Farrell, Isaacs, and Trucano (2007) reiterate the claims made by Saettler in 1968, Cuban in 1986 and 2000, and Becker in 2000. These claims suggest that some of the digital technology projects in schools fail at the experimental stage. Also, those that have been reported successful are only in their experimental stage and cannot be developed and duplicated to a wider scale that includes other schools or even other countries.

Many factors have been linked to unsuccessful technology projects in schools worldwide. Some are non-teacher related and others are teacher related (Cuban, 2000; Becker, 2000). Teachers do not have influence or control over non-teacher related factors. These factors are at situational to teachers’ work and are found in the internal environment of the school. Others are contextual to schools and are in the local communities in which schools are located and teachers live. Situational factors include technology resources available and accessible for teaching and learning, curriculum, management and leadership and the calibre of students in the school. Contextual factors are found in the external environment of the schools and they form a context in which schools operate. They include social, economic and cultural factors that are in the local communities in which teachers live and schools are located. These factors include national views on teaching and learning (for example these views could be reflected in the national policies on education and curricula), and the extent at which technology resources are available and used in these communities. Teacher-related factors affect a teacher as an individual person and professional. They include knowledge and skills, beliefs on teaching and learning, and views on the effectiveness of teaching and learning with technology. These types of factors are discussed in detail in the sections that follow.
SECTION 2.1: Non-teacher related factors

Among those who observed that non-teacher related factors are influential on how teachers integrate technology in the classroom are Saettler (1968) and Cuban (1986). According to their observation, these factors include the working conditions found in schools and social, economic or cultural conditions in the local communities in which teachers live and schools are located. These were first pointed out by Saettler (1968) in the early days when reporting on film, radio and television technology projects in schools. The report argued that many technology projects did not succeed because they failed to realise that: implementation requirements were more than just teachers mastering technology techniques; research on the school internal and external conditions of schools was necessary before such projects were designed; and experimentation was needed before the proposed technology projects could be implemented and become successful.

Cuban’s work (1986, 2000) also emphasises non-teacher related factors being responsible for unsuccessful technology integration by teachers in the classroom. This emphasis is made particularly in the book *Teachers and Machines: The classroom use of technology since 1920* (1986). This book traces how technology has been used in the classroom by teachers since 1920. The emphasis is also in the paper that was prepared and presented at the Council of Chief State School Officers' Annual Technology Leadership Conference at Washington, D.C, So *much High-Tech money invested, so little use and change in practice: How come?* (2000). In this work, Cuban first confirms the claims that teachers infrequently integrate technology in their classroom practices. He then clarifies that non-teacher related factors are responsible for how teachers have been using technology in the classroom. Even other studies which are more recent than Saettler’s (1968) and Cuban’s (1986) still report the same results that non-teacher factors are responsible for how teachers use technology in the classroom.

One such important study is of Becker (2000) that aimed to validate Cuban’s 1986 claims and to establish whether they were still applicable in 2000. This study was prompted by the advances made in the developments of digital technology hardware devices and software applications, and
their availability and accessibility which had become easier in schools since Cuban’s study in 1986. For example, since 1986:

- bandwidth has increased;
- computing has become wireless and mobile;
- storage devices have increased capacity;
- access to online teaching and learning resources has increased;
- there are more Web-based software applications and resources for authoring and presentations;
- digital graphics can be easily created and edited;

Generally, digital technology resources had become more available, accessible, capable, and flexible for classroom use. In addition, these resources now offer more teaching and learning opportunities than they did in the past in 1986 when Cuban made claims about the infrequent use of technology by the teachers (Becker, 2000). On the basis of these developments, Becker aimed to find out whether some of the problems identified by Cuban were resolved.

Becker’s survey involved 11000 schools across the US, in which 4000 teachers from grade 4 to grade 12 participated. The findings from this study confirmed that there had not been much change since Cuban’s study to teachers’ infrequent use of technology in the classroom. For example, Becker found that only about 24 percent of teachers frequently integrated technology for teaching and learning activities. Becker also found that non-teacher related factors such as teachers’ professional load and time available still limit teachers’ use of technology in the classroom. Becker therefore concluded that “intractable workplace conditions still limit widespread classroom use of computers” (p.2).

Other studies before and after Becker's have also made the same findings about non-teacher related factors identified by Cuban (cf. Plomp & Pelgrum, 1992; Pajares, 1992; 1993; Veen, 1993; Levin, 1995; Odera, 2002). In fact, the findings from these studies indicate that non-teacher related factors are not influential on technology related practices only, they also affect every day teachers’ decision making about what to teach, when to teach, who to teach and how to teach.
Although there is a general view that non-teacher related factors influence teachers' practices with technology in the classroom, there appears to be a difference in how some of these factors are emphasised in the literature. From these two economic regions, Western and 'rich' countries and in developing and poor countries. For example, the emphasis of the studies that are conducted in Western and 'rich' countries is on technology demands that conflict with the school conditions which are situational to teachers work. On the other hand, in countries that are developing and poor, the emphasis is more on the socio-economic and cultural conditions in the schools and in the communities that are Contextual to schools. The next section discusses these views in turn.

1) **Technology demands that conflict with teaching profession**

Non-teacher factors that are emphasized responsible for unsuccessful technology projects in schools in Western and rich countries are technology demands which conflict with teaching profession which is characterised by:

- teachers who have large teaching loads and do not have time to explore and use technology in their teaching;
- technology demands which are not in-line with the curriculum requirements;
- school day structure and activities which are routine-based and hence make it difficult for teachers to adapt them to technology needs;
- teachers who have other professional obligations and accountability and do not have enough time to modify their curriculum to suit technology needs;
- teachers who need convenient access to readily available technology resources. This is usually the cases where these resources are either inadequate and are not accessible to everyone in the school at the same time; or are faulty and need repairs; or they are placed in a specialised rooms away from the classroom and are not accessible for immediate use;

According to Cuban (1986, 2000) and Becker (2000) teachers are already overloaded with too many classes that have too many students, too many grades and too many subjects. To integrate technology in the classroom means additional responsibilities such as:
• acquiring new knowledge and skills;
• finding more time to prepare for technology-based teaching and learning programs;
• dealing with frequent breakage and malfunctioning of computers; and
• establishing new routines that allow teachers to be effective in the paradoxical environment in which they work;

These responsibilities affect teachers’ planning and implementation of classroom activities. Teachers have to choose and plan carefully teaching activities that they can implement successfully and with minimum classroom problems such as those related to learner's participation, allocation of resources, and classroom behaviour and management (Hawkins, 2000; Blatchford, 2003). For example, teachers with large classes are likely to plan and implement activities that do not require much of teacher’s attention to each individual learner. As a result, such activities may require minimal technology integration. The same could be said about teachers who teach multiple grades or subjects, since they have to ration their time to prepare for each grade and each subject. Therefore and as also observed by Becker (2000), teachers who infrequently integrate technology during teaching are those with large classes or teach multiple grades. This is because these teachers do not have adequate time to prepare for lessons that significantly integrate technology in everyday classroom activities.

According to Becker (2000), the time teachers had to cover curriculum and scheduling of lessons was another determining factor for some teachers not integrating technology in the classroom. Becker explains that the demand for teachers to cover recommended curriculum within a stipulated time puts a lot of pressure on teachers and limits the time required to ‘orchestrate’ student learning activities that integrated technology. In addition, teachers are not able to engage students longer than their scheduled lessons, as students have to be somewhere else for other lessons.

Lack of innovativeness in the technology projects intended for the classroom is another factor observed by Saettler (1968). In the early days when it was film, radio and television technology projects intended for teaching and learning failed to provide teachers with innovative strategies that they could use to realise the goals of projects.
Another non-teacher related factors that inhibits technology use by teachers, and is highlighted in the work of Cuban (1986; 2000) and Becker (2000), is the incompatibility of technology as a tool for teaching and learning with the requirements of other teachers’ professional obligations. According to Cuban, there are additional responsibilities of accountability placed on teachers by administrators and parents. In short, Cuban points out that it is too much to expect teachers to integrate technology regularly because in their professional environment:

There is a mix of conflicting cultural, community and organisational imperatives that create elements of the paradox. [That is,] in the books they use, the curricula they follow, their pedagogical choices, and the goals they pledge to achieve, teachers cope with contradictory social messages. Embedded in the policies, work routines, and expectations signalled by administrators, school boards, media and parents is a set of contradictory notions (p.2).

Technology access, as one of the non-teacher related factors is also important in teachers’ classroom practice (Becker, 2000). For teachers to frequently integrate technology resources in their work, such resources should be conveniently accessible during teaching. For example, the results from Becker's (ibid) study indicated that teachers who had convenient access to computers during lessons were likely to use computers more frequently than those who could not conveniently access computers during teaching.

2) Contextual factors in rich and developed countries

One important observation made from the review of literature from rich and developed is that the compatibility of technology projects with socio-economic and cultural conditions that exist in the internal and external environments of schools is not mentioned as a factor that is influential on teachers’ perceptions of technology in their professional practice. This could be explained by observation by that in the schools and in the local communities of these countries technology resources are available. Observed by Pelgrum and Plomp (1992) is that, the proliferation of technology resources in these communities has greatly influenced how people view and use technology. For example, technology integration in core activities in everyday life and in the labour market has become very important. Thus, in these communities, the benefits of integrating technology resources in the community’s everyday life and in labour markets are well-known. Therefore, there is an established view in these communities that the integration of technology in
teaching and learning is required in a modern society. This view also extends to how this integration benefits students, which it prepares and equips school graduates with knowledge that is relevant for labour markets in these communities. Also, this knowledge will make school graduates become responsible and functional citizens in these communities. As a result, technology projects that are found in schools in Western and developed countries are well suited and relevant in the local communities because they enter classroom either being pushed by the local communities, or pulled by schools administrators. This also means that conditions of technology infrastructure and resources found in the local communities, as well as the views on technology benefits in education in these communities, are well embedded in these projects, making them compatible to the socio-economic and cultural conditions that exist in the schools and their local communities.

In contrast, there is a different technology scenario in communities in developing and poor countries. First, in developing and poor countries, technology resources and their uses are scarce in the local communities and in the labour markets. For example, Molenda (1996, p.1915), commenting on technology availability in economically disadvantaged nations said,

In most of Latin America, and Africa, including Black South Africa, traditional audio-visual media are scarce and materials are scarcer, with little capability for local production…..

Even, Odedra, Bennett and Goodman (1993) go further to illustrate the plight of technology plight in the African continent by indicating that "Africa seems to be the lost continent of information technology resources (IT). The second largest continent is the least computerised"

3) Contextual factors in developing and poor countries

The concepts of push and pull factors of technology in the schools were coined by Plomp and Pelgrum (1992) in the discussion of how technology resources enter schools in their journal article “Restructuring of schools as a consequence of computers”. They explained that sometimes it is the awareness in the communities about the benefits of technology integration in education that results in governments forcing technology use through national policies and curriculum. Sometimes the awareness of technology in education originates with schools and as a result, they acquire technology resources to be used in their curriculum.
In developing countries, the focus on non-teacher related factors is mainly on the incompatibility of technology projects with the socio-economic and cultural conditions in the schools and local communities (Molenda, 1996; Shrestha, 2000; Unwin, 2005; Farrell, Isaacs & Trucano, 2007). According to these studies, the fundamental reason for the incompatibility of these projects to the conditions found in the schools and local communities is that most these technology projects are conceived outside schools and local communities. As a result of the scarcity of technology resources, many members of local communities are not familiar with most of the benefits of integrating technology in everyday life, in labour markets or in education. Therefore, they do not embed local resources that embed local socio-economic and culture beliefs. Rather, they bring technology resources that are embed with beliefs that are from outside.

This difference that exists between the two regions, the Western and rich countries and the developing and poor countries, on technology availability, accessibility and uses is referred to as a digital divide (beenHawkins, 2001–2002). Most of the projects found in schools in Africa are attempts from the Western and rich countries (and also from international organisations and agencies) to close this digital divide. Such projects include the New Partnership for Africa's Development (NEPAD) which initiated e-Schools program in some of African countries, Lesotho included. The goal of e-Schools program is to connect more than half a million primary and secondary schools across Africa through the Internet. The expectations from this project are that African schools will share curriculum and teaching resources and experiences; and that individual teachers across African continent will benefit from this information sharing.

More than often, it is projects which intend to close the digital divide that often skip many intermediate stages of planning and implementing technology that suit the existing conditions in the environments in which are implemented. Hence, they turn to leap frog technology in these environments (Shrestha, 2000; Unwin, 2005). In the process, the demands for the success and continuity of such projects usually conflict with socio-economic and cultural conditions that exist in the schools and in the local communities. For example some of the demands of these projects include:

• well developed technology infrastructures and abundance of technology resources;
• teaching and learning practices that are based on the principles of constructivism learning philosophies which are embedded in these projects;
• teachers with well-developed technology knowledge and skills and who understand the benefits of technology in education;
• school leadership and management that have technological expertise required to support teachers;
• educational policies at national and school levels that clearly define the curriculum goals for technology integration strategies;
• local communities that have basic knowledge about the importance of technology and that support the intention of these projects;
• national and school budget that can afford high maintenance costs of these projects.

Usually for large scale and full implementation of projects, schools or governments are expected to take over and run these projects. Yet, the reports from the evaluation of these projects indicate that they cannot or are not able to succeed because their requirements are just incompatible with the current socio-economic and cultural conditions in schools and in local communities (Odedra, Bennett & Goodman, 1993; Plomp, 2005; Molenda, 1996; Shrestha, 2000; Unwin, 2005; Farrell, Isaacs & Trucano, 2007; Hodas, 1993; Hawkridge, 1996; Hawkins, 2001–2002). The explanations accompanying these reports characterise the socio-economic and cultural conditions as:
• lacking well-developed and sophisticated technology infrastructure that is invested in these technology projects at experimental stage;
• lacking of technology expertise that is similar to that engaged when these projects are in the experimental stage;
• lacking of knowledge and skill among teachers, as intensive training is only provided to the few selected teachers, school managers and leaders.
• lacking national ICT policies or strategic plans that clearly explain the overall benefit of technology integration, and determine and identify technology resources to be used and how they would be acquired;
• lacking policies that clearly define technology goals and implementation strategies in the schools;
• lacking computer knowledge and skills in all areas of technology. For example, school leadership and managements lacking technology expertise, leadership and general skills, and understanding of technology benefits in teaching and learning. Teachers are also almost technology illiterate;
• minimal recognition that information is one of the major determents of economic and social development, and that such information is mostly accessible through digital technology resources;
• schools or governments those are not able to take over for large scale and full implementation as expected by these projects. For example, governments in the communities in most African countries have small budgets that restrict them to long existing and more compelling problems such as:
  o reducing high student-teacher ratio that is sometimes as high as 80:1;
  o buildings more schools and classrooms;
  o training and recruiting more teachers;
  o improving widespread low literacy in the communities;
  o addressing issues of school-aged children who do not attend school because of affordability and other poverty related factors;
• schools that are not able to afford technology projects that require high maintenance such as combating electrical spikes, viruses, dust, heat and normal wear-and-tear; providing and maintaining Internet which is expensive because, even for local calls, the service is charged on the per minute system;
• donors lacking comprehensive knowledge about African social practices and their influence on everyday life in schools;

As illustrated, in developing and poor countries there is a complex network of factors that are social, economic and cultural (at school and national levels) that influence are influential in the everyday life of administrators, teachers and students in schools, even without the use of technology. Hence, it is important that for the success of technology projects in the schools, these conditions are considered and addressed well ahead before technology projects are implemented
in schools. This is important because, so far leapfrogging technology in schools in Africa has not proved to be the best approach and as result, there is large number of unsuccessful technology projects in schools which have left behind extensive underutilised equipment (see Odedra, Bennett & Goodman, 1993; Unwin, 2005).

SECTION 2.2: Teacher-related factors

Teacher related factors are factors that affect teachers as individual persons and professionals. These include personal and professional profile such as age, gender, personal and professional histories, professional and the personal knowledge and skills teachers have and which they can transfer to classroom, and their views on teaching and learning. Personal and professional aspects have influence on the decision-making process of each individual teacher about what, when, who and how to teach (Barty, 2004; Beijaard, 1995; Sachs, 2001). Similarly, teachers’ perceptions of use of technology in teaching and learning are also influenced by their individual professional and personal attributes (Saettler, 1968; Cuban, 1986, 2000; Molenda, 1996; Becker, 2000). For example, there have also been claims that teachers do not use technology in the classroom because of their apathy, rigidity or resistant to reform (for example, see Newhouse, 1998). On the other hand and in some cases, teachers, who been enthusiastic to use technology in their teaching, have been viewed radical and fanatical by others. However, such claims have been long discredited by other studies that have established that non-teacher factors, which are sometimes ignored, are also responsible for how teachers use technology in the classroom. These studies include:

- Veen (1993) who established that teacher’s beliefs about curricula, pedagogy, professional competences and classroom management were influential;
- Levin (1995) who also produced the same results that teacher’s perceptions, communication, teacher-student relationship, and curriculum enactment were important;
- Spanneberg (2002) who made the same findings about teachers in South Africa, that their beliefs and appreciation of teaching and learning strategies were also influential on their classroom practices;
- Odera (2002) who investigated ICT projects in the schools in Kenya established similar results - that teacher-related factors such as lack of appropriate ICT skills were also influential on teachers’ practices; and
Becker (2000) established that teacher’s philosophy about teaching and learning was important, and that teachers who were more constructivism oriented were likely to use computers more than their counterparts whose professional practices were based on learning philosophies other than constructivism.

All these studies concluded that non-teacher related factors are as influential as teacher related factors on teachers’ work in the classroom.

**SECTION 2.3: Linking non-teacher related and teacher related factors**

The discussion on non-teacher related factors and teacher-related factors has established that, generally, there are three sets of factors that influence how teachers work. They are: (1) personal and professional to individual teachers; (2) in schools and situational to teachers’ work, and in the local communities contextual to schools. This section links these sets of factors and explains the importance of their relationship in teacher professional identity. This section also demonstrated that these factors cannot be addressed in isolation, emphasising that one set of factors cannot be ignored while one is promoted either in the research or in the implementation of school projects since they are linked.

As explained by Sato and Kleinsasser (2004), teacher related and non-teacher related factors are interrelated and form a complex web, which if not addressed as a whole, could lead to misinterpretation and contradictions about teachers and their classroom practices. This has also been confirmed by Spanneberg (2002) that teachers’ perceptions of their professional role are influenced by, among others, the assumptions they hold about their learners, and most importantly their assumptions about perceptions of a teacher’s role in teaching and learning that exist in the local communities in which the schools are located. This is why Cooney et al. (1998) emphasises that those who are interested classroom change should first try to understand the beliefs of the practicing teachers, how these beliefs are structured and translated into practice by teachers in the classroom. Failure to understand these beliefs and their structures could lead to misinterpretation of teachers’ professional behaviour and which usually leads to misinformed conclusions about teachers' perceptions of their professional role (Spanneberg, 2002; Sato & Kleinsasser, 2004).
The lack of understanding of how teachers’ beliefs are structured and how they relate to their personal, situational and contextual environments has led to some studies blaming teachers for being resistant to change and being stuck in their old habits of teaching (see Newhouse, 1998). It follows then from discussion in the previous paragraph that much of the accusations levelled against teachers resulted from ignorance about the interrelatedness of sets of factors that influence teachers’ perceptions.

Other studies such as Veen (1993), Levin (1995) and Spanneberg (2002), which investigated teachers and classroom practices, suggest that research on teacher’s professional practice should isolate factors which influence teachers’ perceptions practices. The interrelatedness of these factors is important and it should be maintained during teacher investigation so that there is a comprehensive explanation of teachers’ views and their practices. This view, is supported by Spanneberg (2000) who established in his study that teachers’ beliefs and conceptions of teaching and learning strategies were sometimes based on their past classroom experiences. In addition, Beijaard et al. (2004) observed that these beliefs and conceptions exist in a complex and dynamic web of personal self-image and their beliefs on the social and professional roles they are expected to play.

This debate has led to a search for research approaches that are able to take into account and maintain the interrelatedness of the factors that influence teachers’ practices in the classroom. As a result, there has been a shift towards investigating a link between teachers' perceptions and teacher professional identity (Allen, 2005; Beijaard, Veloop, & Vermunt, 2000; Barty, 2004; Sachs, 2001). This approach is viewed comprehensive and able to investigate a wide range of factors, without disturbing their relationship. As Beijaard et al. (2000) points out:

It is important to research how teachers perceive themselves, i.e., their professional identity. Their perceptions, plus the influencing factors mentioned [teaching experiences, teaching contexts and biographies] above as well as predispositions that strongly influence their judgments and behaviour (p.762).
It is believed that studies that take this approach provide a comprehensive and better understanding of how teachers perceive their profession and what shape their perceptions.

SECTION 2.4: Studies on teachers’ professional identities and practices

Since the shift in educational research, there have been studies that investigated teacher professional identity. These include Beijaard at.al (2000), John (2002), Rousseau (2004) and Sato and Keinsasser (2004). These studies have established that teacher's professional identities play an important role on teachers’ perceptions of their profession. Particularly, these studies indicate that important are aspects of teacher professional identity such as teachers' past experiences, and biographical knowledge which has a number of dimensions that include intentions, practicality and specificity of a subject matter, ethicality (John, 2002), personal beliefs about teaching and learning (Rousseau, 2004); and existing views, practices and resources in the schools and in the local communities. For example:

- Beijaard, et al. (2000) investigated 80 school teachers about their current and prior perceptions of their professional identities and established that past learning experiences and teaching experiences of teaching in the different subject areas were responsible on how teachers perceive their profession;

- John’s (2002) case study of practical professional knowledge of teachers revealed that teachers’ knowledge which influenced their perceptions had a number of dimensions that included intentions, practicality of a subject matter, subject matter specificity, and ethicality. The study also revealed that these knowledge dimensions were deeply biographical, intensely practical and distinctive in a number of ways;

- Rousseau (2004) established that the professional community of high school pre-algebra teachers abandoned their collective effort to reform due to the beliefs they had about their students and views that were also closely related to their beliefs about appropriate content and pedagogy for their learners. The study concluded that the personal beliefs of teachers on teaching and learning were also important in relation to how teachers responded to the reform;
• Sato and Keinsasser (2004) investigated the relationship between school culture and
teachers’ practices during professional development activities. The study revealed that
because of the network of relationships in the context in which teaching occurred, teachers’
personal beliefs, practices, interactions and collaboration with other teachers only reinforced
existing practices, eroding teachers’ motivation to learn to teach in a specific way.

SECTION 2.5: A synopsis of success and failures of technology in the classroom
This section discussed the existing views on the success of technology projects in schools. The
discussion indicates that:
• technology has not been used as anticipated and it is not yet central to teachers' classroom
practices;
• teachers' decisions to use technology are influenced by factors that are (1) personal and professional, (2) situational and (3) contextual;
  o studies in Western and rich countries tend to focus more on the technology that is not
suitable to with current professional responsibilities of the teachers;
  o in the developing and poor countries, the emphasis is on the suitability of technology
with the existing socio-economic and cultural conditions in schools and in the local communities;
• all the factors that influence teachers' practices are interrelated; and investigating the role of
teacher professional identity on teacher’s perception of their profession is now a preferred
approach. Studies that have taken this approach have established that teacher professional
identity is influential on teachers' perceptions of their profession and these perceptions
usually translate in their classroom practices. In the next section, literature that focuses on the
perceptions of teachers on technology in teaching and learning in Lesotho is discussed.
SECTION 3: Teacher identity and research methods

Studies that have investigated teacher professional identity and classroom practices have used various research strategies. For example:

• Beijaard, Veloop and Vermunt (2000) employed a large scale quantitative design in the form of a questionnaire to explore the perceptions of 80 teachers about professional identity;
• Franzak (2002) used a qualitative approach, an interpretive case study to study the impact of critical friends on the practices of student teachers;
• Clandinin and Connelly (1996) also employed a qualitative approach by collecting and reviewing teachers’ stories in order to understand the landscape of their professional knowledge;
• Starr et al. (2006) used 153 questionnaires to investigate teacher identity in physicians.

However, studies that used one research method to investigate teacher identity indicated that some of the findings could not be explained by these methods. These studies indicated that using one research methods failed to address some of the issues that emerged in the investigation. For example, using only a quantitative method, such as survey, failed to address the depth of the relationship of the factors that influenced how teachers worked. On the other hand, in-depth interviews and case studies could only involve a very small proportion of the population being investigated, hence the results could not be generalised. As a result, the findings from such studies could not be generalised because they had limited scope in their investigations that could not provide the extent at which teachers are influenced in their practices (Lodico, Spaulding, & Voegtle, 2006; Mertens, 2006). As recommended in these studies, an investigation that engages more than one method is required for a better understanding of teachers and their classroom practices (Sato & Kleinsasser, 2004). Therefore, this study used mixed method approach to understand teachers' perceptions of technology in teaching and learning in Lesotho.
During the review of literature for this study, there were very few studies that investigated teachers and classroom practices in Lesotho. For example, of the fifteen studies reviewed, only one investigated classroom practices while the rest focussed on general educational issues such as teacher education, curriculum and assessment. The scarcity of studies that investigated teachers and classroom practices in Lesotho is also observed by Sebatane et al. (2000) in a review of studies in educational research in Lesotho. That review identified 130 studies in educational research in Lesotho. Of these, 68 were in primary and secondary education. However, none these studies investigated teachers’ identity and classroom practices, providing further evidence that investigating teacher professional identity and practices was not yet common in Lesotho. Therefore, this study was able to locate and review only 15 studies about teachers in Africa. Of this 15, only two of these studies (Oplatka, 2007, Farrell et al., 2007) were found useful for informing this study. The study of Oplatka (2007) characterises teachers’ profile in developing countries while Farrell et al. (2007) describes the situation in which teachers work in schools in developing countries.

The study of Oplatka (2007) is a Meta-analysis of 13 peer-reviewed journals articles, describing how profile of teachers in developing countries was portrayed in these articles. These 13 articles were in the area of educational administration, teaching and comparative studies. The purpose of Oplatka’s study was to establish the nature of the teaching profession and teachers’ profile in the developing countries, and the implications these profiles have on school reforms. The findings in Oplatka’s study were found useful for the foundation of this study. These findings indicate that in developing countries:
• teachers do not choose the profession out of passion, they view teaching as a job that provides some kind of default or supplementary form of income;
• many teachers hold low pre-service qualifications;
• there are limited opportunities for teachers to participate in in-service training;
• teaching is viewed as transmission of knowledge; and
• teachers’ classroom practices strictly adhere to prescribed curriculum and textbooks, summative assessment of achievements, and conservativeness.

Also useful for this study, was a report by Farrell, Isaacs and Trucano (2007) that provides brief descriptions of technology projects in schools and educational systems in the 53 African countries. Although this report is about technology in schools and not specifically on teachers, it details the conditions in which technology projects are implemented, and their successes and challenges. These conditions include:

• absence of educational policies that clearly define goals and implementation strategies of information and communication technology (ICT) projects in the educational systems;
• national infrastructures that are underdeveloped and poorly maintained;
• the high costs of technology devices that cannot be afforded by most schools because of extreme poverty that is found in the communities in which schools are located;
• government budgets that are stretched beyond the limit and that usually focus on and take as a priority, long standing educational problems such as shortage of school buildings and classrooms, unqualified teachers, high levels of low literacy in the communities, and school-aged children who do not attend school because their parents cannot afford the school expenses and other poverty related factors;
• limited ICT expertise, leadership and general skills and understanding of ICT in education;
• teachers who are almost technology illiterate;

Linking the findings of these two studies, Oplatka (2007) who characterises teaching profession in Africa, and Farrell and colleagues (2007) who describes the contextual conditions in which these teachers work, provided a starting point for this study that seeks to understand how teacher professional identity influence teachers’ perceptions in secondary schools in Lesotho.
SECTION 5: Summary

This chapter has reviewed and discussed the existing literature on technology in teaching and learning. The findings from the literature indicated that:

• there are definitional problems relating to educational technology. However, this study adopted the definition provided by Ely and Plomp (2006).

• *push and pull* factors, which bring technology into the classroom, are linked to philosophical debate that asserts that teaching and learning programs that integrate technology make learning more concrete, engaging and relevant to the learners' needs in contemporary communities and in labour markets;

• school technology projects have not been as successful as hoped because teachers infrequently integrate technology in the classroom;

• factors that affect how teachers use technology are teacher related and non-teacher related;

• considering these factors and their interrelatedness when teachers are investigated is important;

• Investigating the role of teacher professional identity on teachers’ perceptions is now a preferred research approach;

• there has not been much investigation on teachers and classroom practices in Lesotho, hence this study.

In the next chapter, the methodology used by this study to investigate teacher identity and use of technology in the classroom is discussed.
CHAPTER 3: METHODOLOGY

This study investigated the role of teacher professional identity on teachers’ perceptions of technology in teaching and learning in secondary schools in Lesotho. The review of literature in the previous chapter established that teachers are critical for the success of technology projects in schools because they are the ultimate decision-makers on the integration of technology in teaching and learning. The review has linked teacher professional identity with teachers’ decisions to use technology in the classroom. On the basis of this discussion the importance of understanding teachers’ professional identities before technology projects are implemented in the schools was emphasised. The review also established that there is very little knowledge about teacher professional identities in Lesotho.

This chapter explains the research design of this study and justifies why the design was considered well suited to investigate the research questions presented in Chapter 1. First, the chapter describes the theoretical framework of this study followed by research procedures used in to select participants for this study. The research design, which is a mixed-methods approach, is explained and justified as an appropriate approach for this study, and the specific procedures that were used to collect data in each of the two methods used plus the ethical issues in this study are then explained. This is followed by a discussion of how the data collected was analysed.

SECTION 1: Theoretical framework: The theory of teacher professional identity and classroom practice

This section explains the theory of teacher professional identity and classroom practices and shows how this theory informed the research questions of this study. First, the concept of identity is described and then teacher professional identity is explained.
SECTION 1.1: Identity

Identity is a concept that has been largely used in the field of social sciences to investigate human behaviour (cf. Nicolosi, 1991; Bentler, Rekers & Rosen, 1979). As a result, research in identity and human behaviour has made a significant contribution to the understanding of human behaviour. For example, it has been established in the literature that there is a relationship between the way people behave and how they define their identities (cf. Terry, Hogg & White, 1999; Sparks & Shepherd 1992; Burke & Reitzes, 1981; Stets & Burke, 2000). In these studies, identity is defined as mental states such as beliefs, knowledge and desires. These mental states can be held by an individual or a group of people about self (self to individual - I, Me, myself; self to group - us or ourselves). An individual or a group can attach attributes to self that distinguish them from others. In other words, identity can be used to define an individual or a group in relation to who or what they are (Beijaard, 1995). In the view of Beijaard et al. (2000) and Allen (2005) identity is not learned, rather it is a social construct negotiated through social processes such as interacting with others and the social environment. As people interact with each other and the environment, they learn about norms, values and beliefs of the communities within which they live. They use this knowledge to form their own identities. They come to know who they are, what they are, and how they should behave through these interactions.

An individual or a group of persons can hold multiple identities. That is, one person could be a teacher, a volunteer in a refugee camp, and a gospel singer in a local church. Even though individuals could have multiple identities, and these identities can influence each other, some of these identities can become dominant in a particular space and time. Thus, even though a gospel singer may hold other identities of being a teacher, at church or at any place where singing is important, the identity of being a gospel singer dominates that of being a teacher, unless this person is required to use teaching attributes to teach gospel singing. Thus, one’s teacher professional identity dominates other identities in a school or where teaching and learning is
important. However, as mentioned earlier, other identities that a teacher holds are also likely to influence their perceptions of their professional role of teaching.

SECTION 1.2: Teacher Professional identity

In the last ten years the concept of identity has been explored from many angles, (cf. Allen, 2005; Beijaard et al, 2000; Sachs, 2001; Barty, 2004). Such aspects as (i) formation of teachers’ professional identity; (ii) identification of characteristics of teacher professional identity, and (iii) the concept of teacher professional identity as presented by teachers’ stories have been explored (Beijaard, Meijer and Verloop, 2002).

Research which investigates the formation of teacher professional identity focuses on describing how teachers form their professional identities, particularly beginning teachers or special groups in the teaching profession. Such studies include of Goodson and Cole (1994) which describes the socialization of the professional identity of instructors who had not received formal teacher preparation; and Gardner’s study (1995) which gives a historical account of teacher training and how it relates to professional identities, and Sugrue’s study (1997) which explains formative personal and social influences on student teachers’ professional identity by deconstructing their lay theories. From these studies it becomes clear that professional identity formation is a process involving many knowledge sources, such as knowledge of affect, teaching, human relations, and subject matter and teachers lay theories. For example, Sugrue (1997) found that these lay theories of teachers begin with their personalities. In addition, factors such as (1) immediate family, (2) significant others or extended family, (3) apprenticeship of observation, (4) atypical teaching episodes, (5) policy context, teaching traditions, and cultural archetypes, and (6) tacitly acquired understandings also contribute to formation and shaping of teacher professional identity. To Beijaard, Meijer & Verloop (2002) lay theories are tacit or unarticulated. They also lead to forms of formation of professional identity that differ from other forms of professional identity formation, such as those derived from research-based theories of teaching. Other factors that have also been found to be influential by studies in this category include important experiences and people in a teacher’s life, and teacher role models in their prior life of being a teacher.
This category of studies suggests that, in the formation of teacher professional identity, teachers’ biographies are important. This view has also been supported by Chere-Masopha and Bennett (2007) who suggest that teachers form their identity throughout different stages of their lives: before and during schooling (prospective teachers), during training (pre-service teachers), and throughout their professional practice (in-service teachers). Through these three major stages, it appears that teachers continually develop their own understandings of teaching profession and continually reshape and modify these meanings. As prospective teachers, even before they join primary education, they learn about teaching through, for example, the media and how others, such as brothers and sisters talk about teachers and schooling. When they start their own schooling, the conceptions prior to schooling about teaching may be rejected or confirmed by what they experience as learners in the classroom (c.f. Chere-Masopha & Bennett, 2007; Volkmann et al, 2004). Their conceptions of teaching continue to build and reshape when they enter pre-service training and throughout their training. Once they leave their training, and start teaching (in-service), teachers are confronted with the reality of teaching. Their experiences in the classroom as teachers, their interaction with other teachers, and the technical culture of the school encourage them to reshape their professional meanings again. Although this description implies linearity in the formation of teacher identity, the process is not linear due to new experiences teachers continue to encounter, which help to develop new understandings. Hence, they continue to reject or reconfirm some of the prior notions they already held about teaching. Even those notions that may appear rejected are often not entirely rejected as they may be stored for future retrieval. Figure 3.1 provides a general picture of the formation and reshaping of teacher professional identity. The conclusion in Beijaard, Meijer and Verloop study (2002; 115) is:

Professional identity is an ongoing process of interpretation and re-interpretation of experiences (Kerby, 1991) [and therefore,] a notion that corresponds with the idea that teacher development never stops and can be best seen as a process of lifelong learning (e.g., Day, 1999).
SECTION 1.3: Landscapes of professional identities

A concept of landscape in the literature of teacher professional identity has been used metaphorically to refer to the context in which teachers work (e.g. Reynolds, 1996; Beijaard,
Meijer and Verloop, 2002). However, these two concepts have been used broadly to cover factors relating to the internal and external environments of schools. For example, Beijaard, Meijer and Verloop, (2002) observe educational theories preferred or followed by the school as part of teachers’ landscape. Other elements of landscape of teacher professional identity in the literature include: members of professional community, policy makers, school administrators other teachers and researchers, working conditions in a school, curriculum, socio-economic and cultural background of the school (Connelly and Clandinin, 1999; Gaziel, 1995).

The work of Fullan (1991), Marsh and Wills (1999), and Visscher (1999) indicate that factors that influence teachers’ profession could be categories into three levels: teacher, school and community. At teacher level are factors that affect a teacher as an individual person and professional. This includes factors such as gender, age, education, training, knowledge and personal and professional experiences. At the school level factors that could be influential on teacher profession relate to school curriculum, administration, types of students, other teachers, policies, available resources and professional development activities. These are found only within the school and form the internal environment of schools. At community level, factors exist outside schools in the local communities in which the school is situated and the teacher lives, or national level. They include socio-economic and cultural factors that include perceptions of the role of education in these communities, and perceptions of teacher’s role education.

These categories of factors could be viewed as aspects that define landscapes of teacher professional identity. Therefore, these categories could be viewed, landscapes of teacher professional identity: personal and professional landscapes, situational landscape and contextual landscape.
1. **Personal and the professional landscapes**: The personal and professional landscape includes personal and professional aspects that relate to a teacher as an individual. They include, gender, religious beliefs, age, knowledge and skills, and education and training, personal histories and experiences, beliefs and aspirations of individual teachers.

2. **Situational landscape**: Situational landscape includes aspects of teacher professional identity that are found in a school and form internal environment of the school in which the teacher works. Such elements include policies and curriculum, resources available, type of students, other teachers and school management style.

3. **Contextual landscape**: these are aspects of teacher professional identity that exist in the community. They form the third landscape of teacher professional identity socio-economic and cultural conditions in the local communities of the schools and at national level. Such conditions include resources available, views about the role of education and schooling, perceptions of what should be the role of a teacher and of a student in a teaching and learning environment.

These landscapes of teacher professional identity formed a conceptual framework for this study. For example, the study describes, teachers’ perceptions of technology in teaching and learning in view of these landscapes. That is, how aspects in each landscape affect teachers’ perceptions. The research questions that collected information of teachers' perceptions of technology use in the classroom and the influence of aspects of landscapes of teacher professional identity are:

1. How do teachers perceive technology use in the classroom?
2. What factors influence teachers’ perceptions of technology integration in the classroom?

More specifically:

2.1. What are personal and professional factors that affect teachers' views of technology in the classroom?
2.2. What are situational factors that affect teachers' perceptions of technology in the classroom?
2.3.  What are the socio-economic and cultural factors that influence teachers’ perceptions?

SECTION 2: Research design and mixed methods

Using more than one method in a study is mostly preferred by pragmatists. Their view is to “simply identify what works” to solve a problem (Lodico, Spaulding, & Voegtle, 2006; Tashakkori and Teddlie, 2003). Using a mixed method approach solves the problem of the scope and the depth of a study. Also, the pragmatists believe that in educational research this approach should be used to provide relevant and satisfying answers about what is likely to work in a particular situation. Their argument is that this approach should be used to discover issues that help achieve the desired results. According to Lodico, Spaulding and Voegtle (2006), also supported by Tashakkori and Teddlie (2003), this argument is based on the assumptions that:

- the immediate reality of solving educational problems should be the focus of educational research;
- educational settings and problems can be studied using any method that accurately describes and solves the problem;
- research should strive to find ways to make education better;
- researchers should collaborate with participants to understand fully what works;
- theories and hypothesis are useful tools to improve education;

Pragmatists do not only insist on research that provides information that can be used to solve existing problem, but also that the methods used should be based on a good theory that achieves the research goal (Lodico, Spaulding, & Voegtle, 2006). Therefore, the mixed method approach was found appropriate for this study.

A good practice in the mixed methods approach combines quantitative and qualitative techniques to collect and analyse data with the purpose of “building on the synergy and strengths that exist between [these] research methods” (Gay, Mills & Airasian 2006, p. 490). That is, in the mixed method approach, quantitative methods are valued for their strength of representativeness, while
the strength of qualitative methods is the depth of investigation. This is the reason Lodico et al. (2006) and Mertens (2005) claim that the mixed methods approach was introduced as a practical solution to the tensions created in the research community concerning the use of qualitative or qualitative methods. Following from the preceding discussion, the research design in this study combined both quantitative (survey) and qualitative approaches (in-depth interviews).

SECTION 2.1: Mixed method models

There are two major types of design when employing a mixed methods research approach: sequential and parallel methods. These are explained below.

1) Sequential design models

Sequential design has two phases. Each phase uses a different research method. Data collected in the first phase are used as the foundation for the second phase. That is, the research findings in the first phase are used to inform the design for further investigation in the second phase. There are two types of sequential research designs:

1. QUAL-quan model, also known as exploratory mixed method design, uses qualitative methods such as observation or interview in the first phase. Data collected in this phase is more heavily weighted than quantitative data collected in the second phase (Gay, Geoffrey, & Airasian, 2006; Mertens, 2005). The findings from the first phase of the study are used to formulate hypotheses, which are tested in the second phase. The second phase of data collection in the QUAL-quan research design study uses quantitative methods such as surveys or experiments. The findings from this phase are used to test the validity and the reliability of the findings of the first phase.

2. Studies that use QUAN-qual model, also known as explanatory mixed method design model, are also conducted in two phases: a quantitative method is used to collect data in the first phase and qualitative method in the second phase (Gay, Geoffrey, & Airasian, 2006; Mertens, 2005). In the QUAN-qual design, quantitative data weighs more than qualitative data. The findings from the first phase of study are used to determine data to be collected in the second
phase. Qualitative findings are used to explain or elaborate on the findings from the first phase.

The two basic principles of sequential models are that the investigation is carried out in two phases and the findings from data collected in one phase are used to support the other phase of the study.

2) Parallel/QUAN-QUAL model

This study used a parallel research design model, also known as the QUAN-QUAL model or triangulation mixed methods design, in which a combination of survey and in-depth interview methods were used to collect data (Gay, Geoffrey & Airasian, 2006; Mertens, 2005). The strengths of these two methods are exploited to support the results presented in this study. For example, in this study, because the survey method was able to cover a large proportion of the targeted population, the research results from this method were used to explore the scope, the patterns and trends that emerged in the findings. The strength of the in-depth interviews was used to explore in depth themes and issues that emerged from the findings. That is, while the survey results provided the scope and patterns of the research issues in this study, the interview results provided explanations, descriptions and reasons.

In the QUAN-QUAL model, quantitative and qualitative methods carry equal weight. Further, the sequence in which the research methods are used during data collection does not matter. Data could be collected concurrently in one or could be collected in two phases, but each method used independently from the other. Therefore this research approach is also known as parallel mixed approach. Hence, using any of the methods combined in the design first does not affect the findings in this study.

In QUAN-QUAL design, data from the methods used could be used in two ways: the findings from these two sets of data could be triangulated to validate data and the findings before drawing conclusions; or the strength of each method could be exploited in the presentation of the findings of the other method to strengthen the validity of the findings (Gay, Geoffrey & Airasian, 2006; Mertens, 2005). This study preferred this second option. The survey results are presented first
and when the interview results are presented, reference is made to the survey results for validation.

The design of the survey and the interview methods are discussed in detail in the subsequent sections. Although the content and structure used in the design of the questionnaire and the interview protocols are similar, the designs of these two methods were independent of each other.

SECTION 2.2: The research contexts and the participants

The context for this study was the National University of Lesotho (NUL). Student teachers who participated in this study were upgrading their college qualifications (Secondary Teacher Certificate (STC) and Diploma in Education Secondary (DES) in the Faculty of Education. The three professional pathways for teaching in secondary schools in Lesotho are:

- training through Lesotho College of Education (LCE), formally known as National Teacher Training College (NTTC) or
- training through the Faculty of Education at the NUL; or
- beginning training at college and then continue to upgrade college qualifications to university undergraduate degree.

Entrance into the LCE / NTTC teaching programs requires a secondary education certificate. For those intending to teach in secondary education, LCE offers a three-year teacher training program, at the end of which teachers receive a Diploma in Education Secondary (DES) teaching. When LCE was known as NTTC, the qualification was Secondary Teacher Certificate (STC). Entry into NUL teacher training programs also requires secondary education qualifications. The Faculty of Education has four-year teacher training programs, at the end of which an undergraduate degree in education is awarded. An alternative pathway for teachers, and one which is the focus of this study, is where teachers start their training at LCE/NTTC and later join the Faculty of Education to upgrade their secondary teaching qualifications received at the college. This study investigated a cohort of student teachers who were upgrading college
secondary teaching certificate or diploma from LCE/NTTC college to undergraduate teaching degree in the Faculty of Education at NUL.

Although there is very little information available on this cohort group, it is believed by the researcher that this cohort forms a considerable proportion of the secondary teaching force in Lesotho. This belief is based on the observation that every year in NUL, this cohort of teachers forms a recognisable proportion of the student teacher population. This assumption was also confirmed by 2007/2008 student academic records in the Faculty of Education at NUL. These records indicated that student teachers with college teaching qualifications comprised more than one-third of the student teacher population. Therefore, there is also assumption held in this study that in Lesotho, teachers with a combination of college and university teaching qualifications form a recognisable proportion of secondary school teachers in Lesotho. It s believed therefore, that the beliefs and other aspects of professional identity shared by this cohort of teachers have an important role in the teaching culture in Lesotho. There were also other benefits of investigating this group of student teachers:
• This cohort of student teachers had extensive experiences as learners and as teachers in the classroom in Lesotho. These experiences were considered beneficial for this study as the study investigated how these experiences influence their perceptions of their professional practices in the classroom.

• Compared to other cohorts that make up the teaching force in Lesotho, this group of teachers was likely to have the longest stay in the classroom, a period that combines 12 years of primary and secondary education, 3 years of college teacher training, including a year of internship in the classroom, years of university teacher training, and years of teaching experience. Therefore, this is a group of teachers could also be viewed having the longest classroom experience as students, as trainees and as teachers.

• Through this unique professional pathway, this cohort of teachers have shared experiences that are personal and professional and that could be used to understand how their professional identities influence their professional practices, particularly with the use of technology. Thus, the educational and professional backgrounds of these teachers formed a strong case for their participation in this study.

1) Recruitment of participants

The student teachers in teacher training programs at NUL had followed various pathways. Some student teachers were new school graduates, while others had various post-school qualifications such as from Lesotho College of Agriculture (LCA) and LCE/NTTC. There were also international student teachers with qualifications obtained from their home countries. Therefore, it was necessary to isolate the targeted group of student teachers – those who were upgrading teaching qualifications from LCE/NTTC and had teaching experience after college graduation. In order to recruit this group of student teachers for participation in this study, the first thing was to identify its members so that they could be invited.

First, the study identified two types of information sources in the Faculty of Education at NUL that could be used to identify the student teachers belonging to this group. They were an electronic system that managed student records called ITS, and printed documents such as those
that contained student admission and academic records and the class lists. Permission for access to these resources was sought from the Faculty management.

The ITS was not used because of the way student information was recorded and stored on this system. It was impossible to isolate and retrieve the records of the targeted group from this system for a variety of reasons: the main reason being that the qualifications used for admission, other than those from secondary education were recorded generically as ‘alternative entry qualifications’ on ITS system. Therefore, performing a query on this system to filter records for students who used college teaching qualifications and teaching experience for admission in the Faculty of Education was impossible because these qualifications were also recorded as ‘alternative entry qualifications’. Consequently, such a query retrieved all the names of students in the University who used any alternative qualifications for entry in other university programs.

The print documents that were used to identify potential participants contained admission and academic records. These documents were used to filter and to compile the lists that indicated the status of enrolment of the targeted population. The admission documents used were from 2000/01 to 2007/08. The academic year in NUL begins in August and ends in May of the following year. Hence, collecting student information from 2000/01 to 2007/08 (about eight years) was sufficient to include students who had failed and repeated some years of study or those who suspended their studies and came back later. These documents were used to compile a list of student teachers who had used college teaching qualifications and teaching experience for admission. This list was then cross-checked against the 2007/08 class lists from the course coordinators in the Faculty to verify the enrolment status of the students in the list compiled from the documents.

This process of document analysis was useful for this study because it established that the population of the targeted students was one third (500/1500) of the entire population of student teachers in the Faculty of Education. This number was small enough to conduct a census survey (see Lodico et al, 2006 about small population and census survey). Another benefit of document analysis was that, through this process, the study was able to determine the courses in which potential participants were currently enrolled. Nine tutorial classes, in which most of these
student teachers were concentrated, were identified. Based on this knowledge, the relevant course coordinators were approached to negotiate the process of recruitment of these student teachers for their participation in this study. On agreement, the course coordinators assisted with the recruitment of student teachers for both survey and interviews, the process of which is explained later in this chapter.

In relation to the recruitment for interviews in this study, the coordinators were asked to assist in identifying the participants, because it was the view of the researcher that the lecturers would have a better knowledge of student teachers who would be willing to participate and provide information that would be representative of the whole population of investigation (see Lodico, Spaulding & Voegtle, 2006). This type of recruitment may require the researcher to have a good knowledge of members of targeted population before deciding who could participate in the interviews. Where this kind of knowledge is absent, then the researcher relies on others who are able to provide information which could be used to identity suitable participants. In the university setting, course coordinators can act as good sources of information about their students. Therefore, in this study, interview participants were selected with the assistance of course coordinators in the Faculty of Education.

The recruitment of the participants and the administration of the questionnaire were carried out during class tutorials of the courses identified. The procedure of recruitment of participants and administration of a questionnaire are described later in this chapter. As a result of this process, 213 student teachers volunteered to participate in the survey, from which 16 also agreed to participate in the interviews.

**SECTION 2.3: Ethical issues**

This study was conducted in the Faculty of Education at National University of Lesotho. The permission to conduct the study in the Faculty was sought via email communication with the Faculty Dean. In the e-mail the research purpose, the research activities that would be carried out, the resources that would be used or required, and the duration of research in the Faculty were explained. At the time of the study, there was no mechanism at NUL to apply for and
receive ethics approval for this study to be conducted there – the approval from the relevant Dean was sufficient. Ethics approval was therefore sought and received from the University of Wollongong. The research protocols were approved on the condition that:

• only proposed research strategies were used to recruit participants;
• students were informed about research procedures involved in the study before they give consent to participate in the study;
• individually and collectively, participants’ welfare, rights, beliefs, perceptions, customs and cultural heritage were ethically considered during their participation in the study;
• the participants were informed about their right to discontinue their participation at any stage of the study;
• no payment or offer of any form of reward or benefit was made for participation in the study;
• individual participant’s privacy was protected and research procedures used were not invasive on the participants privacy;
• the participants' general health and welfare was considered and protected;
• participants were provided with information about the channels available to lodge their complaints or concerns about the study;
• participants were informed about their right to access data and their right to decide what was to be included in the study;

The participant consent forms and information sheets, and the letter of approval from the UOW Human Research Ethics Committee can be found in Appendix II.

SECTION 3: Data Collection

In this study, the survey method used a questionnaire to collect data while semi-structured in-depth interview methods used interview protocols to collect data in the mixed methods approach. Readily available questionnaire and interview protocols that could be used for this study could
not be found. Therefore, these instruments were specifically designed for this study. This section explains the design of the research instruments used to collect data for this study.

SECTION 3.1: Design and validity of research instruments

Conceptual framework of teacher professional identity formed the basis for the design of research instruments for this study. Teacher professional identity comprises three landscapes: personal and professional landscapes, situational landscape and contextual landscapes. Personal and professional landscape has aspects that include age, gender, and professional knowledge and skills, past experiences in the personal and professional life. Therefore, information perceived to define teacher professional landscapes that are personal and professional, situational and contextual was used to design questions that were asked in the questionnaire and in the semi-structured interview protocols used in this study. This means both the questionnaire and the semi-structured interview protocols collected similar information. There was however, a difference in the structure of the questions asked in each instrument. For example, questions asked in the questionnaire were short and closed questions. These questions included yes or no questions, fill-in questions and Likert Scales. The semi-structured interview protocols used a combination of structured and unstructured questions. Structured questions included yes or no questions and questions that required short responses. Unstructured questions were open-ended and encouraged the participants to tell stories, explain processes and describe situations. Although the questions in the protocols were predetermined, they were flexible and their purpose was to guide, probe and encourage the discussions of explanations, descriptions and reasons. The survey had four sections and there were three the in-depth interviews protocols. See Table 3.1 for a summary of the structure, followed by an explanation of how each question was elaborated. Also see Appendix III for the questionnaire and Appendices IV, V, and VI for interviews protocols.
Table 3.1: Questionnaire and interview protocol structures

<table>
<thead>
<tr>
<th>Topic</th>
<th>Questionnaire</th>
<th>Interview protocols</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants’ profile</td>
<td>Section 1</td>
<td>Interview 1: Part 1</td>
</tr>
<tr>
<td>Views on technology in the everyday life</td>
<td>Section 2</td>
<td>Interview 1: Part 2</td>
</tr>
<tr>
<td>Views on technology in teaching and learning</td>
<td>Section 3</td>
<td>Interview 2</td>
</tr>
<tr>
<td>General views on teaching and learning</td>
<td>Section 4</td>
<td>Interview 3</td>
</tr>
</tbody>
</table>

1) Question structures in the research instruments

Participants’ profile: personal information, including sex and age; educational background including years of primary and secondary schooling, type of schools attended, teacher training, and computer education and knowledge. In the questionnaire these questions were asked as fill-in, optional, and yes or no questions. The same structure of the questionnaire was used in the first interview though it was viewed somewhat as introduction to the actual interview.

Views on technology conditions in the everyday life: The questions asked in this section collected information about the views on technology conditions in the present and before the participants became teachers. These conditions included technology availability, access, knowledge and skills, uses and importance. The questionnaire used Likert Scales, which the participants used to rate their views. The same information was collected by the second part of the first interview. However, in the interviews, the questions were discursive and prompting.

Views on technology conditions in teaching and learning: In this section, the questions asked collected the views of the participants on how they viewed technology conditions in teaching and learning at present and before the participants became teachers. These conditions included technology availability, access, knowledge and skills, uses and importance. Also included in this information, were the views on the influencing factors. For these questions, the third section of the questionnaire used a Likert Scale, while in the second interview the questions were discursive and prompting.
Views on teaching and learning conditions: The questions in this section were designed to collect data about the views on the teaching and learning conditions at present and before the participants became teachers, and how these views affected their classroom practice. For these questions and also the fourth section of the questionnaire, Likert Scales were used, while in the third interview the questions were discursive and prompting.

2) Validity of research instruments

The validation of the research instruments in this study was ensured through the type of content collected by the questions of the instruments and the testing of the instrument to ensure that it collected information required in this study.

a) Content

The research instruments, a questionnaire and interview protocols, were specifically developed for this study because there were no validated instruments that have been used in QUAN-QUAL mixed method design and that could be used to investigate the influence of teacher professional identity on teachers' perceptions of technology use in their profession. The content of the instruments were developed from the framework of teacher professional identity, using the aspects of professional landscapes (personal and professional, situational and contextual) as a base for questions in the instruments. Questions that were in these instruments (questionnaire and interview protocols) included various aspects of teacher professional landscapes:

Aspects of personal and professional landscape

The following aspects of personal and professional landscapes of the teacher identity were included the questionnaire and interview protocol that collected information for this study:

a) Participants' personal and professional profile that included, sex and age; school education, teacher training and experience, teacher training, and computer education and knowledge

b) Participants' individual views on how they accessed and use technology in their everyday and professional lives
c) Participants' individual views on teaching and learning, their descriptions of teaching their teaching styles and resources they used in their teaching.

d) Participants individual learning experiences when they were in students in primary and secondary schools.

Aspects of situational landscape

Aspects that were included in the questions in research instruments used by this study were types of schools in which participants were working, locations of such schools, and participants’ perceptions of their school policies and schools facilities and resources available and used, technology resources and uses, technology knowledge and skills of different members in the schools such as other teachers, management and leadership and students, also the views and preferences of these groups on teaching and learning. This information would be used to understand how participants' perceptions of technology were influenced by their situational landscapes.

Aspects of contextual landscape

Questions that collected aspects of contextual landscapes of teacher professional identity were included in both instruments (questionnaire and interview protocols). Specifically, these questions collected information about participants' perceptions of availability and used of technology facilities and resources and how such resources are valued in their communities. Also the participants' perceptions of the views on teaching and learning in these communities were collected. The importance of this information was to provide explanations of how contextual landscape was influential on teachers' perceptions' of teaching with technology.

b) Instrument testing

Validity can also be insured through the testing of the research instrument intended for collection of data in a study. Such testing should be done on a sample of participants drawn from the population of the study. Such participants should have and share the characteristics with the potential participants of the study. The testing of the instrument for this study was not carried out on the potential participants of this study. This is because the targeted population was too small
and the study intended to include every member of the targeted population. Therefore, these research instruments were tested on teachers who were in the field yet who shared most of the characteristics of the targeted population. For example, such these teachers had a combination of college and university teaching qualifications obtained from teacher training institutions in Lesotho. This procedure is described in the section that follows. The information that was collected by a questionnaire and interview protocols confirmed that these two instruments would collect the required information.

3) Instrument piloting

As part of the design process, the questionnaire and interview protocols were tested. Six teachers in three secondary schools in Lesotho participated in the piloting of the questionnaire. Of these six teachers two were recruited from a school in the urban community, another pair from a school in the peri-urban community, and the last two from a school in the rural community. The profile of these teachers matched the characteristics of the targeted population. The characteristics included:

- primary and secondary educational background from schools in Lesotho;
- college teaching qualifications from National Teachers’ Training College (NTTC) now known as Lesotho College of Education (LCE);
- undergraduate teaching degree from the National University of Lesotho (NUL);
- Two or more years of teaching experience in secondary schools in Lesotho.

It is important to explain here that the piloting of the instruments did not involve the participation of the population of the students identified for this study. As explained in the previous sections, this population was too small. Therefore, the study intended to conduct a census in a quantitative method. A census is a type of survey that includes all members of the targeted population in a study (Lodico, Spaulding, & Voegtle, 2006).

In the piloting of the research instruments in this study, the questionnaire was tested first and then the protocols. The piloting of the survey was conducted immediately after the participants were recruited and it took between 45 to 60 minutes to complete. All six participants completed
the questionnaires and also gave their views on the instrument. Their views were that the questionnaire was too long and some of the language used in the instrument was uncommon in Lesotho. For example, one of the terms they viewed unfamiliar was Mobile phone. They indicated that in Lesotho and neighbouring countries such as South African, Botswana and Swaziland, the device was more commonly known as a Cell phone. In view of these comments, the questionnaire was revised to take into account of these comments.

The interview protocols were tested over a period of three days, one protocol per day. Only five of the six recruited participants also participated in the testing of the interview protocols. The other participant participated only in the testing of the first interview protocol and did not participate in the piloting of the other protocols. Therefore, the information from this participant was not used. The only concern that was raised by the participants about the interview protocols was again about the use of the unfamiliar term Mobile phone. Therefore, in this study, mobile phone is referred to as Cell phone.

The results from testing of these instruments indicated that instrument was able to collect information as intended. However, these results also showed some discrepancies in how the participants responded to the questions in both instruments. This was anticipated in the design of this study. That is why this study chose to use parallel mixed methods approach as that results collected by both instruments could also be triangulated.

SECTION 3.2: Process of data collection

The process of data collection for this study was in three stages: the preparation stage, survey data collection and the interview data collection. Each stage is explained as follows:

1) Preparation stage

This study was conceived at the University of Wollongong in Australia. As such, some preparations for data collection were carried out in the Faculty of Education in this university. This included email communication between the researcher and the Dean of Faculty of Education at NUL. Through this communication, the Faculty of Education at NUL granted the
researcher permission to conduct the study. The researcher was attached to the Department of Educational Foundations (DEF), where support for all the research activities proposed in the study would be provided.

On arrival in the Faculty, a meeting was held with the head of DEF. In the meeting, the researcher explained the study, its purpose and planned research activities that would be carried out during the time spent in the Faculty. Also, support from the Department, in terms of access to resources required for the study, particularly access to information resources and student teachers, was again solicited and reconfirmed. The Head of the Department advised on the support the Department was committed to provide to the researcher. The support included office space, access to computing, printing and photocopying and access to information resources. During this time the researcher also met with the individual Faculty members. Most of the research activities, particularly the interviews occurred in the office in the Faculty of Education at NUL.

Another important part of the preparation for data collection was the decision about the language to use during the collection of data, particularly during interviews. There are two official languages in Lesotho: Sesotho, which is also the first language, and English which is the second language. English is mostly learnt in schools. The decision on the language of the research was important because, first, although it could be assumed that the targeted population could speak English well, it was also important to take into account the view that sometimes people prefer to communicate in their first language. Therefore, it was important for this study that the participants were not inhibited by language used when communicating their views. It was therefore decided that although the questionnaire and the protocols were developed and written in English, it was up to the participants to use the language of their preference, Sesotho or English.

2) Survey data collection

Survey participants were recruited and the questionnaire was administered during nine tutorial classes (see Table 3.2). First, the participants were recruited and then the questionnaire was
administered immediately thereafter. The first step in this process was to negotiate access to the class and to schedule the time for recruitment with the coordinators of the courses identified. With the assistance of course coordinators, the participants were recruited during tutorial sessions. The following procedure of recruiting the participants and administering a questionnaire was taken in the eight tutorial sessions:

**Step 1:** The course coordinator introduced the researcher to the student teachers, and solicited their support for the researcher.

**Step 2:** The course coordinator left the tutorial room.

**Step 3:** The researcher re-introduced herself, introduced the research and explained the purpose of the study and the participation required.

**Step 4:** Students had opportunity to ask questions and raise concerns.

**Step 5:** The researcher solicited the student teacher participation in the study.

**Step 6:** The researcher gave time to those who did not want to participate to leave the tutorial room.

**Step 7:** The researcher distributed the questionnaire.

**Step 8:** Student teachers filled in the questionnaires, and asked questions for clarifications in the process.

**Step 9:** The researcher collected the questionnaires.

**Step 10:** The researcher thanked the students for their participation.

**Step 11:** The researcher recruited participants for the interviews.

This was an established procedure for data collection in the survey method. Table 3.2 shows how questionnaires were distributed and collected in each of the nine classes.
Table 3.2 Distribution of questionnaires

<table>
<thead>
<tr>
<th>Tutorials</th>
<th>Class size (n)</th>
<th>Questionnaires distributed (n)</th>
<th>Questionnaires returned (n)</th>
<th>Questionnaire returned (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
<td>45</td>
<td>12</td>
<td>12</td>
<td>100</td>
</tr>
<tr>
<td>Class 2</td>
<td>39</td>
<td>15</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td>Class 3</td>
<td>38</td>
<td>15</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td>Class 4</td>
<td>65</td>
<td>32</td>
<td>32</td>
<td>100</td>
</tr>
<tr>
<td>Class 5</td>
<td>35</td>
<td>22</td>
<td>22</td>
<td>100</td>
</tr>
<tr>
<td>Class 6</td>
<td>55</td>
<td>24</td>
<td>24</td>
<td>100</td>
</tr>
<tr>
<td>Class 7</td>
<td>38</td>
<td>19</td>
<td>19</td>
<td>100</td>
</tr>
<tr>
<td>Class 8</td>
<td>30</td>
<td>14</td>
<td>14</td>
<td>100</td>
</tr>
<tr>
<td>Class 9</td>
<td>150</td>
<td>60</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>495</td>
<td>213</td>
<td>159</td>
<td>75</td>
</tr>
</tbody>
</table>

With the exception of Class 9, all questionnaires distributed were filled in and returned. Of the 60 questionnaires distributed in Class 9 class, only 6 were filled and returned. In this class, unlike in the other classes, the regular procedure, described above, was not followed. This was because the course coordinator insisted on recruiting the participants and administering the questionnaires, claiming that there was no need for the researcher to visit the class. It is, therefore, likely that low response rate from Class 9 was a result of the procedure that was established, and which demonstrated to be effective in the other classes, was not followed. In total, out of 213 questionnaires that were distributed, 159 were filled and returned.

3) Survey participants
It is not clear why only 213 student teachers volunteered to participate out of a population of 429 student teachers. However, a few explanations were viewed possible. First, the expected number of the targeted student teachers of 500 was an estimation based on document analysis. It is therefore possible that there could have been errors in the records of the targeted group, or in the
procedures used in the document analysis, and as a result, the number of these student teachers could have been less than 500. Secondly, there were also some classes, which were not visited for data collection because they had very small numbers (as small as 5 or less) of student teachers targeted by this study. Third, it was established during data collection that most of the younger student teachers belonging to the identified population did not like to identify with this cohort because of the stigma attached to it. This cohort is labelled *bo-mature* (those who are mature and who are long past their study time) by the younger generation of students in NUL, particularly those who came as new school graduates. Because of the stigma of being considered a 'dinosaur' it was possible that many of the younger students in this cohort did not want to participate. Fourth and finally, it was observed during data collection that the value students at the National University of Lesotho placed on research was very low, and as a consequence most of them did not like to participate in research activities. One explanation behind this attitude is that participating in a research is helping those carrying out the research to *climb the ladder* to success, which in their view should not be the case.

a) Profile of survey participants

Information about the profile of the participants in the survey was collected in Section 1 of the questionnaire. This information has been used twice in this study. In this section the characteristics are used to provide a general description of the participants in this study. However, the information is presented again in Chapter 4, in which the survey results are presented. This information is presented as part of the results because teacher characteristics are part of the theory of teacher professional identity.

Of the 159 student teachers who participated in the survey of this study, 122 were female and 37 male. Their ages ranged from 22 to 50 years of age. All the participants were student teachers in the Faculty of Education in NUL, with 12 percent in the first year of their study, 32 percent in the second year, 34 percent in the third year and 32 percent in the fourth year. The participants had completed their college training between 1979 and 2005, with 83 percent obtaining a Secondary Teacher Certificate (STC) and 17 percent a Diploma in Education Secondary (DES). They completed school education (primary and secondary) between 1986 and 2000. About 87 percent had attended at least one church-owned or managed school during primary and
secondary education. Only a small number of the participants (13%) attended government or other types of school. About 50 percent of the participants attended schools located in rural areas while the number that attended schools in urban and peri-urban areas was 20 percent and 16 percent respectively. The remaining 14 percent of the participants attended a combination of schools located in the rural and other locations.

Participants had between 2 and 22 years of teaching experience in schools in Lesotho, with about 77 percent having teaching experience of 5 or less years. Only about 6 percent had more than 10 years of teaching experience. Most of these student teachers (about 67%) had teaching experience only from schools owned by churches and about 3 percent had teaching experience from government schools. There was also a group of participants (about 30%) that had taught in multiple schools (different schools with different ownerships). About 45 percent had experience of teaching in schools located in the rural areas while 26 percent taught in schools located in urban areas. Only 9 percent had taught in different schools in the different locations. About 31 percent of the participants had been teaching Business Education compared to 20 percent for Mathematics and Science, 16 percent for a combination of Languages and Literature and 33 percent whose subject combinations could not be grouped (such as Maths and English, Geography and Theology, or Literature and History).

4) Interview data collection

With the assistance of course coordinators, 18 students were identified for recruitment to participate in the interviews. The identified students were approached and asked whether they were willing to participate in the interviews. This was carried out after the participants had filled in the questionnaire in the tutorial sessions after recruitment and questionnaire administration had been completed took place.

All the 18 student teachers who were approached showed willingness to participate and were given the office and telephone numbers of the researcher to call or just drop in for further discussion and arrangements for the interviews. However, only 16 student teachers showed up for further discussion about participation in the interviews. These student teachers were in the
fourth year (6), third year (6), second years (2) and first year (2) of study. The student teachers were given detailed information about their participation in the interviews. They were also advised that they were free to stop participating any time if they changed their mind. In addition, they were given information about the procedures to follow in case they would like to lodge a complaint about the study relating to ethical issues. All the 16 student teachers agreed to participate in the three series of interviews. Of these 16, 14 student teachers participated and completed all the three interviews they were required to attend. Two student teachers, one in the third year of study and another in the second year of study dropped out before they completed all their three interviews. The third year student teacher attended the initial meeting for clarification and scheduling but did not turn up for interview meetings as scheduled. He also did not respond to the telephone calls when a follow up was made. The second year student teacher dropped out after the first interview with the reason that changes had been introduced in his class timetable. As a result, he was not able to find a slot in his schedule to fit in the interviews. The data collected from this student in the first interview were discarded.

a) Participants’ profile

The 14 student teachers who participated in the interviews had also participated in the survey. Therefore, they had similar characteristics to all other participants in this study. Initially, the age range of the student teachers who volunteered to participate in the interviews was between 26 and 44 years. The student teachers who did not attend all the interviews, as explained in the previous paragraph, aged between 26 and 30 years. Removing them from the interview process resulted in the age range of between 32 and 44 years. Out of 14 student teachers who volunteered to participate, only 4 were males, which was approximately 29 percent of all the male participants in this study. Table 3.3 shows the distribution of student teachers by year of study at NUL. Most of the interview participants (13) attended and worked in church-owned schools. Only one participant worked in the community-owned schools. It was not possible to include more participants with a background from other types of schools, such as government, community and private owned schools because they did not volunteer to participate. Perhaps this was also due to the fact that student teachers who attended and worked in schools other than
church-owned formed a very small group (13%) in this study. The interview participants had attended and worked in the schools in urban, rural, and peri-urban.

All in all, there were four meetings involved in the interview process: the introductory meeting and three interviews. This is explained in the following sections.

b) Introductory meeting
This meeting was about further explanation of the research to the participants and their participation. Also in this meeting, the researcher and the participants scheduled times and places for interviews. If a student teacher agreed to participate in the study after the explanations, the first interview was scheduled and tentative dates and times for the other two interviews were also made. The scheduling was based mostly on the dates and times that were convenient for the participant, such as being free from lectures and other pressures of studies. Microsoft Excel software was used to record and manage all appointments, and related information and activities of the interview.

c) Three interviews
There were three interviews that the participants were required to attend for the completion of participation. All the interviews in this study were recorded using a digital audio recorder. The reason for using audio recorder during the interviews in this study was that in a qualitative research, every bit of information that emerges has a potential value. For example, Miles and Huberman (1994) and Krathwohl (1997) assert that if it is not yet known which data will be of value for the study then everything matters and should be recorded. Another reason for using audio digital devices to record interview data for this study is explained by Lodico, Spaulding and Voegtle (2006) who indicate that the analysis of qualitative data should include direct quotes as evidence. Capturing the conversation of the interviewer and the interviewee through audio recording devices makes this process easy. Furthermore, the use of audio recording devices during interviews enhances the fluidity of the conversation between the interviewee and the interviewer because the interviewer does not have to split attention in order to take comprehensive notes. However, some field notes were also taken during the interviews and were used accordingly to summarise the interviews. The importance of field notes as part of data
collection has also been observed by Krathwolh (1997). Field notes are particularly important for highlighting emergent themes, important information obtained or still needed to be explored by target questions, or any salient, interesting, illuminating, or any information viewed in anyway by the interviewer to be important. Thus, sometimes field notes are used to follow up some of the issues, to ask more questions, or even in the analysis to explain emotions and behaviours. The descriptions of the procedures of the interviews are explained in the subsequent subsection. These procedures were broken into six stages.

Stage 1

This was the initial stage of the interview in which the researcher re-introduced the research and its purpose, and described and agreed with the participant on the procedures and processes of the interview. This included a decision on the language to use and the recording of the interview. It also included information about participants’ right to raise concerns on any issues or raise objections during the interview, and even to reconsider participation in case of dissatisfaction. At this stage, the researcher also clarified issues and concerns raised by the participant.

The last step in this stage was to reconfirm the willingness of the participant to take part in the study. This procedure was followed and repeated in second and third interviews with slight modifications. In the second and third interviews, the description and purpose of research was omitted. Furthermore, the participants were asked if they had issues and concerns arising from the previous interview.

Stage 2

This stage was the actual interviewing process in which the researcher asked questions and the participant talked at length about issues posed by the questions. Where necessary, the researcher probed, summarized or asked questions for clarification of issues and also encouraged the participant to talk more about their views and to clarify statements. All the questions and responses during this stage were recorded on the digital audio recorder.
Stage 3
This was the last part of the actual interview, where the entire interview questions had all been asked and responded to and issues that emerged in the process were clarified. The interviewer then announced to the participant that they had come to the end of the interview and invited comments from the participant on the topics discussed in the interview. This information too was recorded.

Stage 4
In this stage, the interviewer played back the recording of the interview to the participant. This was to verify with the participants that they were satisfied with the information they had given and that it could be used in the study. Thereafter and with permission from the participant, the audio file was transferred from the tape and stored on the computer. Then, all the devices that were used during the interview were packed away as a sign of closure.

Stage 5
At this stage, participants were asked to talk off the record, to comment on the interview in general and to express any concern they had about the process. At the end of the third interview, the participants were also asked to comment on the whole series of interviews. All this information was not recorded and was treated as a feedback that provided information about the participants satisfaction with the procedures and processes used in the interviews.

Stage 6
At this stage, particularly at the end of the first and the second interview, the researcher and the participant confirmed or rescheduled the next interview. Once the scheduling had been done, the researcher thanked the participant and expressed anticipation for the next interview. In the third interview, the scheduling was not done. Instead, the participants were told that if later they realized that they still had concerns or issues to be clarified about the research and participation or, if they changed their minds and wanted their participation to be withdrawn from the study, they were free to contact the researcher or the Faculty of Education at NUL.
5) **Data analysis**

The research has three major roles namely: to explore, to describe, to explain or to validate. According to Krathowohl (1997) it is such roles that determine the kind of data to be collected. These research purposes also determine the procedure and the techniques that are used in the analysis stage. Exploratory and descriptive research, as is the case of this study, perceives important aspects of a situation, possibly missed by others. In the data analysis the research organises and presents these aspects in a rich and vivid manner that makes the unknown real and understandable (Krathowohl, 1997; Merriam, 1998). The information collected is rearranged in patterns and themes that are used to interpret the subject of investigation. A theoretical framework used to collect data is also used to reorganize and interpret such information. This means the theoretical framework of this study, which is teachers’ professional identities, has been used to shape the analysis of data. For example, first the analysis explains teachers’ views and practices with technology. Then it describes aspects of teacher professional identities that influence these views. The methods and procedures used in the analysis of data are explained below.

a) **Survey data analysis**

This study used a descriptive survey. Descriptive surveys use numbers to describe the findings. Such numbers are presented in various statistical representations such as frequencies and percentages, measures of central tendency (mode, mean or average, median), measures of dispersion (for example, the standard deviation that indicate how widely people differ in their response), and correlation coefficient that explains strength of relationship (Krathwalh, 1997). Nowadays computer software is used to carry out this analysis (ibid), as has been done in this study. Using software for descriptive surveys requires raw data to be coded in a numerical form so that it would be accepted, calculated and interpreted. The software can then be used to perform simple to complex calculations, and the results can be presented in a graphic form such as bar and pie charts, tables and graphs (Krathwhol, 1997).
Statistical Package for the Social Sciences (SPSS) was used to analyse the raw data collected by the survey in this study. SPSS is specialised computer software designed to process statistical data. For this study, the main purpose of the survey analysis performed using this software was to establish frequencies, relationships among variables, particularly those that describe attitudes and behaviour in relation to individual personal and professional characteristics, school conditions, and socio-economic and cultural conditions. The results from this analysis are presented in the next chapter. Graphics such as tables, charts or graphs are used to summarise or show patterns and relationships among the variables established by some of the findings.

b) Interview data analysis

In the qualitative research there is no single standard procedure for data analysis (Krathwolh, 1997). Researchers move between stages of observation, coding and interpretation. Hence, it could be difficult sometimes to mark the beginning or the end of each of these processes (Krathwolh, 1997). For example, it is observed that some studies carry out all the processes concurrently but with shift of emphasis from one stage to another:

Most qualitative researchers, however, carry out all these processes concomitantly but with shifting emphases during the study as indicated by which phase is italicized and capitalized in the following [capitals in the original]: OBSERVING, coding, and interpretation are followed by OBSERVING, CODING, interpretation; then observing CODING AND INTERPRETATION; and finally, observing, coding, INTERPRETATION (Krathwolh, 1997, p. 308).

There is also another common approach used in studies that use qualitative methods. In this approach, the observation (data collection) is carried out first and then coding and interpretation are carried out concurrently. However, to a certain extent, during data collection, some analysis is also carried out at this stage. For example, immediately after collecting data from a participant the researcher conducts a preliminary analysis of the event, such as identifying main themes and issues that may need further investigation, and any additional information that emerged during data collection and could not be recorded. This information is recorded in the form of field notes, which are later used in the main analysis (coding and interpretation) of the
data collected (Krathwolh, 1997). This study used this approach. There were three major stages of analysis in this study: data preparation, data coding, and interpretation of the results.

**i) Data preparation**

In the preparation of data for analysis, interviews were transcribed from audio to text data to make other stages of analysis simpler and easier. First, in the raw form, the data were coded in two languages, English and Sesotho. Sesotho, the native language of people in Lesotho, and English are two official languages used in Lesotho. Both English and Sesotho are learnt and used as a medium of instruction in schools. During the interviews, some participants preferred to use either of these languages. Sometimes they even switched from one language to the other (mixed codes). As a result, in its raw form, interview data in this study were coded in English only, Sesotho only or in mixed codes. For consistency and also because the base language for this study is English, all data were translated into English. This translation was carried out concurrently with transcription. All the 42 audio files were translated and transcribed in English. During the translation from Sesotho into English, great care was taken to ensure that the original meaning of words, phrases and statements was not altered or lost during this process. Nonetheless, where it was suspected that through translation the meaning was likely to be lost or altered, literal translation was made. As some of the Sesotho words or expressions could not be translated directly into English language, they were preserved in their original form. In the quotes used in Chapter 5, *italicised* text indicates that the interviewee used the Sesotho word or expression that could not be meaningfully translated. However, this has been accompanied by an explanation in the brackets, or in a footnote. Furthermore, minimal correction of English grammar in the quotes was made in some instances to aid comprehension.

**ii) Data coding and analysis**

Data coding is a process where a researcher makes a decision about the information that is relevant and important for the study. In this process each unit of information that is considered relevant is assigned a descriptive word or phrase that distinguishes it from others or that relates it to others (Krathwolh, 1997). The importance of coding data in a study is to make information accessible for interpretation and to reveal significant aspects of data that repeat themselves, relate
to others and form patterns. This also makes it possible to link the relationships of various units of information to the theory relevant to the study.

The choice of strategies employed in the coding of data depends on the type of the study conducted and the outcomes the study hopes to achieve. Therefore, this process too does not follow a single standard procedure. The procedure that was followed in this study was driven by the purpose of the study. First, the foundation of this study was to make available information on the professional identities of teachers and practices with technology in Lesotho. Therefore, this study intended to describe teachers’ perceptions of with technology in schools in Lesotho and influencing aspects of teacher professional identities. As Strauss (1992) advises, when coding data in an explanatory study, data elements that indicated conditions, strategies and consequences were the focus of the analysis in this stage. Hence, indicator words for conditions which include because, since, as, and on account of, or for consequences such as because of or as a result of were identified. This approach is supported by Krathwolh (1997) who asserts that it leads to emergence of categories that are characterised by factors, conditions and strategies. Another analytical strategy used was that proposed by Miles and Huberman (1994) who suggest looking also for activities and their frequencies such as once a week, once in a month or always. Also supporting the analytical strategies used in this study are Bodgen and Biklen (1992) who assert that in the explanatory studies, data coding and analysis should focus on:

- the definition of the situations as described by the participants;
- participants’ views about others and situations;
- activities such as showing a film or using a computer to present information;
- strategies including, tactics, methods, techniques.

In conclusion, the coding and analysis of interview data in this study were informed by Krathwolh (1997), Strauss (1997), and Bogdan and Biklen (1992). Hence, the themes and patterns were established by:

- identifying repetitions and relationships and these were coded accordingly in the documents of transcribed data (for example, see Table 3.3);
- establishing similarities and their importance;
• assessing the contribution of individual cases or situations to the information that was considered important for the study.

In view of Krathwolh's (1997) suggestion about the best way to carry out this process, particularly in a situation where the study is seeking one’s point of view, data entry from each participant was investigated and coded separately and then compared to others. Thus, during this process questions such as who was doing what, how and why were asked and the answers to these questions were compared. From these comparisons relationships and pattern of the themes emerged. Hence, descriptive words or phrases were used as titles or codes to label the salient themes. Also, in order to understand the situation as described by the participants, words and expressions were preserved during this process. At the end of this process, the data items were ready to be analysed and interpreted.

As indicated before, sometimes the stages of coding and analysing cannot be distinctly separated and are sometimes carried out concurrently, so was the case in this study. There were two stages of analysis of interview data in this study. The first stage of analysis occurred concurrently with data coding and established themes, their patterns and their relationships. The second stage of analysis identified six key participants whose data was used to support presentation of the results in Chapter 5. The perceptions of these participants were viewed to be representatives of others who participated in the interviews. Details of these procedures are described below.

Stage 1 – Identifying themes across all interviewees

The procedure used to analyse interview data followed the natural flow of the interviews. Data collected in the first series of interviews was analysed first, followed by data collected in the second series of interviews, and finally data collected in the third series. The analysis systematically interrogated this data as it was collected in the interviews. That is, the analysis began with the information collected by the first question and following the flow of the conversation as it occurred. Specifically, the following steps were used in Stage 1:

Step 1: Transcripts were sorted and grouped according to the interview series. That is, those that were collected by the first interview were put together as category 1, then
category 2 for the transcripts from the second series of interviews, and category 3 for those collected in the third series of the interviews.

**Step 2:** Salient aspects in the responses were identified and labelled, for example as uses, factors, conditions, techniques or definitions.

**Step 3:** Findings from all 14 transcripts in each of the three categories were compared.

**Step 5:** Themes and patterns from each category were established and compared with those that emerged in other categories.

**Step 6:** The results were interpreted and general statements were formulated.

This process is demonstrated in Table 3.3 in the coding of data collected from one of the interview participants in this study.
Table 3.3: Example of how coding and analysis of interview data were carried out in Stage 1

<table>
<thead>
<tr>
<th>Interview 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participant:</strong></td>
<td>Matho</td>
</tr>
<tr>
<td><strong>Raw Data</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Question:</strong></td>
<td>Please tell me how you use ICT in your everyday life, outside your work and studies.</td>
</tr>
<tr>
<td><strong>Response:</strong></td>
<td>It [radio] enables us to get information about, let’s say we want to advertise. …is taking place due to use of technology. So traders are able to use it. …Ok…..Myself, I am able to communicate with my friends. Cell phone … Internet also I use Internet in order to get definition of some words I don’t know for my studies……landline telephone I also use to communicate. I use radio to listen to the news or current affairs. ….I have Cell phone, anyway, I don’t own Internet but is owned by the school (meaning the University). But I have access to the Internet. I have a radio; I don’t have TV and so forth.</td>
</tr>
<tr>
<td><strong>Data coding</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Technology:</strong></td>
<td>Cell phones, landline telephone, radio, and Internet</td>
</tr>
<tr>
<td><strong>Uses:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Information needs:</strong></td>
<td>..... It enables us to get information about…. I use radio to listen to the news or current affairs.</td>
</tr>
<tr>
<td><strong>Business marketing</strong></td>
<td>..... Let’s say we want to advertise, advertising is taking place due to use of technology. So traders are able to use it…..<em>(comment not for everyday personal use)</em></td>
</tr>
<tr>
<td><strong>Communication:</strong></td>
<td>… Ok…..Myself, I am able to communicate with my friends. Cell phone ….landline I also use it communicate.</td>
</tr>
<tr>
<td><strong>Learning needs:</strong></td>
<td>.... Internet also I use Internet in order to get definition(s) of some words I don’t know for my studies….</td>
</tr>
</tbody>
</table>

This analysis identified themes relating to technology and teaching and learning conditions in schools in Lesotho. These themes included available and accessible infrastructure and resources, uses of technology resources and their importance in teaching and learning, and the meaning of teaching and learning and associated teaching strategies and resources. Patterns of technology access, use and meaning across everyday life and in the wider community were also identified in participants’ interview responses.
Stage 2: Identifying key participants for further analysis

During the first stage of data collection it became obvious that there was a high degree of commonality across the experiences of particular groups of participants. Given the large and complex dataset, this provided an opportunity to identify key participants who could be used to represent the views of other participants (Lodico, Spaulding, & Voegtle, 2006), thereby enabling greater coherence in the reporting while still retaining the richness of the data in this study. It should be noted that usually and where the qualities of key participants are known, particularly in terms of their knowledge and articulation, they could be identified before data collection. However, because there was a limited knowledge about the participants prior to data collection in this study, the key participants could not be selected before data collection. Instead, the study chose to identify such participants after data was collected and through the interrogation of transcripts. The following questions were addressed in this analysis:

• Could the themes that emerged from data be grouped according to the age of the respondents? What were the common themes that emerged from each age group?

Three age groups, 32-36, 37-40 and 41-44 years were used for this analysis. There was no pattern of responses that was formed by these age groups. All the themes that emerged from the analysis were raised in all different age groups.

• Could the themes be grouped according to the university year of study? What were the common themes that emerged from each group?

There was a pattern in how the respondents in the different years of study responded to the questions. This pattern was most obvious when the respondents talked about the computer literacy course offered in the first and second years of study at NUL. For example, most participants in the first and second years of study said that they had not received any computer education, while those who were in the third and fourth year of study said they had received computer education and expressed their views on this course. Another pattern was that participants in the third and fourth years made reference to educational technology course offered in the Faculty of Education at NUL. This course is offered in the second year of study in the Faculty of Education at NUL. However, the participants in the second year of study did not
make any reference to this course because the interviews for study were conducted at the beginning of the academic year and the course had not yet commenced.

• **Could the themes be grouped according to the gender of the respondents? What were the common themes that emerged from each gender group?**

When the responses were grouped according to gender, no pattern of themes emerged from the different gender groups. However, it was acknowledged that these results could also have been influenced by the small number of male participants in this study which was less than 30 percent. This number might have been too small to have shown any pattern in how male and female respondents differed in their responses.

• **Could the themes be grouped according to the type of schools the respondents attended? What were the common themes that emerged from each group?**

This analysis could not be carried out because the results indicated that all the participants had attended mostly church-owned schools.

• **Could the themes be grouped according to the type of schools in which the respondents were working? What were the common themes that emerged from each group?**

The responses were grouped according to the type of schools in which the participants were working. There was not enough data to be used in this analysis because all, except one respondent who was working in the community owned school, were working in the church-owned schools.

• **Could the themes be grouped according to the location of schools in which the respondents attended? What were the common themes that emerged from each group?**

The responses were grouped according to the locations of the schools in which they were working, the urban, peri-urban or rural. Whether these locations were in the lowlands, foothills or highlands was also taken into account. The results suggested that the location of schools attended by the respondents could have influenced how they responded to some questions. For
example, this was evident when they talked about technology infrastructure and resources in their everyday life, and in teaching and learning environments.

- Could the themes be grouped according to the regions in which schools were located? What were the common themes that emerged from each group?

The responses of the participants were grouped according to the regions of the schools in which they were working, highlands, foothills, lowlands, and multiple locations. Also taken into account was whether the locations of the schools in these regions were in the urban, peri-urban or rural areas. The results suggested, as above, that the regions in which schools were located and in which the respondents worked appeared to have influenced how they responded to some of the questions in the interviews. For example, there were patterns in how the respondents from schools in the different regions and locations talked about technology infrastructure and resources in the teaching and learning environments.

- Could the themes be grouped according to the number of years that the respondents worked in schools? What were the common themes that emerged from each group?

The responses were classified into two groups consisting of a group of participants with three or less years of teaching experience and a group of those with more than three years of teaching experience. The results did not suggest any variations in the themes emerging from the responses of the participants.

- Could the themes be grouped according to the type of subjects the respondents taught? What were the common themes that emerged from each group?

The responses were grouped according to the subjects they were teaching namely: maths and science subjects, humanities subjects (languages, literature and religion), and social science subjects (business education, history, geography). The results suggested that the type of the subjects the respondents were teaching had influence on how they responded to the questions. For example, most of the respondents who claimed to have used technology in teaching and learning were those mostly teaching language, literature, history and religion.
Chapter 3

This process identified 6 of the 14 participants whose views and experiences were taken representative of the whole group. It was important that the key participants were drawn from all the years of study in the program. Participants in the first and second years of study formed the smallest part of interview participation (3/14). Therefore, only one participant was selected in each case. Two participants were also selected from those who were in the third year (2) and in the fourth years of study (2). In addition to this criterion, other criteria such as regions and locations of schools and gender were also considered, particularly in the third and fourth years of study where the number of participants was larger. The profiles of the selected key participants are described in Chapter 5.

SECTION 4: Summary

This chapter presented and discussed the research methodology used in this study. First the chapter discussed the theory of teacher professional identity and classroom practices as the theoretical framework of this study. Then the research design of this study, which is a combination of survey and semi-structured and in-depth interviews were combined in a parallel mixed method research approach, was also explained. The design of the research instruments and the procedures that were involved in the data collection were also described. The consideration of ethical procedures and how they were realised in this study was also presented. Then procedures that were used during data collection and analysis, including selection of the six key participants were also explained. In the next chapter, the findings from survey method are presented.
CHAPTER 4: SURVEY RESULTS

This chapter presents the findings from the survey undertaken for this study. The survey investigated professional identities of 159 student teachers at the National University of Lesotho, in particular how the landscapes of their identities (personal, professional and contextual) affected their views on teaching and learning with technology. The contextual landscape included conditions of technology, and the general teaching and learning conditions in their everyday and professional lives. The questionnaire used for this survey is provided in Appendix III. The results of this survey are presented in four sections:

1. participants' personal and professional characteristics;
2. views on technology conditions in everyday life;
3. views on technology conditions in teaching and learning; and
4. views on conditions in teaching and learning.
SECTION 1: Participants’ personal, educational and professional characteristics

This section presents the detailed personal educational and professional characteristics of the participants in this study.

SECTION 1.1: Personal characteristics

This information included age and gender.

1) Age

The question that gathered information about participants’ age was a fill in question. The participants responded to this question by filling the age in the blank space provided.

Question:
Age:....................(Years)

All 159 participants in this study responded to this question. The results from the analysis of their responses are presented in Figure 4.1. The results suggest that the participants' age ranged between 22 and 50 years, with the average age of roughly 32 years. Most (about 74%) of the participants were in the group age of 26 - 35 years.
According to the results, the participants were born between 1963 and 1973 (also see Table 4.1 for details). People born between 1960 - 1980 and 1980 - 2001 belong to X and Y generations respectively. These generations are characterized by their attitude towards technology (Golvin & Schadler, 2008). Technology supports their lifestyle and they embed it into everything in everyday life, particularly in the case of Generation X. Accordingly, every member of this generation owns a mobile phone, a computer or at least has exclusive access to a computer and spends some time on the Internet. Therefore, on the basis of these findings it would be expected that technology would be very important in the lives of these participants. However, as demonstrated later in this chapter, this was not the case. For example, only a few had exclusive access to a computer or Internet.
Table 4.1: The age of the participants (n=159)

<table>
<thead>
<tr>
<th>Age groups</th>
<th>(n)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 - 25</td>
<td>8</td>
<td>5.0</td>
</tr>
<tr>
<td>26 - 30</td>
<td>69</td>
<td>43.4</td>
</tr>
<tr>
<td>31 - 35</td>
<td>49</td>
<td>30.8</td>
</tr>
<tr>
<td>36 - 40</td>
<td>23</td>
<td>14.5</td>
</tr>
<tr>
<td>41 - 45</td>
<td>8</td>
<td>5.0</td>
</tr>
<tr>
<td>46 - 50</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td>Total</td>
<td>159</td>
<td>100.0</td>
</tr>
</tbody>
</table>

2) Gender

The question on gender had two options and participants responded by ticking the box that described their gender.

*Question:*

Gender: □ Male □ Female

All the participants responded to this question. Table 4.2, which presents gender distribution of the participants, shows that 77 percent of the participants were female and 23 percent were male.

Table 4.2: The gender of the participants (n=159)

<table>
<thead>
<tr>
<th>Gender</th>
<th>(n)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>122</td>
<td>77</td>
</tr>
<tr>
<td>Male</td>
<td>37</td>
<td>23</td>
</tr>
</tbody>
</table>

The gender imbalance portrayed in Table 4.2 is not different from the gender distribution of the teaching profession in Lesotho. A higher proportion of women in teaching profession has been recorded in other studies that investigated teachers’ issues in Lesotho and in other countries (see Mturi, 2001). The 2006 Lesotho national census indicates there are 25 male teachers per 100 female teachers in (Lesotho Bureau of Statistics, 2009). On the basis of this distribution, it could
be argued that the results in this study are likely to be biased towards the views of female participants.

**SECTION 1.2: School education**

Information collected on participants' educational background included the years in which the participants attended schools, types of these schools and their locations.

1) **Years of school attendance**

The question about the years that the participants attended primary and secondary schools required the participants to fill in the relevant years in which they completed primary or secondary education.

*Questions:*

- (1) Year you completed primary school: ............................................
- (2) Year you completed secondary school: ..........................................

One participant did not respond to the question on primary education, and four participants did not respond to the question on secondary education. Therefore, their responses were not included in the analysis of responses to these questions. The analysis of the responses from 154 participants presented in Figure 4.2 indicates that a large group of the participants (71%) completed primary education between 1986 and 1993. Sixty seven percent completed secondary education between 1991 and 2000.
Relating these years to the trends of technology, there are indications that digital technology infiltration in the classroom in the West began in the early 80’s (see Saettler, 1990; Hedberg & MacNamara, 2002). At the same time, there was already a philosophical debate that these technology resources should be integrated in the classroom so that students could acquire technological skills required in the labour markets. At this time, however, the use of digital technology resources in the educational setting was not common in developing countries such as Lesotho. Classrooms in these countries were still dominated by the chalkboard and chalk (see Odedra, Bennett, Goodman, & Lawrie, 1993). As the results presented later in this study will indicate, this situation is still the same. This then suggests the possibility that many teachers in this study were not exposed to the use of technology during their school days.

2) Types of schools attended

School type in this study is defined by the type of ownership or management of the school. For example, such classification include, church-owned, government-owned and community-owned. Through school policies, school ownership or management could influence the availability and
access to resources and infrastructure, the type of students, and teaching and learning practices in the schools. The question that gathered information about school type the participants attended listed seven options representing the most common types of schools found in Lesotho.

*Question:*

Type(s) of primary and secondary schools you attended (tick more than one if appropriate):

- Government
- Catholic
- LEC
- Community
- Private
- Anglican
- Other (Specify) ……………

All 159 participants responded to this question and the results are shown in Table 4.3. The responses from 87 percent of the participants indicated that they attended at least a church-owned or managed primary and secondary school (these include church owned schools only and multiple schools). Almost half (48%) attended Catholic Church owned schools only. Very few participants (4%) said they attended government-owned schools.
### Table 4.3: Type(s) of schools attended

<table>
<thead>
<tr>
<th>School type</th>
<th>(n)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>5</td>
<td>3.1</td>
</tr>
<tr>
<td>Catholic</td>
<td>77</td>
<td>48.4</td>
</tr>
<tr>
<td>LEC</td>
<td>19</td>
<td>11.9</td>
</tr>
<tr>
<td>Community</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Private</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Anglican</td>
<td>6</td>
<td>3.8</td>
</tr>
<tr>
<td>Other types</td>
<td>4</td>
<td>2.5</td>
</tr>
<tr>
<td>Multiple schools*</td>
<td>46</td>
<td>28.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>159</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: * denotes participants had attended more than one school of various types.

These results appear to be consistent with the current educational situation in Lesotho, where churches are the main education providers, with Catholic Church and Lesotho Evangelical Church (LEC) in the lead as shown in Table 1.1, which indicates that roughly 81 percent of secondary schools in Lesotho are church-owned, with most belonging to Catholic (35%), followed by the LEC with 31 percent. Therefore, the results in this study show that most of the participants were from the schools owned by Catholic Church and LEC inconsistent with the wider Lesotho population.

### 3) Locations of schools attended

The question that collected information about the locations of the schools the participants attended had three options, and participants selected options that applied to them.

**Question:**
Locations(s) of primary and secondary school(s) you attended (tick in more than one box if appropriate):

- ☐ Urban
- ☐ Peri-urban
- ☐ Rural
All 159 participants responded to this question and the findings from the analysis of this response are presented in Table 4.5. The result suggests that about 50 percent of participants only attended schools in the rural areas. This was the largest group according to the attendance of school by location. Participants who attended schools in the urban areas constituted 20 percent compared to 16 percent and 15 percent respectively of those who attended schools in peri-urban and a combination of rural and other locations.

<table>
<thead>
<tr>
<th>Locations</th>
<th>(n)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>31</td>
<td>19.5</td>
</tr>
<tr>
<td>Peri-Urban</td>
<td>26</td>
<td>16.4</td>
</tr>
<tr>
<td>Rural</td>
<td>79</td>
<td>49.7</td>
</tr>
<tr>
<td>Multiple Locations*</td>
<td>23</td>
<td>14.5</td>
</tr>
<tr>
<td>Total</td>
<td>159</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: * denotes various schools located in various locations

It is not out of the ordinary that the participants who attended schools in the rural areas formed the largest group. The demographic records of Lesotho have established that more than 80 percent of national population resides in the rural areas (Hassan, 2002). Therefore, most schools in the country are likely to be in the rural areas.

**SECTION 1.3: Professional characteristics**

Professional characteristics that are core to teacher professional identity include training and teaching experiences (see Beijaard, 1995; Beijaard, Veloop, & Vermunt, 2000). This section accordingly presents the results about teacher training of the participants, their teaching experience that includes number of years, types and locations of schools, and teaching subjects, and their computer knowledge and confidence.

**1) Training**

This information includes college and university training of the participants.
a) **College training**

Information about college training includes the years in which the participants completed training, teaching subject specializations, and teaching qualifications.

i) **Years of training**

Information about the years in which the participants completed training was collected by a fill in question, which required the participants to fill in the years in which they completed college training.

*Question:*

The year you completed college teacher training: ..................................

The response of one participant was not included in the information gathered by this question because this participant did not respond to this question. Figure 4.3 presents the results of the analysis of the responses of 158 participants to this question. The results suggest that the years in which the participants completed teacher training ranged between 1979 and 2005, with 83 percent completing between 1998 and 2005.
According to Hedberg & MacNamara (2002), around this time the dominance of digital technology resources over analogue technology resources was beginning to emerge in some schools, particularly in the schools in the Western and rich countries. Further, the pressure, that these technology resources should be integrated in teacher training programs and classrooms in schools, was also increasing. However, as explained before, in Lesotho, as in most developing countries, although there were some educators and innovators who had started taking interest in technology in the classroom, they were very few and did not make much impact. The classrooms were still dominated by chalkboards and chalk. Analogue technology resources were in very few schools. Digital technology resources were still viewed in terms of taught subjects, such as computer studies, information and technology studies and computer literacy. Furthermore, subjects such as computer and information technology studies were viewed to be relevant and important only for those who were in the field of mathematics and science. As such, the training
received by the participants at the college would not have integrated digital technology resources. This view is proven true by the results presented later in this chapter and the next.

**ii) Qualifications**

Information on participants’ qualifications was collected to obtain data about the type of credentials the participants were awarded by the college. Although all the participants had trained at the college as secondary school teachers, their qualifications were of two types namely: Secondary Teacher Certificate (STC) and Diploma in Education Secondary (DES). STC qualifications were received before the college transformed from National Teacher Training College (NTTC) into Lesotho College of Education (LCE) in 1995, when it began awarding DES qualifications. This study was interested to find out whether the participants' views and practices would differ according to these two types of college qualifications. This information was collected by a question that stated these qualifications as options and requesting the participants to select the option that applied to them.

**Question:**

Qualifications obtained:  □ Secondary Teacher Certificate (STC)

□ Diploma in Education Secondary (DES)

The analysis of the response to this question from 158 participants is presented in Table 4.6. It excludes one participant who did not respond to this question. These results suggest that about 83 percent of the participants had Secondary Teacher Certificate (STC), meaning they completed college training before major changes in teacher education occurred, and were therefore not affected by the changes. Hence, there was a possibility that their views could differ from the 17 percent of the participants who had DES qualifications and as a result were affected by the changes. However, the results presented later in this chapter and the next chapter indicate that there was no difference in the views of these two groups.
### Table 4.5: College qualifications (n=158)

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>(n)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STC</td>
<td>131</td>
<td>82.9</td>
</tr>
<tr>
<td>DES</td>
<td>27</td>
<td>17.1</td>
</tr>
<tr>
<td>Total</td>
<td>158</td>
<td>100.0</td>
</tr>
</tbody>
</table>

### iii) Subject specializations

Teaching subjects also affect how teachers use technology in the classroom (Becker, 2001; Beijaard, 1995; Beijaard, Velooop & Vermunt, 2000). This influence could be due to the philosophical views, and the knowledge and skills teachers are equipped with in the subject area. This is why it was important to collect this information. The structure of the question that collected this information was based on the knowledge that at the Lesotho College of Education, student teachers are expected to specialise at least in two teaching subjects.

**Question:**

Your teaching subject specialization at college:

Subject 1: ........................................................
Subject 2: ........................................................

One participant did not respond to this question. Therefore, only the responses of 158 participants to this question were analysed. The results suggest that the participants specialised in subject combinations such as business education (31%), mathematics and science (20%), languages and literature (16%) and other subject combinations (33%), which included maths and English, geography and theology or literature and history.

### b) University training: Current year of study

The level of training in the Faculty of Education at NUL was also a potential source of influence on how the participants would express their views in this study. Therefore, this information was collected by a question that required the participants to indicate their year of study at NUL.

**Question:**

Current year of study: 1st 2nd 3rd 4th
One participant did not respond to this question. Therefore, responses of only the 158 participants who responded to this question were analysed and the results of which are presented in Table 4.7. According to these results, most of the participants were in the third year of study (34%), followed by those in the second year of study (32%). Those in the first year of study formed only 12 percent.

Table 4.6: Year of study at NUL (n=158)

<table>
<thead>
<tr>
<th>Year of study</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Year</td>
<td>12</td>
</tr>
<tr>
<td>Second Year</td>
<td>32</td>
</tr>
<tr>
<td>Third Year</td>
<td>34</td>
</tr>
<tr>
<td>Fourth Year</td>
<td>22</td>
</tr>
</tbody>
</table>

2) Teaching experience

Information about the participants' experience included the number of years they had been teaching in the schools, and the type and locations of the schools.

a) Number of years

The longer teachers stay in the classroom, the more knowledge they acquire about what works well and the influential factors of success in the classroom. Such knowledge includes level of access to resources, types of students, school policies and managements, and the views and practices in the local communities. It is believed that as teachers accumulate this knowledge and rely more on it for classroom decision-making, they finally use it to define their profession (see Burbach & Duke, 2007). It can also be argued that this is different in the early years of entering the profession at which stage teachers rely mostly on the knowledge and skills they had acquired through training, and the professional support they get from other members of their professional communities. Therefore, the first five years of practice by teachers after training could be viewed as an exploration period of teaching. At this stage, teachers explore all possible teaching strategies and resources in order to gain the knowledge of what works and what does not. It is very likely that at this time, teachers’ daily professional decision-making is rather based on the
knowledge and skills they acquired through training, past classroom experiences as students, and support from some members in their professional communities while those who had stayed longer rely mostly on the knowledge they had acquired from their professional practice. This argument highlights the importance of collecting information, in the investigation of professional identities, about the length of time teachers had been in the classroom. The question that collected information about the number of years the participants had been teaching in the schools after college training was a fill in question.

**Question:**
Number of years you have taught in secondary school(s): ...................... years

Only 156 participants answered this question and only these responses were used in the analysis. The results from this analysis are presented in Table 4.8. They show that the number years the participants had been teaching ranged from 2 to 22 years, with more than more than 61 percent of the participants having less than 5 years, and very few (9%) with 10 or more years.
Table 4.7: Number of years of teaching experience (n=156)

<table>
<thead>
<tr>
<th>Years (n)</th>
<th>Frequency (n)</th>
<th>Percent (%)</th>
<th>Valid (%)</th>
<th>Cumulative (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>35</td>
<td>22.0</td>
<td>22.4</td>
<td>22.4</td>
</tr>
<tr>
<td>3</td>
<td>32</td>
<td>20.1</td>
<td>20.5</td>
<td>42.9</td>
</tr>
<tr>
<td>4</td>
<td>28</td>
<td>17.6</td>
<td>17.9</td>
<td>60.9</td>
</tr>
<tr>
<td>5</td>
<td>25</td>
<td>15.7</td>
<td>16.0</td>
<td>76.9</td>
</tr>
<tr>
<td>6</td>
<td>13</td>
<td>8.2</td>
<td>8.3</td>
<td>85.3</td>
</tr>
<tr>
<td>7</td>
<td>4</td>
<td>2.5</td>
<td>2.6</td>
<td>87.8</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td>3.1</td>
<td>3.2</td>
<td>91.0</td>
</tr>
<tr>
<td>10</td>
<td>4</td>
<td>2.5</td>
<td>2.6</td>
<td>93.6</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
<td>1.3</td>
<td>1.3</td>
<td>94.9</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>0.6</td>
<td>0.6</td>
<td>95.5</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>0.6</td>
<td>0.6</td>
<td>96.2</td>
</tr>
<tr>
<td>14</td>
<td>2</td>
<td>1.3</td>
<td>1.3</td>
<td>97.4</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>0.6</td>
<td>0.6</td>
<td>98.1</td>
</tr>
<tr>
<td>16</td>
<td>2</td>
<td>1.3</td>
<td>1.3</td>
<td>99.4</td>
</tr>
<tr>
<td>22</td>
<td>1</td>
<td>0.6</td>
<td>0.6</td>
<td>100.0</td>
</tr>
</tbody>
</table>

It appears from these results that many participants in this study did not have much classroom experience as teachers. In view of the argument about teachers’ length of stay and accumulation of classroom knowledge, it could be said that most of the participants in this study had not yet acquired much knowledge about what worked and what did not in the classroom. Since at this stage they were actively accumulating knowledge about what worked in the classroom, it is possible that the views they expressed in this study were influenced more by other factors rather than their teaching experience, factors that include the knowledge they gained through classroom experience as students and through professional training.

b) Types of schools

The question that collected information about types of schools in which the participants worked listed seven options representing common types of schools found in Lesotho.
**Question:**
Type(s) of secondary school(s) you have taught in (select all that apply):

- Government
- Catholic
- LEC
- Community
- Private
- Anglican
- Other (Specify) .................

All the participants responded to this question. The results in Table 4.9 show that approximately 64 percent of the participants taught in church owned schools only, with almost half of the schools (48%) belonging to the Catholic Church. There was a recognisable group of participants (about 30%) who had taught in more than one school with various managements. About 4 percent of the participants taught only in the government and community schools.

Table 4.8: Type(s) of schools taught (n=159)

<table>
<thead>
<tr>
<th>School type</th>
<th>(n)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>5</td>
<td>3.1</td>
</tr>
<tr>
<td>Catholic*</td>
<td>77</td>
<td>48.4</td>
</tr>
<tr>
<td>LEC*</td>
<td>19</td>
<td>11.9</td>
</tr>
<tr>
<td>Community</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Private</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Anglican*</td>
<td>6</td>
<td>3.8</td>
</tr>
<tr>
<td>Other types</td>
<td>4</td>
<td>2.5</td>
</tr>
<tr>
<td>Multiple Schools</td>
<td>46</td>
<td>28.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>159</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: * denotes church-owned schools

These findings further strengthen the point that churches, specifically the Catholic and LEC, are not only the main providers of education in Lesotho but also the main employers of teachers. It could be argued that the education that is offered by church-owned schools is usually influenced by the views based on the missions of these churches. Hence, these views also impact on how education is implemented by teachers in these schools. Consequently, it is possible that the views of the churches had a strong influence on how the participants in this study expressed their views, particularly, on teaching and learning.
c) Locations of schools

The importance of the information about the locations of the schools has also been explained earlier in this chapter: that the socio-economic and cultural conditions in the locations of the schools could influence teachers' views on their professional practice. The question about the locations of schools in which teachers worked provided three types of locations from which the participants were to select those that were relevant to them. All the participants responded to this question.

**Question:**

Location(s) of secondary school(s) you have taught in:

- Urban
- Peri-urban
- Rural

The results from the analysis of the responses of all 159 participants suggest that most of the participants (45%) had taught only in the schools located in the rural areas. It is almost similar to the 50 percent of the participants who attended schools located in the rural areas only. About 26 percent of the participants had taught in the urban schools. Only 9 percent of the participants had taught in schools located in various locations.

Further analysis, that used a cross tabulation of location of school attendance and location of teaching, shows that about 30 percent of the participants had attended and worked in the schools located in the rural communities only. The importance of these results is their implication that this 30 percent had a classroom exposure that was limited to the schools located in communities that live below poverty line and schools which are similarly in poor conditions (see Appendix I). The level of literacy is also very low in these communities and the concept of schooling is not very important. Teachers exposed to these conditions are likely to have a different description of teaching profession from those who work in the schools with contrasting conditions, such as those in the urban areas.

3) Computer education, knowledge and skills, and confidence

Computer knowledge and skill are equally important in how teachers view and use technology in the classroom (Becker, 2001). Computer education significantly contributes to the knowledge
and skills and the confidence of technology integration in the classroom. This is why this study investigated participants computer education, knowledge and skills.

**i) Education**

The question that collected this information asked the participants whether they had computer training before this study was conducted.

*Question:*

Have you ever taken a computer training course?

☐ Yes  ☐ No

All the participants responded to this question and the results suggest that 83 percent of participants had received computer education. These results were not surprising and were in line with the fact that the National University of Lesotho was offering computer literacy course in the first or second year of study as a compulsory course for all undergraduate students. Since many of the participants were in the second, third and fourth year they would have already taken this course.

**ii) Knowledge and skills**

The question about knowledge and skills listed four statements that described different levels of computer skills. The participants were requested to select statements that described their levels of computer skills.

*Question:*

How would you describe your computer skills (tick in the box of the statement that describes your skills)?

☐ I have no computer skills

☐ I have limited computer skills

☐ I have a good level of computer skills and I can do a variety of tasks on the computer

☐ I am an expert computer user and am skilled in many computer tasks

All the participants responded to this question and Table 4.10 presents the findings from the analysis of the response to this question. The results suggest that about 72 percent of the
participants selected statements that described their computer skills as limited or none, meaning therefore this group of the participants believed their skills to be limited.

Table 4.9: Computer skills of the participants (n=159)

<table>
<thead>
<tr>
<th>Computer Skills</th>
<th>(n)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None / Limited</td>
<td>114</td>
<td>71.7</td>
</tr>
<tr>
<td>Good / Expert</td>
<td>45</td>
<td>28.3</td>
</tr>
<tr>
<td>Total</td>
<td>159</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Since, there was less than 30 percent of the participants who described their skills as good or expert, as opposed to the 83 percent of the participants who claimed they had taken a computer course, there was an implication that there was no link between the views of the participants about their computer skills and computer education they received. This is confirmed by a cross tabulation of computer education and computer skills and tasks performed. The findings reported in Table 4.11.

Table 4.10: Computer skills versus computer education cross tabulation (n=159)

<table>
<thead>
<tr>
<th>Computer skills</th>
<th>Yes (n)</th>
<th>No (n)</th>
<th>Total (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer skills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None / Limited</td>
<td>89</td>
<td>25</td>
<td>114</td>
</tr>
<tr>
<td>Good / Expert</td>
<td>43</td>
<td>2</td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td>132</td>
<td>27</td>
<td>159</td>
</tr>
</tbody>
</table>

As anticipated, the results show little relationship between participants' computer training and their views on their computer skills. For example, the results show that 89 participants who claimed to have computer training believed that their computer skills were limited. That the survey the results came from was self-reporting means that the participants might have understated or been modest about their computer abilities. The reason for this being that in Lesotho, people are usually modest when they talk about their abilities because Lesotho culture
condemns self-praising and acknowledges true knowledge and skills that are reported by others. Also, how the participants interpreted good computer skills could have been another factor. For example, teachers in Lesotho are expected to have higher multi-disciplinary skills than those found in their communities. They are expected to lead and guide, not only the students they teach, but also the whole community in the new developments that occur in the community. It is therefore possible that the participants' views were linked to this belief, thinking that they did not have computer skills that could meet these expectations.

**iii) Confidence**

This information was collected by a question that required the participants to rate their computer confidence on a 5-point rating scale, with 1 representing low confidence, 3 representing average confidence and 5 representing high confidence. The participants circled the number on the scale that applied to their views about their level of confidence.

*Question:* How would you rate your confidence with using the computers (circle the relevant number?)

<table>
<thead>
<tr>
<th>Low</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>High</th>
<th>5</th>
</tr>
</thead>
</table>

All participants responded to this question. The analysis of the responses is presented in Table 4.12. The information in Table 4.12 suggests that about 68 percent rated computer confidence between 3 and 5 on the scale. These ratings placed the confidence of the participants at average or above average.
### Table 4.11: Participants' computer confidence (n=159)

<table>
<thead>
<tr>
<th>Confidence</th>
<th>(n)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>23</td>
<td>14.5</td>
</tr>
<tr>
<td>Below average</td>
<td>28</td>
<td>17.6</td>
</tr>
<tr>
<td>Average</td>
<td>80</td>
<td>50.3</td>
</tr>
<tr>
<td>Above average</td>
<td>20</td>
<td>12.6</td>
</tr>
<tr>
<td>High</td>
<td>8</td>
<td>5.0</td>
</tr>
<tr>
<td>Total</td>
<td>159</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Since the previous results suggested that most of the participants believed that they had no or limited skills, it was expected that these results too would indicate that the participants rated their confidence low. However, this was not the case as most of the participants believed that their computer confidence was at or above average (also see Figure 4.4). This supports the argument made in the preceding paragraph that how some participants described their computer skills was possibly influenced by other factors and their own views on the knowledge and skills they had.
SECTION 1.4: Summary

This section presented the personal and professional characteristics of the participants of this study. A summary of the findings is listed as follows:

- **Personal characteristics:** their age ranged between 22 and 50 years, with the age group of 26 - 35 forming the largest; and most were females and males were less than 25%;

- **Education:** they completed primary education between 1975 and 1996 (with the largest group in 1986 - 1993) and completed secondary education in 1975 - 2005, (with the largest group in 1991 - 2000); they attended mostly church-owned schools mostly located in the rural areas.

- **Professional characteristics:** they completed college training between 1996 and 2005 (largest group in 1998 - 2005); and currently they were mostly in the second and third year of teacher training program at NUL. Their subject specialisations were combinations of specialisation in teaching business education, mathematics and science and, languages and literature; and they had teaching experience ranging from 2 to 22 years (largest group
with 5 years) in the schools mostly church-owned and located in the rural areas; they had received computer education, thought their computer knowledge was limited yet stated an average level of computer confidence.

The next section presents the views of these participants on technology conditions in everyday life. These views explain technology resources available, how they are used and how they affect everyday life of the participants.
SECTION 2: Technology conditions in everyday life

The previous section presented the results that described the personal and professional characteristics of the participants. This section presents the findings about the views of these participants on technology conditions in everyday life. These views include how technology conditions affected their personal and community everyday life. The importance of this information is that it shows how these conditions reflect in the schools, and their influence on the professional views and practices of the participants with technology. The results in this section are presented in two parts: the views on the current technology conditions and those in the past, before the participants became teachers.

SECTION 2.1: Current technology conditions

The views on the current technology conditions included technology conditions that affected individual participants and the conditions in their communities.

1) Conditions that affected individual participants

Such conditions included technology resources available and accessible to the participants, the importance of using these resources in everyday life, the confidence the participants had in the use of these technology resources, and technology knowledge and skills the participants had.

a) Availability and access

The views on the technology resources that were available and accessible to the participants were gathered by the question that used a Likert Scale. This instrument listed technology resources that are commonly available and accessible in the everyday life in modern societies, particularly, in the Developed and 'rich' communities. The participants rated their level of access to each listed resource.

Question:
Please indicate your current level of access to different types of technology in your everyday life.
All the participants responded to this question and Table 4.13 presents the results from the analysis of this response. According to the results in this table, the views of the participants were that technology resources available and easily accessible to them were mobile phone (98%), radio (94%), landline telephone (57%) and television (74%). The results indicate, with the exception of mobile phones, which are digital, technology resources that were accessible to the participants were analogue technology resources. Other digital technology resources that were listed could only be accessed by less than 40 percent of the participants. These included laptops and computers, electronic organisers, dedicated digital camera, Internet and MP3 players and iPod.

\[
\begin{array}{cccc}
\text{Technology Type} & \text{Anytime / Exclusive} & \text{None / Limited} & \text{Total} \\
& (%) & (%) & (%) \\
\text{Desktop / laptop computer} & 34.6 & 65.4 & 100.0 \\
\text{Electronic organizers} & 2.5 & 97.5 & 100.0 \\
\text{Dedicated MP3 player or iPod} & 13.2 & 86.8 & 100.0 \\
\text{Internet} & 23.3 & 76.7 & 100.0 \\
\text{Dedicated digital camera} & 17.0 & 83.0 & 100.0 \\
\text{Mobile (Cell) phone} & 98.1 & 1.9 & 100.0 \\
\text{Landline telephone} & 56.6 & 43.4 & 100.0 \\
\text{Radio} & 93.7 & 6.3 & 100.0 \\
\text{TV/VCR/DVD} & 73.6 & 26.4 & 100.0 \\
\end{array}
\]

Worth noting from these results is the 98 percent of participants who indicated that mobile phones were accessible. In contrast to other digital technology resources that could only be accessed by very few participants, mobile phones were accessible to almost all (98%). The same could also be said about landline telephone access. Unlike easy access to other analogue technologies by at least 70 percent of participants who had access to this resource was comparatively lower, roughly 60 percent. This is important to point out because in the interview results presented in the next chapter, the participants indicated that infrastructure was one of the
major factors in how they accessed and used technology. Therefore, it could be argued that mobile phones were accessible to most of the participants because generally this technology does not require the end user to be near a physical telecommunication infrastructure to have access. Specifically, mobile phone technology relies on a charged battery for every day operation and access to network signal does not require access to a wired telecommunication network. In contrast, landline telephones rely on the physical access to physical infrastructure of the telecommunications provider. Another advantage the mobile phone has over landline telephone is the ability to serve other everyday needs of the user such as using text message, accessing broadcasting and Internet, entertainment in the form of music and games, and information recording, storage and sharing.

b) Importance of technology use
This information was collected by the question that used a Likert Scale. In this question, technology activities that appear important for everyday use in modern communities were listed. The participants responded to each activity according to their views.

*Question:*
How important is technology in your everyday life for the following?

All the participants (159) responded to this question and the results from the analysis of these responses are presented in Table 4.14. The results show that 96 percent of the participants' rated using technology for communication very important in everyday life. This was followed by using technology to access information, which received 69 percent of the participants' responses. Other uses such as information storage and recreation scored less than 60 percent responses, suggesting that about half of the responses were from the participants who did not view these activities to be important.
Table 4.13: Importance of technology to the participant (n = 159)

<table>
<thead>
<tr>
<th>Technology Activities</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>communicate</td>
<td>95.6</td>
<td>4.4</td>
<td>100.0</td>
</tr>
<tr>
<td>access information</td>
<td>68.6</td>
<td>31.4</td>
<td>100.0</td>
</tr>
<tr>
<td>store information</td>
<td>52.2</td>
<td>47.8</td>
<td>100.0</td>
</tr>
<tr>
<td>publish information</td>
<td>23.3</td>
<td>76.7</td>
<td>100.0</td>
</tr>
<tr>
<td>surf Internet</td>
<td>36.5</td>
<td>63.5</td>
<td>100.0</td>
</tr>
<tr>
<td>recreation</td>
<td>58.5</td>
<td>41.5</td>
<td>100.0</td>
</tr>
<tr>
<td>others</td>
<td>27.7</td>
<td>72.3</td>
<td>100.0</td>
</tr>
</tbody>
</table>

A general observation from these results is that the activities which participants indicated they valued, were mostly those that could also be performed using analogue as well as digital technology resources, while those functions that rely entirely on the use of digital technology resources were viewed to be important by less than 40 percent of the participants. These included information publishing and Internet surfing. These results are consistent with the results about technology access. They show that technology functions that were rated important by the participants were those that could be carried out mostly with analogue technology resources that were easily accessible.

**c) Confidence in use**

The question about participants' confidence to carry out technology applications listed in the question also used a Likert Scale. The applications listed in the question were considered common in contemporary communities.

*Question:*

How confident are you at doing the following with technology in your everyday life?

All 159 participants responded to this question. Table 4.15 presents the results from the analysis of their responses. The results suggest that less than 31 percent of the participants indicated that they could confidently carry out technology applications listed in the question.
Table 4.14: Participants confidence of technology use in the everyday life (n=159)

<table>
<thead>
<tr>
<th>Technology uses</th>
<th>Quite/Very (%)</th>
<th>Not at all/Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>use Office applications</td>
<td>26.4</td>
<td>73.6</td>
<td>100.0</td>
</tr>
<tr>
<td>store information</td>
<td>30.8</td>
<td>69.2</td>
<td>100.0</td>
</tr>
<tr>
<td>surf Internet</td>
<td>29.6</td>
<td>70.4</td>
<td>100.0</td>
</tr>
<tr>
<td>use email</td>
<td>15.7</td>
<td>84.3</td>
<td>100.0</td>
</tr>
<tr>
<td>produce multimedia files</td>
<td>11.3</td>
<td>88.7</td>
<td>100.0</td>
</tr>
<tr>
<td>publish on Internet</td>
<td>2.5</td>
<td>97.5</td>
<td>100.0</td>
</tr>
<tr>
<td>design Webpages</td>
<td>1.9</td>
<td>98.1</td>
<td>100.0</td>
</tr>
<tr>
<td>use databases</td>
<td>5.0</td>
<td>95.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The results indicate that there were very few participants (30% or less) who indicated they could confidently carry out the applications that were mostly associated with the use of digital technology resources. These results also appear to be consistent with those presented in preceding two sections, which have shown that the availability and access to digital technology resources were limited and therefore these resources were not significantly used in everyday activities. Hence, the participants could not confidently carry out applications associated with these technology resources.

d) Knowledge and skills

Participants' aspirations to acquire knowledge and skills that can enable them to use technology successfully in their daily activities were investigated using a Likert Scale. The participants rated the level of importance they attached to each type of knowledge and skill listed in the question.

**Question:**

How important do you think you need the following for successful use of technology in your everyday life?

All the participants responded to this question and the results from the analysis of their responses are presented in Table 4.16. They show that at least 62 percent of the participants indicated that
they thought all types of knowledge and skills listed in the question were important, with skills technique and knowledge of a specialist rated highly by 79 percent of the participants.

Table 4.15: Technology knowledge and skill need in the everyday life (n=159)

<table>
<thead>
<tr>
<th>Type of knowledge and skill</th>
<th>Quite/Very (%)</th>
<th>Not at all/Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skills, techniques and specialist knowledge</td>
<td>79.2</td>
<td>20.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Natural born talent</td>
<td>65.4</td>
<td>33.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Taste, judgment or development ‘feel’ for it</td>
<td>61.6</td>
<td>38.4</td>
<td>100.0</td>
</tr>
</tbody>
</table>

In view of the previous results it seems that the participants had very little knowledge about the type of competences embodied in each type of knowledge and skills and their relevance in their everyday life. Hence they responded safely by including all the knowledge and skills listed, in case they could be beneficial and relevant in their lives.

2) Conditions in the communities

The participants were also asked about their views on the technology conditions in everyday life in their communities. This information was considered important because it links technology conditions in the everyday lives of individual participants to those that existed in the wider society. Therefore, the information that was collected for this section included availability of and access to technology resources, and their uses in everyday life in the community and in the business and industry sector.

a) Availability and access

This information was collected by a question that used a Likert Scale. The participants were requested to rate the level of access to a range of technology resources they believed existed in the community.

**Question:**
How easy is it for other members of your community/society to access the following technology resources in everyday life?
All 159 participants responded to this question. The results presented in Table 4.17 are from the analysis of this response. The results show that the views of over 96 percent of the participants ranked radio and mobile phones easily accessible in their communities. These were followed by the television and landline telephone, viewed accessible by over 70 percent of the participants. Easy access to digital technology resources such as computers, electronic organizers and the Internet was rated by very few participants (less than 30%). About 20 percent of the participants indicated that they did not know whether these technology resources were accessible in their communities. These results give a general image that, apart from mobile phones, digital technology resources were not common in the communities of the participants.

Table 4.16: Technology access in the community (n=159)

<table>
<thead>
<tr>
<th>Technology type</th>
<th>Quite/Very (%)</th>
<th>Not at all/Somewhat (%)</th>
<th>Don’t know (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop/laptop computers</td>
<td>18.2</td>
<td>53.5</td>
<td>28.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Electronic organizers</td>
<td>9.4</td>
<td>47.2</td>
<td>43.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Dedicated MP3 players</td>
<td>17.6</td>
<td>44.7</td>
<td>37.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Internet</td>
<td>26.4</td>
<td>52.2</td>
<td>21.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Dedicated digital camera</td>
<td>23.9</td>
<td>54.1</td>
<td>22.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Mobile(Mobile) phone</td>
<td>90.6</td>
<td>7.5</td>
<td>1.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Landline Telephone</td>
<td>74.2</td>
<td>22.6</td>
<td>3.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Radio</td>
<td>95.6</td>
<td>3.1</td>
<td>1.3</td>
<td>100.0</td>
</tr>
<tr>
<td>TV/VCR/DVD</td>
<td>71.7</td>
<td>22.0</td>
<td>6.3</td>
<td>100.0</td>
</tr>
</tbody>
</table>

It is also important to note from these results a pattern of access to technology resources in the community that is similar to that of the individual participants. For example, both results show technology access in the personal lives of individual participants and in their communities was limited to analogue technology resources.
Table 4.17: technology access by participants versus other members in the community

<table>
<thead>
<tr>
<th>Technology type</th>
<th>Participants' access (%)</th>
<th>Community's access (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop / laptop computer</td>
<td>34.6</td>
<td>18.2</td>
</tr>
<tr>
<td>Electronic Organizers</td>
<td>2.5</td>
<td>9.4</td>
</tr>
<tr>
<td>Dedicated MP3 player or iPod</td>
<td>13.2</td>
<td>17.0</td>
</tr>
<tr>
<td>Internet</td>
<td>23.3</td>
<td>26.4</td>
</tr>
<tr>
<td>Dedicated digital camera</td>
<td>17.0</td>
<td>23.9</td>
</tr>
<tr>
<td>Mobile(Mobile) Phone</td>
<td>98.1</td>
<td>90.6</td>
</tr>
<tr>
<td>Landline Telephone</td>
<td>56.6</td>
<td>74.2</td>
</tr>
<tr>
<td>Radio</td>
<td>93.7</td>
<td>95.6</td>
</tr>
<tr>
<td>TV/VCR/DVD</td>
<td>73.6</td>
<td>71.7</td>
</tr>
</tbody>
</table>

However, within this pattern there are some differences as shown in Table 4.18. For example, there were over 70 percent of the participants who indicated that landline telephone was accessible in the community compared to less than 60 percent of participants who indicated that this technology resource was not easily accessible in their individual lives. Another difference to technology access was found in the access to computers: 35 percent of the participants indicated that they had easy access to computers, compared to 18 percent of which indicated that computers were easily accessible in the community.

b) Technology uses

The question on the views of the participants about how technology was used in their communities used a Likert Scale that listed a range of common technology uses. The participants rated their views on how common these uses were in the community.

Question:

How common is it to for other members of your community to do the following with information and communication technology resources in everyday life?

All the participants responded to this question and the results from the analysis of these responses are presented in Table 4.19. About 57 percent of the participants were of the view that technology was used mostly for communication, while 33 percent indicated that technology was
also used for recreation in their communities. Less than 25 percent of the participants indicated that other uses such as accessing, storing, publishing or sharing information were common in their communities.

Table 4.18: Technology uses in the community (n = 159)

<table>
<thead>
<tr>
<th>Technology use</th>
<th>Quite/Very (%)</th>
<th>Not at all/Somewhat (%)</th>
<th>Don't know (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>communicate</td>
<td>56.6</td>
<td>28.9</td>
<td>14.5</td>
<td>100.0</td>
</tr>
<tr>
<td>access information</td>
<td>23.3</td>
<td>56.0</td>
<td>20.8</td>
<td>100.0</td>
</tr>
<tr>
<td>store information</td>
<td>22.0</td>
<td>51.6</td>
<td>26.4</td>
<td>100.0</td>
</tr>
<tr>
<td>publish information</td>
<td>9.4</td>
<td>59.7</td>
<td>30.8</td>
<td>100.0</td>
</tr>
<tr>
<td>share file</td>
<td>18.2</td>
<td>49.7</td>
<td>32.1</td>
<td>100.0</td>
</tr>
<tr>
<td>recreate</td>
<td>32.7</td>
<td>44.6</td>
<td>22.6</td>
<td>99.4</td>
</tr>
<tr>
<td>others</td>
<td>13.2</td>
<td>57.2</td>
<td>29.6</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The results that emerged from comparing the views of the participants on the technology access and uses, by individual participants and in the community suggest that there were similarities in the pattern of access and uses in the lives of individuals and in the community. For example, technology resources and uses that were rated common in the individual lives of the participants were also rated common in the community. Those that were not common also followed the same pattern of rating. However, these results also indicated that there were minor differences in the access and uses of computers and landline telephones in the individual lives and in the community. Some uses appeared to have been rated more common in the individual lives of the participants than in their communities (see Table 4.20).

There are two possible explanations for this pattern. The first is that the participants were likely to know more about themselves than what happens with other members in the community. The second explanation is that perhaps with the financial status the participants had as members of a working class in Lesotho, they could afford to acquire and maintain technology while many
people in the community who were not working could not (see Appendix I, for employment and economic situation in Lesotho).

Table 4.19: Technology uses by the participants and in the community

<table>
<thead>
<tr>
<th>Uses</th>
<th>Participants (%)</th>
<th>Community (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>communicate</td>
<td>81.1</td>
<td>56.6</td>
</tr>
<tr>
<td>access information</td>
<td>41.5</td>
<td>23.3</td>
</tr>
<tr>
<td>Store information</td>
<td>32.7</td>
<td>22.0</td>
</tr>
<tr>
<td>publish information</td>
<td>12.6</td>
<td>9.4</td>
</tr>
<tr>
<td>share file</td>
<td>32.7</td>
<td>18.2</td>
</tr>
<tr>
<td>recreate</td>
<td>17.6</td>
<td>32.7</td>
</tr>
</tbody>
</table>

c) Uses in the business and industry sectors

It was also important to investigate the views of the participants on how important the use of technology was in the business and industry sector in their communities.

This information was required because the current philosophical debate on technology integration in the classroom associates technology knowledge and skills with the needs of the contemporary labour market, which increasingly required people with technology skills. Therefore, it was important to establish technology conditions in the labour markets from the point of view of the participants, and later relate these views to the views of the participants on the importance of their students learning with technology.

This information was collected by a question that used a Likert Scale. Listed in this question were the uses, which in the view of this study, are common in the industry and business sectors in modern communities. The participants rated their views on each technology use listed.

**Question:**

How common are the following done with information and communication technology in business and industry in your community?
All the participants responded to this question. The results from the analysis of these responses are presented in Table 4.21. About 58 percent of the participants indicated that in the business and industry sectors, technology was used mostly for communication and about 40 percent indicated that they believed that Internet was surfed and information was stored using technology. There was also a small, but significant, number of the participants (at least 17%), which indicated that they did not know about technology uses in the business and industry in Lesotho.

Table 4.20: Technology uses in the industry and business sectors

<table>
<thead>
<tr>
<th>Technology uses</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Don't know (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>communicate</td>
<td>57.9</td>
<td>25.2</td>
<td>17.0</td>
<td>100.0</td>
</tr>
<tr>
<td>surf Internet</td>
<td>34.0</td>
<td>40.3</td>
<td>25.8</td>
<td>100.0</td>
</tr>
<tr>
<td>store information</td>
<td>37.7</td>
<td>34.0</td>
<td>28.3</td>
<td>100.0</td>
</tr>
<tr>
<td>publish information</td>
<td>23.9</td>
<td>39.0</td>
<td>37.1</td>
<td>100.0</td>
</tr>
</tbody>
</table>

3) A synopsis of current technology conditions in everyday life

The results about current technology conditions in the personal lives of the participants and in their communities indicate that the participants' views were that, in their lives:

- technology resources that were available and easily accessible were limited to analogue technology resources mainly radio, television, landline telephone, and mobile phones;
- access to digital technology was limited; technology uses were limited to basic uses of communication and information access and recreation;
- participants had limited knowledge and skills for using digital technology and their applications.
SECTION 2.2: Technology conditions before the participants became teachers

This sub-section presents the views of the participants on technology conditions in the past, before they became teachers. The importance of this information is that experiences that contribute to teachers' biographies include those in their far and immediate past. Those in the far past include the conditions in which teachers grew and learnt. The views investigated in this study included participants' familiarity with technology, stages at which technology became important, types of technology resources that were important, abilities to use technology resources that were available; and how well they could use digital technology applications.

a) Familiarity with technology resources

The views of the participants on their familiarity with technology before they became teachers were collected by a question that used Likert Scale. The question listed technology resources, which this study viewed could have been common before participants became teachers and the participants were asked to rate their familiarity with these resources.

*Question:*

How familiar were you with the following technology resources before you became a teacher?

All the participants (159) responded to this question. Table 4.2 presents the results from the analysis of this response. The results suggest that most of the participants (94%) indicated that they were familiar with radio before they became teachers while less than 80 but above 65 percent of participants were familiar with television and landline telephone. Less than 55 percent of the participants were familiar with mobile phones. The rest of digital technology resources listed, were claimed familiar by less than 20 percent of the participants.
Table 4.21: Familiarity with technology before becoming teachers (n=159)

<table>
<thead>
<tr>
<th>Technology</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop laptop computers</td>
<td>16.4</td>
<td>83.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Electronic organizers</td>
<td>3.1</td>
<td>96.9</td>
<td>100.0</td>
</tr>
<tr>
<td>MP3 players</td>
<td>5.7</td>
<td>94.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Internet</td>
<td>6.3</td>
<td>93.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Dedicated digital still/video</td>
<td>13.2</td>
<td>86.8</td>
<td>100.0</td>
</tr>
<tr>
<td>camera</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cell (Mobile) phone</td>
<td>52.2</td>
<td>47.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Landline telephone</td>
<td>76.7</td>
<td>23.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Radio</td>
<td>93.7</td>
<td>6.3</td>
<td>100.0</td>
</tr>
<tr>
<td>TV/VCR/DVD</td>
<td>68.6</td>
<td>31.4</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The pattern of these results resembles the pattern presented in the preceding sections. Digital technology resources had not been available in the lives of the participants. If there had been any technological change, it had been very little and hardly noticeable. Therefore, it could be said that technological environment has been stable and predictable in the lives of the participants. These slow and stable technological conditions in the lives of the participants appears to be in contrast with the rapid and dramatic technology changes in other communities, particularly those in the Western and rich countries, changes that require constant upgrading of technology knowledge and skills (see Visscher (1999) about the impact of stable and predictable external environments of the schools). This view then suggests that there has not been much pressure put on the participants and on their communities to make drastic changes in their lives to accommodate technology.

a) Stages at which technology became important

The participants were asked to indicate the level of importance they attached to technology in their everyday life before they became teachers. The relevant question used a Likert Scale that listed four stages of education the participants would have gone through in their lives.
**Question:**
In your view, how important was technology in your life when you were at the following stages of education?

All the participants responded to this question. The results from the analysis of these responses are presented in Table 4.23. They show that most of the participants (85%) indicated that they began valuing technology at the beginning of their teaching profession, when they were in training at the college. The results also show that before schooling, there were very few participants (15%) who appreciated technology. However, the rate of appreciation among the participants increased with stages of education, from 16 percent while they were in primary education to 43 percent in secondary education and 85 percent in teacher training. As demonstrated in Table 4.23, from one stage to another there was a sharp increase in the number of the participants who claimed they appreciated technology.

**Table 4.22: The stage at which technology became important before they became teachers**

<table>
<thead>
<tr>
<th>Stages of education</th>
<th>Quite / Very (%)</th>
<th>Not at all/Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>teacher training</td>
<td>84.9</td>
<td>15.1</td>
<td>100.0</td>
</tr>
<tr>
<td>secondary</td>
<td>42.8</td>
<td>57.2</td>
<td>100.0</td>
</tr>
<tr>
<td>primary</td>
<td>15.7</td>
<td>84.3</td>
<td>100.0</td>
</tr>
<tr>
<td>before schooling</td>
<td>5.7</td>
<td>94.3</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Various factors may be responsible for this pattern in these results: before schooling, the participants’ environment included only the family members, family friends and neighbours who shared views and practices, including available technology resources and their uses. Therefore, as children at this stage, the participants were mostly ignorant of technology resources and practices that existed outside their own communities. From the time they started schooling, the horizon of their world widened and the further they progressed to various stages of education the more exposure they got to other communities’ cultures and beliefs. Through this exposure and interaction with others, the participants acquired more knowledge and the scope of their views widened and resulted in their appreciation of technology and hence accommodating more
technology resources and their uses. This observation is based on the knowledge of the researcher in this study about Lesotho. In Lesotho, it is common for children to have primary education in schools in the local communities. Thus, learners in the primary schools tend to come from communities that have shared beliefs, practices, and artefacts. In contrast, in secondary schools are students and teachers who come from different regions in the country, sometimes even, from outside the country. Students begin to get wider exposure to norms, values and artefacts of other communities. As a result, they begin to develop and acquire new tastes, some of which they begin to value in their lives. The only teacher training college in Lesotho is located in the capital, Maseru. The population of student-teachers and teacher-trainers is more cosmopolitan in relation to cultural backgrounds, than the population of students in the secondary schools. In relation to age, some student teachers are adults who already have families and have been in some sort of employment in or outside the country before training. As a result, they not only have some sort of financial independence, but also exposure to more technology resources and uses. All these factors create an environment for student teachers to acquire new values particularly in relation to technology. This fact is reflected in the 85 percent of the participants who suggested they began appreciating technology at this stage.

b) Types of technology resource important at various stages

The participants were also asked about technology resources they valued most in the various stages of their lives. This information was also gathered using a Likert Scale. The participants rated their views on the importance of technology resources listed in their various stages of life.

Question:
At which stage of your education did the following technology resources become important in your life?

All 159 participants responded to this question. The results in Table 4.24 are from the analysis of this response. These results indicate that the participants suggested that 62 percent valued radio before schooling. During primary and secondary education, less than 45 percent of the participants preferred landline telephone and television. Also at this stage it was only 45 percent of the participants who valued computers. However, during college training this number rose to 76 percent while the number of those who valued radio declined to 10 percent. The argument
made in the preceding paragraphs about participants' exposure to other communities’ cultures, views and artefacts, that widens as they progressed in their career paths, seem to be supported by these results.

Table 4.23: Importance of technology in the various stages of the participants lives (n=159)

<table>
<thead>
<tr>
<th>Technology type</th>
<th>College training (%)</th>
<th>Primary / Secondary (%)</th>
<th>Before schooling (%)</th>
<th>Not at all (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop/laptop Computers</td>
<td>76.1</td>
<td>6.3</td>
<td>0.0</td>
<td>17.6</td>
</tr>
<tr>
<td>electronic organizers</td>
<td>32.7</td>
<td>1.3</td>
<td>0.0</td>
<td>66.0</td>
</tr>
<tr>
<td>MP3 players</td>
<td>36.5</td>
<td>6.9</td>
<td>0.0</td>
<td>56.6</td>
</tr>
<tr>
<td>Internet</td>
<td>65.4</td>
<td>3.8</td>
<td>0.6</td>
<td>30.2</td>
</tr>
<tr>
<td>Digital still/video camera</td>
<td>46.5</td>
<td>13.2</td>
<td>0.6</td>
<td>39.6</td>
</tr>
<tr>
<td>Cell (Mobile) phones</td>
<td>59.7</td>
<td>22.6</td>
<td>2.5</td>
<td>15.1</td>
</tr>
<tr>
<td>Telephones</td>
<td>32.1</td>
<td>37.1</td>
<td>20.1</td>
<td>10.7</td>
</tr>
<tr>
<td>Radio</td>
<td>8.9</td>
<td>26.6</td>
<td>62.0</td>
<td>2.5</td>
</tr>
<tr>
<td>TV/VCR/ DVD</td>
<td>25.2</td>
<td>42.1</td>
<td>23.9</td>
<td>8.8</td>
</tr>
</tbody>
</table>

c) Ability to use various technology resources

This information was also collected by a question that used a Likert Scale. The participants rated their levels of technology competencies against technology resources that were listed in the question.

**Question:**

How well could you use the following technology resources before you became a teacher?

All the 159 participants responded to this question and the results from the analysis of these responses are presented in Table 4.25. They show that most of the participants indicated that they could use landline telephone (94%), mobile phone (75%) and radio (66%) very well. Further, although the results have constantly indicated that the participants lacked access to digital cameras, in this question a significant number (46%) claimed that it could use this technology.
very well. The results in this table also show a lack of knowledge and skills by the participants to operate computers, television and related technology.

That, many participants indicated that they were familiar with radio and television technology resources before they become teachers, yet in these results they indicated they could not use these technology resources very well, suggests that the participants just knew that such technology resources existed in their communities, but these were not easily accessible to them for use.

Table 4.24: Technology skill and knowledge of the participants before becoming teachers

\[(n=159)\]

<table>
<thead>
<tr>
<th>Technology type</th>
<th>Quite/ Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop /laptop computers</td>
<td>14.5</td>
<td>85.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Electronic organizers</td>
<td>4.4</td>
<td>95.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Dedicated MP3 players</td>
<td>5.0</td>
<td>94.3</td>
<td>99.4</td>
</tr>
<tr>
<td>Internet</td>
<td>7.5</td>
<td>92.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Dedicated digital still / Video camera</td>
<td>45.9</td>
<td>54.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Cell(Mobile) phones</td>
<td>74.8</td>
<td>25.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Landline telephones</td>
<td>94.3</td>
<td>5.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Radio</td>
<td>66.0</td>
<td>34.0</td>
<td>100.0</td>
</tr>
<tr>
<td>TV/VCR/DVD</td>
<td>14.5</td>
<td>85.5</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**d) Competence in digital technology applications**

The participants’ competence to use digital technology applications were also investigated with a Likert Scale question. The question listed technology applications that the participants rated according to their competence.

**Question:**

How well could you do the following before you became a teacher?
All the participants responded to this question. The results from the analysis of this response are presented in Table 4.26. The results indicate that more than 80 percent of the participants claimed they could not carry out the applications listed in the question very well. This pattern of results was expected given the applications listed in question could only be carried out with digital technology. Other results also followed this pattern consistently indicating availability of digital technology resources, their access and use, and the knowledge, skills and competence to operate them was limited among many participants.

Table 4.25: Participants competence to carry out technology applications before they became teachers (n=159)

<table>
<thead>
<tr>
<th>Technology applications</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Office applications</td>
<td>15.7</td>
<td>84.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Retrieve and store files</td>
<td>18.2</td>
<td>81.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Surf Internet</td>
<td>6.3</td>
<td>93.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Use Email</td>
<td>5.7</td>
<td>94.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Produce Multimedia file</td>
<td>5.0</td>
<td>95.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Publish on the Internet</td>
<td>1.9</td>
<td>98.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Design Webpages</td>
<td>1.9</td>
<td>98.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Work with databases</td>
<td>6.3</td>
<td>93.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Evaluate software</td>
<td>5.0</td>
<td>95.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

e) A synopsis of technology conditions before the participants became teachers

The results about technology conditions in the lives of the participants before they became teachers indicate that:

- only radio, landline telephone and television, and mobile phone were common and important in their lives before training;
- other digital technology resources were not common;
• their limited exposure to digital technology resources and their importance began at the
teacher training college;
• most lacked technology knowledge and skills and could not carry out technology
applications associated with digital technology resources.

SECTION 2.3: Summary

This section presented the views of the participants on technology conditions in their everyday
life. These views included current conditions and those in the past, before the participants
became teachers. The findings are summarised as follows:
• technology resources available and accessible were limited to analogue, which were radio
television and landline, and mobile phones; and this pattern of access has been present even
before the participants became teachers;
• there was also general limited knowledge and skills about digital technology resources, their
applications and uses;
• apart from mobile phone, the participants' exposure to digital technology resources, though
still limited, began at the teacher training college;
• technology resources that were available were used for basic communication, information
access and recreation; and were not integrated in everyday life core activities.
SECTION 3: Technology conditions in teaching and learning

In the previous section, the views of the participants on technology conditions in their everyday life were presented. These views provided a broad picture about technology availability and accessibility, and knowledge and uses in the participants' everyday life. This section presents the views of the participants on the conditions of technology in their professional lives. These views are on the current conditions and the conditions existing before the participants became teachers. They include technology resources available, how they are accessed and used, and the general knowledge and skills existing in the professional life of the participants. Hence, the results in this section are in two parts: current technology conditions; and technology conditions before the participants became teachers.

SECTION 3.1: Current technology conditions

The participants' views expressed in this section include the conditions that relate to participants as individual teachers, the conditions in schools in which they work, and in the local communities of the schools. Therefore, the results in this section are presented in three parts: technology conditions that affect participants as individual teachers, technology conditions that are in the schools, and technology conditions in the local communities.

1) Conditions that affected participants as individuals

Technology conditions discussed in this section are technology resources available and accessible for teaching to individual participants. These conditions also include technology access for students' activities, participants' frequent of use of technology and the importance the participants attach to their students' learning with technology.
a) **Access to technology for teaching**

Information about technology resources available and accessible to the participants for teaching was collected by a question that used a *Likert Scale*. The participants rated level of access they had to each of the technology resources listed in the question.

*Question:* How easy was it for you to access the following technology resources for your teaching tasks when you were teaching?

All the participants responded to this question and the results from the analysis of their responses are presented in Table 4.27. They show that 53 percent of the participants were of the view that their access to technology for teaching was restricted mostly to television. The numbers for mobile phones and landline telephone are 51 percent and 46 percent respectively.

Two observations about these results stand out when compared with technology access in everyday life. Though the pattern of access to technology in both situations appears to be similar, more participants indicated that technology resources were accessible for everyday use than those who indicated they are accessible for teaching. The comparison is presented in Table 4.28. Even for technology resources such as radio and mobile phone, which almost every participant claimed to have unlimited access for everyday use, only about 50 percent claimed access for teaching. This is also true for digital technology resources such as Internet and computers. Therefore, these results suggest that there were more participants who claimed to have access to these technology resources for everyday use than those who claimed access for teaching and learning.
### Table 4.26: Participants access to technology for classroom use (n=159)

<table>
<thead>
<tr>
<th>Technology types</th>
<th>Quite/Very (%)</th>
<th>Not at all/Somewhat (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop or laptop computer</td>
<td>13.2</td>
<td>86.8</td>
</tr>
<tr>
<td>Electronic organiser (e.g. PDA, Palm, Pocket PC)</td>
<td>1.9</td>
<td>98.1</td>
</tr>
<tr>
<td>Dedicated MP3 player (e.g. iPod)</td>
<td>3.1</td>
<td>96.9</td>
</tr>
<tr>
<td>Internet</td>
<td>9.4</td>
<td>90.6</td>
</tr>
<tr>
<td>Dedicated digital camera (still and/or video camera)</td>
<td>5.7</td>
<td>94.3</td>
</tr>
<tr>
<td>Cell (Mobile) phone</td>
<td>50.9</td>
<td>49.1</td>
</tr>
<tr>
<td>Telephone (landline)</td>
<td>45.9</td>
<td>54.1</td>
</tr>
<tr>
<td>Overhead projectors</td>
<td>13.2</td>
<td>86.8</td>
</tr>
<tr>
<td>Film projectors</td>
<td>10.7</td>
<td>89.3</td>
</tr>
<tr>
<td>TV/VCR/DVD</td>
<td>52.8</td>
<td>47.2</td>
</tr>
<tr>
<td>Radio</td>
<td>33.3</td>
<td>66.7</td>
</tr>
</tbody>
</table>

### Table 4.27: Participants’ access to technology in the everyday life and for classroom use (n=159)

<table>
<thead>
<tr>
<th>Technology types</th>
<th>everyday Access (%)</th>
<th>classroom Access (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop or laptop computer</td>
<td>34.6</td>
<td>13.2</td>
</tr>
<tr>
<td>Electronic organiser (e.g. PDA, Palm, Pocket PC)</td>
<td>2.5</td>
<td>1.9</td>
</tr>
<tr>
<td>Dedicated MP3 player (e.g. iPod)</td>
<td>13.2</td>
<td>3.1</td>
</tr>
<tr>
<td>Internet</td>
<td>23.3</td>
<td>9.4</td>
</tr>
<tr>
<td>Dedicated digital camera (still and/or video camera)</td>
<td>17.0</td>
<td>5.7</td>
</tr>
<tr>
<td>Cell (Mobile) phone</td>
<td>98.1</td>
<td>50.9</td>
</tr>
<tr>
<td>Telephone (landline)</td>
<td>56.6</td>
<td>45.9</td>
</tr>
<tr>
<td>TV/VCR/DVD</td>
<td>93.7</td>
<td>52.8</td>
</tr>
<tr>
<td>Radio</td>
<td>73.6</td>
<td>33.3</td>
</tr>
</tbody>
</table>
b) Access for students' activities

The participants were also asked about the impression they had about the level of access their students had to technology resources for learning. The question that gathered this information also used a Likert Scale and listed technology resources against which the participants rated their views.

**Question:**

How easy was it for your students to access the following technology resources for their learning tasks when you were teaching?

All the participants responded to this question and the results in Table 4.29 are from the analysis of these responses. These results show that most of the participants indicated that they believed their students had limited or no access to almost all the technology resources that were listed in the question, even to technology resources such as radio, television, mobile phones and landline telephones, which have constantly appeared to be easily accessible to the participants. In view of these results about students' access to technology resources and participants' access demonstrated in the preceding results, teachers would not be integrating technology in their teaching activities and the learning activities of their students because of the limited access these students had to technology resources. This proves to be true according to the results presented in the subsequent sections.
Table 4.28: Students level of access to technology (n=159)

<table>
<thead>
<tr>
<th>Technology type</th>
<th>Quite /Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Don't know (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop / laptop computer</td>
<td>6.3</td>
<td>68.6</td>
<td>25.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Electronic organiser (e.g. PDA, Palm, PocketPC)</td>
<td>0.0</td>
<td>65.4</td>
<td>34.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Dedicated MP3 player (e.g. iPod)</td>
<td>0.6</td>
<td>68.6</td>
<td>30.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Internet</td>
<td>1.9</td>
<td>67.3</td>
<td>30.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Dedicated digital camera (still and/or video camera)</td>
<td>3.1</td>
<td>67.3</td>
<td>29.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Cell (Mobile) phone</td>
<td>18.9</td>
<td>68.6</td>
<td>12.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Telephone (landline)</td>
<td>15.7</td>
<td>71.1</td>
<td>13.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Overhead projectors</td>
<td>3.8</td>
<td>76.1</td>
<td>20.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Film projectors</td>
<td>6.3</td>
<td>73.6</td>
<td>20.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Radio</td>
<td>44.7</td>
<td>45.9</td>
<td>9.4</td>
<td>100.0</td>
</tr>
<tr>
<td>TV/VCR/DVD</td>
<td>22.0</td>
<td>65.4</td>
<td>12.6</td>
<td>100.0</td>
</tr>
</tbody>
</table>

c) Importance of students learning with technology

The participants were also asked about the level of importance they attached to their students learning with technology. This question too used a Likert Scale that listed learning activities in which technology could be integrated. As a response, the participants were requested to rate the level of importance against each activity listed in the question.

**Question:**

How important was it to you for your students to do the following with technology when you were teaching?

All the participants responded to this question and the results from the analysis of this response are presented in Table 4.30. Generally, the results demonstrate that to most of the participants (64% and above) it was not so important to them that their students use technology for listed learning activities. However, a small, but significant, number of participants (26%) indicated they valued their students learning with technology for activities such applying subject matter
compared to 35 percent of participants who indicated that they valued their students using technology for communication. Also worth noting is the consistency of the importance of technology for communication in the everyday life and in the teaching and learning environment. Other activities such as sharing and publishing information and designing and developing objects were not viewed important by most of the participants.

Table 4.29: Technology importance for students (n=159)

<table>
<thead>
<tr>
<th>Students activities</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>learn and apply subject knowledge</td>
<td>26.4</td>
<td>73.6</td>
<td>100.0</td>
</tr>
<tr>
<td>search, assess and process information (e.g. on the Internet)</td>
<td>15.1</td>
<td>84.9</td>
<td>100.0</td>
</tr>
<tr>
<td>share and publish information (e.g. presentations, webpage, blog)</td>
<td>14.5</td>
<td>85.5</td>
<td>100.0</td>
</tr>
<tr>
<td>communicate (e.g. e-mail, SMS, Cell phone)</td>
<td>35.4</td>
<td>64.6</td>
<td>100.0</td>
</tr>
<tr>
<td>design and develop products/objects (e.g. webpage, models, simulations, files that contain video, text and sound)</td>
<td>18.9</td>
<td>81.1</td>
<td>100.0</td>
</tr>
</tbody>
</table>

d) Participants' frequent use of technology for teaching

Participants' frequent use of technology in the classroom was investigated with a question that used a Likert Scale. Listed in this question were classroom activities in which technology could be integrated. As a response, the participants rated their frequent integration of technology in these activities.

Question:
How often did you use technology for the following when you were teaching?

The results presented in Table 4.31 are from the analysis of the responses of 159 participants. The results show that on average, less than 20 percent of the participants indicated that they frequently integrated technology in the activities that were listed in the question. About 11 percent of the participants used technology quite often for presenting information to students and in students' learning activities. About 10 percent claimed they used it to plan classroom
activities, and 16 percent used it to manage student information. Generally, the results show that many participants infrequently integrated technology in the classroom.

Table 4.30: Participants' frequency of use of technology (n=159)

<table>
<thead>
<tr>
<th>Technology integration</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>for teaching activities (e.g. presenting information to students)</td>
<td>10.7</td>
<td>89.3</td>
<td>100.0</td>
</tr>
<tr>
<td>to plan for teaching activities (search for information, prepare classroom materials)</td>
<td>10.1</td>
<td>89.9</td>
<td>100.0</td>
</tr>
<tr>
<td>to process and store students’ information (e.g. marks, students’ details)</td>
<td>16.4</td>
<td>83.6</td>
<td>100.0</td>
</tr>
<tr>
<td>for students' learning activities (e.g. learning subject matter, creating presentations or documents)</td>
<td>10.7</td>
<td>89.3</td>
<td>100.0</td>
</tr>
</tbody>
</table>

e) A synopsis of technology conditions that affect participants as individual teachers

The results presented in this section indicated that:

- the participants had limited access to technology for classroom use;
- their students also had limited access;
- they infrequently used technology in the classroom, when integrated it is to process and to store students' information;
- very few valued technology in teaching and learning, and this was for communicating with students, and for their students to learn and apply subject matter.

2) Conditions in the schools

These conditions include the views of other teachers, school administrations and those reflected in and of local communities.

a) Other teachers’ views

These views included how other teachers in their schools frequently used technology in teaching and learning, and the importance they attached to their students' learning that integrated technology.
i) **Frequent use**

This information was investigated by a question that used a *Likert Scale*. This question listed classroom activities that could integrate technology. The participants rated their views against these activities.

**Question:**

How often did other teachers in the school(s) in which you have taught integrate or use technology for the following?

All the participants responded to this question. Table 4.32 presents the findings from the analysis of this response. The results show that most of the participants (between 59 and 64%) were of the view that other teachers in their schools were not using technology at all or at least infrequently used it. Almost one third of the participants, that suggested that other teachers were frequently using technology, indicated that other teachers used technology to process and store students’ information. It is also important to observe that the comparison in Table 4.33 suggests that there were more participants who believed other teachers were using technology in the classroom than themselves.
Table 4.31: The Frequency of technology use by other teachers (n=159)

<table>
<thead>
<tr>
<th>Technology integration</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Don't know (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher’s classroom activities (e.g. presenting information)</td>
<td>22.0</td>
<td>63.5</td>
<td>14.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Plan and prepare for teaching and learning activities (search for information, prepare classroom materials)</td>
<td>22.0</td>
<td>60.4</td>
<td>17.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Process and store students’ information (e.g. marks, students’ details)</td>
<td>31.4</td>
<td>58.5</td>
<td>10.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Students’ learning activities (e.g. learning subject matter, creating presentations or documents)</td>
<td>20.1</td>
<td>62.3</td>
<td>17.6</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 4.32: A comparison of participants’ and other teachers’ frequent use of technology

<table>
<thead>
<tr>
<th>Technology integration</th>
<th>Participants (%)</th>
<th>Other teachers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher’s classroom activities (e.g. Presenting information)</td>
<td>10.7</td>
<td>22.0</td>
</tr>
<tr>
<td>Plan and prepare for teaching and learning activities (search for information, prepare classroom materials)</td>
<td>10.1</td>
<td>22.0</td>
</tr>
<tr>
<td>Process and store students’ information (e.g. Marks, students’ details)</td>
<td>16.4</td>
<td>31.4</td>
</tr>
<tr>
<td>Students’ learning activities (e.g. Learning subject matter, creating presentations or documents)</td>
<td>10.7</td>
<td>20.1</td>
</tr>
</tbody>
</table>
ii) Technology importance for students' learning

The question that collected this information used a Likert Scale. The participants rated their views against the activities listed in the question.

**Question:**
In your view how did other teachers in the school(s) you have taught value technology for their students?

All the participants responded to this question and the results from the analysis of this response are presented in Table 4.34. These results show that generally less than 45 percent of the participants were of the view that other teachers valued technology integration in the learning of their students. Other participants indicated that they did not believe other teachers viewed technology integration in the learning of their students important. Between 18 and 28 percent of the participants indicated that they did not know how other teachers in their schools valued technology for learning by their students.
Table 4.33: How other teachers value technology resources for their students (n=159)

<table>
<thead>
<tr>
<th>Students activities</th>
<th>Quite/ Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Don't know (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the learning and applying subject knowledge</td>
<td>34.0</td>
<td>38.0</td>
<td>28.0</td>
<td>100.0</td>
</tr>
<tr>
<td>In the searching, assessing and processing information</td>
<td>25.8</td>
<td>48.4</td>
<td>25.8</td>
<td>100.0</td>
</tr>
<tr>
<td>In the sharing and publishing information (presentations, webpage, blog, etc.)</td>
<td>20.8</td>
<td>51.6</td>
<td>27.7</td>
<td>100.0</td>
</tr>
<tr>
<td>In communicating (e-mail, SMS, Cell phone)</td>
<td>44.0</td>
<td>38.4</td>
<td>17.6</td>
<td>100.0</td>
</tr>
<tr>
<td>In the designing and developing products/objects requested (e.g. Webpage, models, simulations, files that contain video, text and sound)</td>
<td>23.9</td>
<td>50.3</td>
<td>25.8</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The pattern of these responses about other teachers continues to indicate that uses and applications associated with digital technology resources were not common in the personal and professional lives of the participants; also that valuing technology for communication was quite significant in the lives of the participants. This is indicated by the results in this section, which show that the largest number of the participants (44%) indicated that other teachers valued technology for communication.

b) School policies

A Likert Scale was used in the question that collected the views of the participants about their school policies on technology in teaching and learning. The participants were requested to rate the degree to which the school policies and beliefs about technology in teaching and learning were reflected in the statements listed in the question.

**Question:**
In your view how much did the policy in the school(s) reflect the following beliefs about the use of technology?
All the participants responded to this question, the responses of which are presented in Table 4.33. The results show that generally about 40 percent or less of the participants were of the view that all the statements listed in the question reflected the elements in their school policies about technology integration in teaching and learning. Most of them, between 46 and 58 percent believed the conditions reflected in the statements were not in their school policies. The results also show that close to 20 percent of the participants indicated they did not know anything about school policies and technology use, implying that these participants were not guided by the school policy in their use technology in the classroom. For these participants, school policies were not influential on how they were using technology in the classroom.

Table 4.34: School policies and technology use in teaching and learning (n=159)

<table>
<thead>
<tr>
<th>Policy beliefs</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Don't Know (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers should use technology in the classroom</td>
<td>39.6</td>
<td>49.1</td>
<td>11.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Students should use technology in the classroom</td>
<td>34.6</td>
<td>52.8</td>
<td>12.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Both teachers and students should use technology in the classroom</td>
<td>39.0</td>
<td>45.9</td>
<td>15.1</td>
<td>100.0</td>
</tr>
<tr>
<td>It is up to individual teachers how they use technology in the classroom</td>
<td>26.4</td>
<td>57.9</td>
<td>15.7</td>
<td>100.0</td>
</tr>
<tr>
<td>It is up to individual teachers whether to or not use technology in the classroom</td>
<td>28.9</td>
<td>53.5</td>
<td>17.6</td>
<td>100.0</td>
</tr>
</tbody>
</table>

3) Technology conditions in the local communities

The views of the participants, on how technology in teaching and learning was viewed in the local communities of their schools were collected by a question that used a Likert Scale. The question listed statements that reflected the beliefs about technology in teaching and learning.
The participants rated these statements according to the impressions they had about their communities.

**Question:**
In your opinion how much do the following statements reflect beliefs about technology and education in your community?

All the participants responded to this question. Table 4.36 presents the results from the analysis of their responses. The results show that between 73 and 80 percent of participants indicated that they were of the view that all the statements listed reflected the beliefs in their communities on teaching and learning with technology.

**Table 4.35: Communities views about technology in teaching and learning (n=159)**

<table>
<thead>
<tr>
<th>Technology beliefs</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Don't know (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All students should be computer literate</td>
<td>75.5</td>
<td>17.6</td>
<td>6.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Students should acquire technological skills that will make them employable</td>
<td>79.9</td>
<td>14.5</td>
<td>5.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Students should acquire technological skills that will allow them to perform their societal roles and responsibilities in the modern society</td>
<td>73.0</td>
<td>20.1</td>
<td>6.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Technology should be used in education to modernise education</td>
<td>78.6</td>
<td>14.5</td>
<td>6.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Technology should be used to make education easily accessible</td>
<td>79.2</td>
<td>12.6</td>
<td>8.2</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Two things are important about these results. The first is the finding that there were participants who believed that their views differed from those in the community about technology integration. For example, there were more participants who indicated that while they did not value technology, it was valued in the community. Secondly, despite this knowledge about the views in the community, the participants infrequently integrated technology in the classroom activities. These results too rule out the influence of the community's views on how the participants used technology in the classroom, and suggest that there were other factors that were more influential.

4) Synopsis of current technology conditions in teaching and learning

According to the participants the current technology conditions in teaching and learning are:

- technology resources available for teaching are limited to radio and television and they are not available for students' learning;
- very few teachers view technology important for teaching and learning;
- very few teachers frequently integrate technology in the classroom;
- technology is mainly used to present learning content to students and managing student information;
- school policies do not reflect how technology should be viewed and used in the classroom;
- in the communities technology integration for teaching and learning is valued;

SECTION 3.2: Technology conditions before the participants became teachers

This section presents the views of the participants on technology conditions in teaching and learning before they became teachers. These reflections were considered important for this study because past experiences of teachers, particularly those that relate to the classroom, are some of the crucial contributors in the formation of teacher professional identity. The conditions that were investigated included technology resources that were available, level of access the
participants had for their learning activities, and the importance the participants attached to learning with technology.

1) Available resources

The question that collected this information used a Likert Scale in which the participants rated the level of availability of the technology resources listed in the question.

*Question:*

Which of the following technology resources were available for your learning activities when you were a student at any stage of your education?

All the participants responded to this question and the results from the analysis of their responses are presented in Table 4.37. The results show radio and television were considered by 78 percent and 68 percent respectively of participants as technology resources which were available for teaching and learning. Less than 40 percent of participants were of the view that digital technology resources were available in the past for teaching and learning.
Table 4.36: Available technology resources before the participants became teachers (n=159)

<table>
<thead>
<tr>
<th>Technology types</th>
<th>Quite/ Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop or laptop computer</td>
<td>31.4</td>
<td>68.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Electronic organiser (e.g. PDA, Palm, Pocket PC)</td>
<td>1.3</td>
<td>98.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Dedicated MP3 player (e.g. iPod)</td>
<td>5.7</td>
<td>94.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Internet</td>
<td>18.2</td>
<td>81.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Dedicated digital camera (still and/or video camera)</td>
<td>11.3</td>
<td>88.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Cell (Mobile) phone</td>
<td>50.9</td>
<td>49.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Telephone (landline)</td>
<td>52.8</td>
<td>47.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Overhead projectors</td>
<td>33.3</td>
<td>66.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Film projectors</td>
<td>26.4</td>
<td>73.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Radio</td>
<td>78.0</td>
<td>22.0</td>
<td>100.0</td>
</tr>
<tr>
<td>TV/ VCR</td>
<td>60.4</td>
<td>39.6</td>
<td>100.0</td>
</tr>
</tbody>
</table>

2) Technology access for learning

The participants were then asked if technology resources available in their schools were accessible for their learning. This information was also collected by a question that used a Likert Scale. The participants were asked to rate the level of access they had to each of the technology resources that were listed in the question.

**Question:**
How easy was it for you to access the following technology resources for your learning activities when you were a student at any stage of your education?

All the participants responded to this question. The results of the response are presented in Table 4.38. According to the results, most of the participants (84%) indicated that it was quite easy to access radio for learning, compared 59 percent for television and 54 percent for landline telephone and mobile phones. Only 35 percent of participants suggested digital technology resources such as dedicated digital cameras, electronic organisers were easily accessible.
Table 4.37: Technology access before teachers became teachers (n=159)

<table>
<thead>
<tr>
<th>Technology types</th>
<th>Quite /Very (%)</th>
<th>Not at all /Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop or laptop computer</td>
<td>32.1</td>
<td>67.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Electronic organiser (e.g. PDA, Palm, Pocket PC)</td>
<td>2.5</td>
<td>97.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Dedicated MP3 player (e.g. iPod)</td>
<td>4.4</td>
<td>95.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Internet</td>
<td>20.8</td>
<td>79.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Dedicated digital camera (still and/or video)</td>
<td>8.8</td>
<td>91.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Cell(Mobile) phone</td>
<td>54.1</td>
<td>45.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Telephone (landline)</td>
<td>54.1</td>
<td>45.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Overhead projectors</td>
<td>28.9</td>
<td>71.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Film projectors</td>
<td>22.0</td>
<td>78.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Radio</td>
<td>83.6</td>
<td>16.4</td>
<td>100.0</td>
</tr>
<tr>
<td>TV/VCR/DVD</td>
<td>59.1</td>
<td>40.9</td>
<td>100.0</td>
</tr>
</tbody>
</table>

3) Importance of learning with technology

The question that collected this information used a Likert Scale. The participants were requested to rate the level of importance they attached to technology being integrated in their learning activities listed in the question.

**Question:**
How important was it for your learning activities when you were a student at any stage of your education to do the following with technology?

All the participants responded to this question, and the results from the analysis of this response are presented in Table 4.39. The results show that 55 percent of the participants indicated that they valued technology integration in learning and applying of knowledge of the subject matter, while 51 percent suggested that they valued technology integration in the searching, assessing and processing information, and 50 percent valued it in communication.
Table 4.38: Technology importance to the participants when they were students (n=159)

<table>
<thead>
<tr>
<th>Technology integration</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the learning and applying subject knowledge</td>
<td>54.7</td>
<td>45.3</td>
<td>100.0</td>
</tr>
<tr>
<td>In the searching, assessing and processing information</td>
<td>50.9</td>
<td>49.1</td>
<td>100.0</td>
</tr>
<tr>
<td>In the sharing and publishing information (presentations, webpage, blog, etc.)</td>
<td>25.8</td>
<td>74.2</td>
<td>100.0</td>
</tr>
<tr>
<td>In communicating (e-mail, SMS, Cell phone)</td>
<td>49.7</td>
<td>50.3</td>
<td>100.0</td>
</tr>
<tr>
<td>In the designing and developing products/objects requested (e.g. Webpage, models, simulations, files that contain video, text and sound)</td>
<td>25.2</td>
<td>74.8</td>
<td>100.0</td>
</tr>
</tbody>
</table>

These results are contrary to the expectations that if the participants valued technology for their own learning, they would hold the same views for the learning of their students. One explanation of this contradiction could be that the participants' views on their students learning with technology had been influenced by factors other than their own learning experiences.
Table 4.39: Present and past views of the participants about technology in teaching and learning
\( (n=159) \)

<table>
<thead>
<tr>
<th>Technology integration</th>
<th>As teachers (%)</th>
<th>As students (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the learning and applying subject knowledge</td>
<td>26.4</td>
<td>54.7</td>
</tr>
<tr>
<td>In the searching, assessing and processing information</td>
<td>15.1</td>
<td>50.9</td>
</tr>
<tr>
<td>In the sharing and publishing information (presentations, webpage, blog, etc.)</td>
<td>14.5</td>
<td>25.8</td>
</tr>
<tr>
<td>In communicating (e-mail, SMS, Cell phone)</td>
<td>35.2</td>
<td>49.7</td>
</tr>
<tr>
<td>In the designing and developing products/objects requested (e.g. Webpage, models, simulations, files that contain video, text and sound)</td>
<td>18.9</td>
<td>25.2</td>
</tr>
</tbody>
</table>

4) The stage at which technology became important

The participants were also asked to show the stage in their education at which technology became important in their learning. The question that collected this information used a Likert Scale. The participants were asked to rate the level of importance they attached to technology when they were at various educational stages listed in the question.

**Question:**

In your view, how important was educational technology in your learning when you were at the following stages of education?

All the participants responded to this question. The results presented in Table 4.41 are from the analysis of this response. They indicate that most of the participants (82%) suggested that they began valuing technology for learning when they were training as teachers at the college. This compares with 44 percent of the participants who indicated they began valuing technology for learning when they were in the secondary education. Not surprisingly, still fewer participants (16%) started valuing technology when they were in primary school and 10 percent before schooling. One conclusion to draw from these results is that many participants in this study began to appreciate technology at least at the beginning of their professional lives, something that could positively influence them to integrate technology in the classroom.
Table 4.40: Stages at which technology became important

<table>
<thead>
<tr>
<th>Stages of education</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher training</td>
<td>81.8</td>
<td>18.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Secondary</td>
<td>44.0</td>
<td>56.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Primary</td>
<td>15.7</td>
<td>84.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Before schooling</td>
<td>10.1</td>
<td>89.9</td>
<td>100.0</td>
</tr>
</tbody>
</table>

5) A synopsis of technology conditions before the participants became teachers

The results about technology conditions in teaching and learning before the participants became teachers indicate that:

- there were limited technology resources available in the schools;
- technology resources that were mostly available were radio, television, and landline telephones;
- students’ access to technology was very limited and as a result, participants' learning activities did not integrate technology; furthermore, the participants did not have knowledge and skills to use available technology in the schools.

These results show that there has not been much improvement of technology conditions in schools since the participants were students and that availability, access, knowledge and skills are still limited.

SECTION 3.3: Summary

The results in this section highlight that in the teaching and learning environments of the participants:

- technology resources available for teaching and learning are limited mostly to radio and television;
- access to these technology resources for teaching and learning is limited;
- participants infrequently use these resources in the classroom;
• these resources are mostly used to support teachers' activities that present information to students;
• there is a general lack of technology knowledge and skills among teachers and in their schools. This lack of knowledge and skills seem to link with:
  • the limited available and accessible technology facilities and resources;
  • school education that never integrated technology in its curriculum;
  • teacher education that also had very limited technology integration.

Technology conditions that were in the teaching and learning environments of the participants seem to have remained constant since the participants were students, hence the limited exposure the participants have to technology facilities and resources available and their uses that are currently in modern schools.

The next section presents the findings about the participants' views on the general teaching and learning conditions in their lives. These views establish a link between technology conditions and the teaching conditions in the schools, providing a broader picture of how technology integration in the classroom is influenced by the general conditions that exist in the educational system in Lesotho.
SECTION 4: General teaching and learning conditions

The previous section presented the views of the participants on technology conditions in their teaching and learning environments. This section presents the views of the participants about the general conditions in these environments. This information also demonstrates how these conditions affect teachers' choices of teaching and learning strategies they use in the classroom. Similar to the representation of the results in the two previous sections (Sections 2 & 3) the results in this section are in two parts: the current teaching and learning conditions and the conditions in the past before the participants became teachers.

SECTION 4.1: Current teaching and learning conditions

Information about the views of the participants on the present conditions in their schools includes those that affected the participants as individual teachers, and those that exist in their schools and in their communities.

1) Conditions that affect participants as individual teachers

This information included the interpretation of teaching by the participants, teaching aspects that are important to them, the nature of their typical lessons, their definition of successful teaching, and factors that influence their choices of teaching strategies. These views are presented accordingly in this section.

a) Interpretation of teaching

This information was gathered by a question that used a Likert Scale. In this question there was a list of statements that define some aspects of teaching. The participants rated the aspects that reflected their own views.

Question:
How well do the following statements reflect your views about what teaching is?
All the participants responded to this question and the results from the analysis of this response are presented in Table 4.42. The results show that most of the participants (at least 83%) indicated that all the aspects of teaching listed in the question were included in their interpretation of teaching. However, the aspect that teaching is a highly structured activity that states achievable goals, activities and outcomes had the highest rate of response (93%). This response could imply that the participants would prefer teaching highly structured classes and teaching strategies that complement this environment. In such environment, class management and student behaviour management are some of the most important teaching aspects to teachers. This is confirmed by the results that are presented next.

Table 4.41: Participants’ interpretation of teaching (n=159)

<table>
<thead>
<tr>
<th>Interpretation of teaching</th>
<th>Quite / Very (%)</th>
<th>Not at all/ Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A highly structured activity that states achievable goals, activities and outcomes</td>
<td>93.1</td>
<td>6.9</td>
<td>100.0</td>
</tr>
<tr>
<td>An activity that uses methods and strategies that simplify information for students to retain and reproduce when required</td>
<td>86.2</td>
<td>13.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Assigning tasks and guiding students to search for and use information to create their own interpretations of the world around them</td>
<td>86.2</td>
<td>13.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Judging students’ knowledge and skill needs and providing opportunities for students to acquire relevant knowledge and skills</td>
<td>83.0</td>
<td>17.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

b) Important aspects of teaching

The question that collected this information used a Likert Scale that listed various aspects of teaching. The participants rated the level of importance they attached to each of the aspect listed.

*Question:* How well do the following statements reflect what is important to you as a teacher?
All the participants responded to this question and the results presented in Table 4.43 are from the analysis of this response. The results indicate that the participants' responses were almost evenly distributed among all the aspects of teaching. However, as anticipated, 98 percent of participants said they considered managing the class very well as an important element of teaching. The same percentage of participants viewed knowing the subject matter very well as important. Providing students with knowledge and skills that enable them to participate in wider society, good teacher-student relationship and helping students to develop as people were also considered important by more than 90 percent of participants.

Table 4.42: Important elements of teaching (n=159)

<table>
<thead>
<tr>
<th>Important elements of teaching</th>
<th>Quite/Very (%)</th>
<th>Not at all/Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managing class well</td>
<td>97.5</td>
<td>2.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Knowing subject material well</td>
<td>97.5</td>
<td>2.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Students achieving high test scores</td>
<td>82.4</td>
<td>17.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Completing syllabus and recommended Textbooks well before exams</td>
<td>83.0</td>
<td>17.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Providing students with knowledge and skills that enable them to participate in wider society</td>
<td>94.3</td>
<td>5.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Good teacher- student relationship</td>
<td>95.0</td>
<td>5.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Help students to develop as people</td>
<td>95.0</td>
<td>5.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

c) Typical instructional lesson

In the question that collected this information, which used a Likert Scale, statements that describe different scenarios of lessons were listed. The participants rated these statements according to how much they matched their typical lessons as teachers.

Question:
How well do the following statements describe your typical lesson when you are teaching?
All the participants responded to this question. The results from the analysis of this response are presented in Table 4.44. They show that above 70 percent of the participants suggested that the entire scenario reflected in the statements were included their typical lessons. These were presenting learning content to students, managing and controlling students' behaviour, encouraging student-teacher interactivity, and engaging students in a variety of activities that require them to develop, create and analyse information. However, it is worth noting that managing and controlling students' behaviour and encouraging student-teacher interactivity were rated by more than 90 percent of the participants, complementing the view that teaching is a highly structured activity. Surprisingly, the teaching aspect of 'learning content is presented to students' had the lowest rate of response. Yet, the results presented later in this section and in the next chapter suggest that this was a very common activity in the teaching of the participants. Further, that an activity that engages students in a variety of activities that require them to develop, create and analyse information, received the highest response rate (96%) was incongruent with the view that teaching is highly structured. Usually, this activity requires less structured class and teacher's involvement.

Table 4.43: Typical instructional lessons of the participants (n=159)

<table>
<thead>
<tr>
<th>Instructional Activities</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning content is presented to students</td>
<td>72.3</td>
<td>27.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Students’ talking and behaviour in the classroom are managed and controlled</td>
<td>93.1</td>
<td>6.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Student-teacher interactivity encouraged</td>
<td>93.7</td>
<td>6.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Students are engaged are variety of activities in which require them to develop, create and analyse information</td>
<td>96.2</td>
<td>3.8</td>
<td>100.0</td>
</tr>
</tbody>
</table>
d) Definition of successful teaching

The views of the participants about the description of successful teaching were also investigated by a question that used a Likert Scale. The question had a list of statements that described successful teaching. The participants rated these statements according to how they reflected their own views about successful teaching.

*Question:* How well do the following statements reflect your views about successful teaching?

All the participants responded to this question, and the results from the analysis of this response are contained in Table 4.45. The results show that the responses of the participants were evenly distributed, with at least 79 percent of the participants indicating that all the statements reflected their views of successful teaching. Almost all the participants (99%) indicated that successful teaching involves students being able to apply knowledge outside the classroom after they have been taught.

*Table 4.44: Participants’ descriptions of successful teaching (n=159)*

<table>
<thead>
<tr>
<th>Beliefs about successful teaching</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students should recall all the facts covered during the lessons</td>
<td>78.6</td>
<td>21.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Students should search, interpret and use information to create their own knowledge</td>
<td>95.0</td>
<td>5.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Students should apply knowledge outside the classroom</td>
<td>98.7</td>
<td>1.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Students should become useful in their personal lives and in the community</td>
<td>96.9</td>
<td>3.1</td>
<td>100.0</td>
</tr>
</tbody>
</table>
e) Factors influencing the choices of instructional strategies

This information was collected by the question that used a Likert Scale. The question listed the statements that reflected possible factors that could influence choice of instructional strategies in the classroom. The participants rated the statement according to how they matched their views.

*Question:*

How well do the following statements apply to what has influenced the way you have taught?

All the participants responded to this question and the results from the analysis of these responses are presented in Table 4.46. According to the results, at least 70 percent of the participants indicated that they believed all the factors were influential in their choices of instructional strategies. Specifically, 81 percent of the responses were from participants who were of the view that the type of students they had was influential. This compares with 82 percent and 89 percent respectively of the participants who believed resources available, and knowledge and skills they had were influential. The results show that the views of other teachers and the views held in their community were not considered important by significant groups of the participants.
Table 4.45: Influences on the teachers' instructional strategies (n=159)

<table>
<thead>
<tr>
<th>Influencing factors</th>
<th>Quite / Very (%)</th>
<th>Not at all/Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal views on teaching</td>
<td>70.4</td>
<td>29.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Level of skill and knowledge I have to implement the strategies</td>
<td>89.3</td>
<td>10.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Type of students in the class</td>
<td>80.5</td>
<td>19.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Resources available and accessible</td>
<td>82.4</td>
<td>17.6</td>
<td>100.0</td>
</tr>
<tr>
<td>School policy</td>
<td>61.0</td>
<td>39.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Community's views</td>
<td>40.3</td>
<td>59.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Other teachers' views</td>
<td>50.3</td>
<td>49.7</td>
<td>100.0</td>
</tr>
</tbody>
</table>

These results are somewhat in conflict with some of the findings presented earlier about the participants’ views, particularly those about how technology is valued in their communities. For example, one of the previous results indicates that attitude in the community was that technology in teaching and learning was important. This is clearly in conflict with the finding which suggests that participants did not think community views were important. These results therefore suggest that where teachers' views were in conflict with those in the community, then the participants take into account their own views.

2) **Conditions in the schools and the local communities**

These conditions include views of the school administrations and leaderships on teaching and learning, their descriptions of a good teacher, students' descriptions of a good teacher, and the description of a good teacher in the local communities.

a) **Views of school administration and leadership on teaching and learning**

The question that collected information on these views used a *Likert Scale*. There was a list of statements in the question that reflected the beliefs that could be held by school administrations
about teaching and learning. The participants rated these statements in relation to how they believed the statements reflected the views held by the administrations in their schools.

**Question:**

*How much do the following statements reflect the views of the school administrations about teaching and learning in the school(s) you have taught?*

All the participants responded to this question and the results from the analysis of this response are presented in Table 4.47. They indicated that there was no clear indication of how the school administration viewed teaching and learning, because more than 70 percent of the responses were from the participants who indicated that all the statements reflected the beliefs of the administrators in their schools. This could mean that the participants' views were that there was no strong philosophical position on teaching in their schools. The administration's views about teaching and learning are usually reflected in the school policies. Yet, from the results presented in the preceding sections a significant number of the participants indicated that they did not know about school policies relating to technology in teaching and learning and thus were not influenced any such policy in how they worked in the classroom. This is also confirmed by the results presented in the next chapter, in which the participants indicated that there were no technology policies in their schools or they were not aware of any such policy.
Table 4.46: Administrations’ interpretation of good teaching (n=159)

<table>
<thead>
<tr>
<th>Good teaching</th>
<th>Quite/ Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Don’t know (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manages classes well</td>
<td>81.8</td>
<td>16.4</td>
<td>1.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Knows the subject matter well</td>
<td>93.7</td>
<td>5.0</td>
<td>1.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Students achieve high test scores</td>
<td>71.7</td>
<td>27.0</td>
<td>1.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Completes syllabus and recommended textbooks well before exams</td>
<td>71.1</td>
<td>27.0</td>
<td>1.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Provides students with knowledge and skills needed in wider society</td>
<td>88.1</td>
<td>10.7</td>
<td>1.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Has good a teacher-student relationship</td>
<td>76.7</td>
<td>22.0</td>
<td>1.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Helps students to develop as people</td>
<td>91.2</td>
<td>7.5</td>
<td>7.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

b) School administration’s views of a good teacher

This information was collected by a question that used a Likert Scale. There was a list of statements in the question that reflected the beliefs that could be held by school administrations about good teachers. The participants rated these statements in relation to how they believed they reflected the views of the administration in their schools.

**Question:**

How much do the following statements reflect the views of the school administrations of a good teacher in the school(s) you have taught?

All the participants responded to this question and the analysis of their responses are presented in Table 4.48, together with information on the participants' own views of what constitutes a good teacher for comparison. These results are in line with those presented before; they show that participants rated all the statements reflecting the views of the administrations in their schools about a good teacher. Since over 80 percent of participants selected each item, these responses also fail to show that the administration had a distinctive position on what makes a good teacher.
Despite this, it should be noted that 98 percent of the participants indicated that they believed the Administration's view of a good teacher is one that manages the class well, and also knows the subject matter well. The information in Table 4.48 shows that the views the participants themselves had of what makes a good teacher are in line with their views of what school administrations considered to reflect a good teacher.

Table 4.47: Administration's views of a good teacher (n=159)

<table>
<thead>
<tr>
<th>A good teacher:</th>
<th>Participants (%)</th>
<th>Administration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>manages classes well</td>
<td>97.5</td>
<td>81.8</td>
</tr>
<tr>
<td>knows the subject material well</td>
<td>97.5</td>
<td>93.7</td>
</tr>
<tr>
<td>students achieve high test scores</td>
<td>82.4</td>
<td>71.7</td>
</tr>
<tr>
<td>completes the syllabus and recommended textbooks well before the exams</td>
<td>83.0</td>
<td>71.1</td>
</tr>
<tr>
<td>provides students with knowledge and skills needed in the wider society</td>
<td>94.3</td>
<td>88.1</td>
</tr>
<tr>
<td>has good teacher-student relationship</td>
<td>95.0</td>
<td>76.7</td>
</tr>
<tr>
<td>helps students develop as people</td>
<td>95.0</td>
<td>91.2</td>
</tr>
</tbody>
</table>

c) Students description of a good teacher

The question that collected this information used a Likert Scale. In the question the statements that reflected the views that could be held by students about a good teacher were listed. The participants rated these statements in relation to how they believed the statements reflected the beliefs of the students in their schools.

Question:

In the school(s) you have taught, what were the students' views about a good teacher?

All the participants responded to this question and Table 4.49 presents the finding from the analysis of these responses. The results show that more than 75 percent of the participants indicated that all the statements reflected the views of the students in their schools about a good teacher. These results also fail to establish a distinctive position held by the students because
more than 75 percent selected all the statements, however, the statement about teachers knowing the subject matter very well was selected by the largest proportion of participants (94%). This characterisation of a good teacher has constantly received the highest percent of response rate, suggesting that this aspect of teaching is very important in the participants' lives.

Table 4.48: Students’ views about a good teacher (n=159)

<table>
<thead>
<tr>
<th>A good Teacher</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Don't know (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>manages classes well</td>
<td>83.0</td>
<td>11.9</td>
<td>5.0</td>
<td>100.0</td>
</tr>
<tr>
<td>knows subject matter well</td>
<td>93.7</td>
<td>3.8</td>
<td>2.5</td>
<td>100.0</td>
</tr>
<tr>
<td>students achieve high test scores</td>
<td>80.5</td>
<td>15.1</td>
<td>4.4</td>
<td>100.0</td>
</tr>
<tr>
<td>completes a syllabus and recommended textbooks well before exams</td>
<td>76.1</td>
<td>20.1</td>
<td>3.8</td>
<td>100.0</td>
</tr>
<tr>
<td>provides students with knowledge and skills needed in wider society</td>
<td>83.0</td>
<td>11.9</td>
<td>5.0</td>
<td>100.0</td>
</tr>
<tr>
<td>has good teacher-student relationship</td>
<td>86.2</td>
<td>9.4</td>
<td>4.4</td>
<td>100.0</td>
</tr>
<tr>
<td>helps students develop as people</td>
<td>84.9</td>
<td>8.8</td>
<td>6.3</td>
<td>100.0</td>
</tr>
</tbody>
</table>

d) Communities’ description of a good teacher

The question that collected this information used a Likert Scale. The question listed statements that could reflect the views held in the local communities on a good teacher. The participants rated these statements according to how they believed the statements reflected the beliefs that exist in their local communities.

Question:
How well do these statements apply to the views of your community/society about a good teacher?
All the participants responded to this question. Table 4.50 presents the findings from the analysis of these responses. The pattern of response in these results was also similar to those presented before in the sense that they do not show a clear position of the views in the community on what makes a good teacher. Over 75% of participants indicated that all the statements reflected the views in the communities. The smallest number of the participants (about 77%) believed that class management is important in the community.

Table 4.49: A good teacher in the local communities (n=159)

<table>
<thead>
<tr>
<th>A good teacher</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Don't know (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>manages classes well</td>
<td>76.7</td>
<td>10.7</td>
<td>12.6</td>
<td>100.0</td>
</tr>
<tr>
<td>knows subject matter well</td>
<td>84.3</td>
<td>10.7</td>
<td>5.0</td>
<td>100.0</td>
</tr>
<tr>
<td>students achieve high test scores</td>
<td>83.0</td>
<td>13.2</td>
<td>3.8</td>
<td>100.0</td>
</tr>
<tr>
<td>completes a syllabus and recommended textbooks well before exams</td>
<td>79.9</td>
<td>12.6</td>
<td>7.5</td>
<td>100.0</td>
</tr>
<tr>
<td>provides students with knowledge and skills needed in wider society</td>
<td>88.1</td>
<td>7.5</td>
<td>4.4</td>
<td>100.0</td>
</tr>
<tr>
<td>has good teacher-student relationship</td>
<td>78.6</td>
<td>17.6</td>
<td>3.8</td>
<td>100.0</td>
</tr>
<tr>
<td>helps students develop as people</td>
<td>87.4</td>
<td>8.8</td>
<td>3.8</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**e) A synopsis of the views on the current teaching and learning conditions**

The views of the participants on the current teaching and learning conditions in the schools are:
• teaching is as a highly structured activity during which students' behaviour is controlled;
• knowledge of subject matter, students' test scores and class management and student behavior are important;
• successful teaching and learning is defined by students ability to recall facts covered during teaching;
• teachers choices of teaching strategies are influenced by knowledge and skill they have to implement the strategy, availability of resources, types of students in the class;
• communities' views about teaching and learning slightly differ to those of the participants and school administrators. However, participants' choices of teaching strategies are not influenced much by their views the views in the community or the school policies.

SECTION 4.2: Teaching and learning conditions before participants became teachers

This section presents the findings about the views of the participants on the teaching and learning conditions before they became teachers. The views that are presented include those that affected the participants when they were in schools and when they were in training at the college. Other conditions investigated for this section were those that existed in their communities. Therefore, this information is presented accordingly in three parts.

1) Conditions during schooling

Information about conditions in the schools included how the participants interpreted learning, typical lessons they were exposed to, their interpretation of successful learning and their description of a good teacher.

i) Interpretation of leaning

The question that collected this information used a Likert Scale that had list of statements that reflected aspects that could interpret learning. The participants rated the statements in view of their own views when they were students.
Chapter 4

Question:
How well do the following statements apply to your views about learning before your teacher training (i.e. when you were a student)?

All the participants responded to this question and the results from the analysis of these responses are presented in Table 4.51. According to the results, over 69 percent of the participants indicated that all aspects that were reflected in the statements were included in their interpretation of learning when they were students. This type of a response does not indicate a distinctive philosophical position that was held by the participants about learning. However 88 percent of participants indicated that the aspects such as listening to the teacher and doing as told, and acquiring, retaining and reproducing information when required were important aspects of learning suggesting that perhaps this was the most common understanding of learning among the participants as students. If this is the case, then these results suggest that there has not been much change in how the participants viewed learning currently as teachers, and in the past when they were students.

Table 4.50: Participants' interpretation of learning before they became teachers (n=159)

<table>
<thead>
<tr>
<th>Interpretation of learning</th>
<th>Quite/Very (%)</th>
<th>Not at all/Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students listen to the teacher and do as told</td>
<td>88.1</td>
<td>11.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Students acquire, retain, and reproduce information that the teacher presents during lessons</td>
<td>88.1</td>
<td>11.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Students are assigned tasks and guided to search and use information to create own interpretations of the world</td>
<td>69.2</td>
<td>30.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Students acquire knowledge and skills useful in the community and for employment</td>
<td>73.0</td>
<td>27.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
b) Typical instructional lesson

This was collected by a question that used a Likert Scale. In the question was a list of instructional activities that the participants were requested to rate according to their own experiences in the class when they were students.

Question:

How well do the following statements apply to a typical lesson when you were a student in primary and secondary school?

All the participants responded to this question. Table 4.52 presents the findings from the analysis of these responses. Similar to the results presented in the previous section, these results too show that the response from most of the participants (above 60%) was that all the instructional activities defined their typical lessons. In addition, this response too makes it difficult to determine the nature of a typical lesson the participants were exposed to when they were students. However, similar to the previous results, one conclusion can be drawn from the high proportion of participants (88%) that indicated that instructional activities in which the students received information from the teacher, and the 87 percent that indicated that student talking and behaviour was controlled by the teacher constituted a typical lesson. These results are consistent with the results about the participants' interpretation of learning when they were students, suggesting that perhaps the participants' interpretation of learning was influenced by how they were taught.
Table 4.51: A typical instructional lesson when participants were students (n=159)

<table>
<thead>
<tr>
<th>Instructional lesson</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presented information and students received it</td>
<td>88.1</td>
<td>11.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Managed and controlled students’ talking and behaviour in the classroom</td>
<td>86.8</td>
<td>13.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Encouraged interactivity between students and with the teacher</td>
<td>63.5</td>
<td>36.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Engaged students in a variety of activities that required them to develop, create and analyse information</td>
<td>59.7</td>
<td>40.3</td>
<td>100.0</td>
</tr>
</tbody>
</table>

There is also a similarity in the results about how the participants defined learning as teachers, and their description of the typical lesson they were exposed to when they were students (see Table 4.53). This comparison implies that participants' current interpretation of learning was influenced by their past experiences as students.

Table 4.52: A comparison of participants’ interpretation of learning as students and their experience of a typical lesson (n=159)

<table>
<thead>
<tr>
<th>Interpretation of learning</th>
<th>(%)</th>
<th>Typical Instructional lesson in the past</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students acquire, retain, and reproduce information presented during lessons;</td>
<td>88.1</td>
<td>Presented information and students received it;</td>
<td>88.1</td>
</tr>
<tr>
<td>Students listen and do as told;</td>
<td>88.1</td>
<td>Managed and controlled students’ talking and behaviour in the classroom;</td>
<td>86.8</td>
</tr>
<tr>
<td>Students are assigned tasks and guided to search and use information to create own interpretations of the world;</td>
<td>69.2</td>
<td>Encouraged teacher-student interactivity;</td>
<td>63.5</td>
</tr>
<tr>
<td>Students acquire knowledge and skills useful in the community and for employment.</td>
<td>73.0</td>
<td>Engaged students in a variety of activities that required them to develop, create, and analyse information.</td>
<td>59.7</td>
</tr>
</tbody>
</table>
The results also suggest that there were some similarities in how the participants as students perceived learning and how they were taught (see Table 4.53), implying that they, the participants, had the same views as their teachers on how teaching and learning should occur. This situation, where the view on how teaching and learning should occur is also shared by students and teachers, also exist in their current professional practice.

c) Description of successful learning

This information was also collected using a Likert Scale. The question required the participants to rate aspects of the interpretation of successful learning as reflected in the statements listed in the question in relation to their own interpretation.

*Question:*

How well do the following statements reflect your views on successful learning when you were a student in primary and secondary school?

All the participants responded to this question and the results from the analysis of their responses are presented in Table 4.54. The results demonstrate that more than 50 percent of the participants indicated that all the aspects reflected in the statements listed in the question were relevant to their own interpretation of successful learning. However, the statement that defined successful learning as students being able to recall facts that were taught in a lesson distinctively received the highest rate of the response (93%), suggesting that this was perhaps the most common interpretation among the participants. This result is consistent with the results about the participants' interpretation of learning. Based on these results, it could be argued that a legitimate way of testing or assessing successful learning in the teaching that present information is to ask the learners to recall facts presented during teaching. Therefore, it was logical that most of the participants viewed recalling what was taught as a successful learning.
Table 4.53: Views about successful learning during primary and secondary education (n=159)

<table>
<thead>
<tr>
<th>Interpretation of successful learning</th>
<th>Quite/Very (%)</th>
<th>Not at all/Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>When students recalled facts covered during teaching;</td>
<td>93.1</td>
<td>6.9</td>
<td>100.0</td>
</tr>
<tr>
<td>When students searched, interpreted and use information to create their own knowledge;</td>
<td>53.5</td>
<td>46.5</td>
<td>100.0</td>
</tr>
<tr>
<td>When students applied what they had learned outside the classroom;</td>
<td>56.6</td>
<td>43.4</td>
<td>100.0</td>
</tr>
<tr>
<td>When students used what I had learnt in their the community;</td>
<td>54.7</td>
<td>45.3</td>
<td>100.0</td>
</tr>
</tbody>
</table>

d) Participants’ description of a good teacher

Information on participants’ description of a good teacher when they were at school was also collected by a question that used a Likert Scale. The question listed statements that reflected aspects that could define a good teacher. The participants rated each aspect in view of their past characterisation.

*Question:*
How well do the following statements reflect the characteristics you thought made a good teacher when you were a student in primary and secondary school?

All the participants responded to this question and the results from the analysis of their responses are presented in Table 4.55. These results demonstrate that at least more than 70 percent of the participants indicated that the aspects reflected in all the statements applied to their own characterisation of a good teacher, with approximately 91 percent participants indicating that a good teacher has knowledge of subject matter compared with roughly 90 percent who indicated that a good teacher is one whose students achieve high test scores. Roughly 88 percent of participants indicated that a good teacher had good class management. These results are also consistent with those presented in the previous sections about participants’ interpretation of learning, successful learning and their description of typical lesson they were exposed to when they were students.
Table 4.54: Participants’ past views about a good teacher (n=159)

<table>
<thead>
<tr>
<th>A good teacher</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>managed classes well</td>
<td>88.1</td>
<td>11.9</td>
<td>100.0</td>
</tr>
<tr>
<td>knew subject matter well</td>
<td>90.6</td>
<td>9.4</td>
<td>100.0</td>
</tr>
<tr>
<td>their students achieved high test scores</td>
<td>89.9</td>
<td>10.1</td>
<td>100.0</td>
</tr>
<tr>
<td>completed syllabus and recommended textbooks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>well before exams</td>
<td>76.7</td>
<td>23.3</td>
<td>100.0</td>
</tr>
<tr>
<td>taught what is relevant to students’ lives</td>
<td>73.0</td>
<td>27.0</td>
<td>100.0</td>
</tr>
<tr>
<td>had good teacher-student relationship</td>
<td>86.2</td>
<td>13.8</td>
<td>100.0</td>
</tr>
<tr>
<td>helped students to develop as people</td>
<td>76.7</td>
<td>23.3</td>
<td>100.0</td>
</tr>
</tbody>
</table>

2) Conditions during college teacher training

The participants were asked about their views on the quality of training they received at college. The question that collected this information used a Likert Scale. In the question were statements that reflected aspects that could evaluate a training program. The participants rated the statements according to how they reflected their own views.

Question:
How well do the following statements reflect your views about your teacher?

All the participants responded to this question. Table 4.56 presents the findings from the analysis of the response to this question. The results suggest that more than 80 percent of the participants were of the view that the training they received provided knowledge about teaching and learning conditions in the schools and local communities in Lesotho. Also, that their training matched their own views about teaching.
Table 4.55: Conditions during teacher training (n=159)

<table>
<thead>
<tr>
<th>Teacher training</th>
<th>Quite / Very (%)</th>
<th>Not at all / Somewhat (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>relevant to the conditions in schools in which I have taught</td>
<td>91.8</td>
<td>8.2</td>
<td>100.0</td>
</tr>
<tr>
<td>matched my views about teaching</td>
<td>86.8</td>
<td>13.2</td>
<td>100.0</td>
</tr>
<tr>
<td>provided good understanding of school and national policies on education;</td>
<td>88.1</td>
<td>11.9</td>
<td>100.0</td>
</tr>
<tr>
<td>provided good understanding of students’ socio-economic background</td>
<td>90.6</td>
<td>9.4</td>
<td>100.0</td>
</tr>
<tr>
<td>provided good understanding of how teaching resources should be accessed and</td>
<td>93.7</td>
<td>6.3</td>
<td>100.0</td>
</tr>
<tr>
<td>used in the classroom</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>provided good understanding of the socio-cultural context of the schools</td>
<td>84.3</td>
<td>15.7</td>
<td>100.0</td>
</tr>
<tr>
<td>provided good understanding of the school and national economic context</td>
<td>81.1</td>
<td>18.2</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Although the results show that the participants indicated that the training they received was relevant to conditions in their working environment, the results presented in the previous sections indicate these conditions that were internal and external to the schools were very poor, as they lacked resources and relied mostly on teaching methods that only presented information to the participants. This type of training is recurrent and appeared to have failed to expose the participants to the ideal conditions for teaching and learning.

3) **Community's views on a good teacher before the participants became teachers**

The views in the participants' communities on what constituted a good teacher were also investigated. The question that collected this information used a Likert Scale that listed the statements that reflected aspects that could be used to define a good teacher. The participants rated these statements in relation to their own views.
Question:

How well do the following statements reflect the characteristics of a good teacher in your community when you were at primary and secondary school?

All the participants responded to this question and the results from the analysis of their response are presented in Table 4.57. Approximately, 77 percent of the participants indicated that the aspects reflected in all the statements were similar to their own views on what constitutes a good teacher in their communities. This pattern of response was similar to those presented in the previous sections, about the views of the participants, of the school administrations and of the students. They did establish a strong position held about what made a good teacher. However, aspects such as 'students' achievement of high tests scores' was selected by 86 percent of the participants, followed by 80 percent for 'the knowledge of subject matter.' These results suggest that the common view among most of the participants was that in their communities, a quality of a teacher was defined by the performance of their students in the examinations, and such teacher should know a subject matter very well. Thus the views held by participants of what made a good teacher were the same those held in their schools and in their communities.
Table 4.56: Views about the beliefs in the community in the past about a good teacher (n=159)

<table>
<thead>
<tr>
<th>A good teacher</th>
<th>Quite/Very (%)</th>
<th>Not at all/ Somewhat (%)</th>
<th>Don't know (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>managed classes well;</td>
<td>73.0</td>
<td>13.8</td>
<td>13.2</td>
<td>100.0</td>
</tr>
<tr>
<td>knew subject matter well</td>
<td>81.1</td>
<td>9.4</td>
<td>9.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Their students achieved high test scores;</td>
<td>86.2</td>
<td>9.4</td>
<td>4.4</td>
<td>100.0</td>
</tr>
<tr>
<td>completed syllabus and recommended textbooks well before exams;</td>
<td>76.1</td>
<td>15.1</td>
<td>8.8</td>
<td>100.0</td>
</tr>
<tr>
<td>taught what is relevant to students’ lives;</td>
<td>69.8</td>
<td>20.8</td>
<td>9.4</td>
<td>100.0</td>
</tr>
<tr>
<td>had good teacher-student relationship;</td>
<td>78.0</td>
<td>16.4</td>
<td>5.7</td>
<td>100.0</td>
</tr>
<tr>
<td>helped students to develop as people;</td>
<td>77.4</td>
<td>16.4</td>
<td>6.3</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4) **Synopsis of teaching conditions in the lives of the participants before they became teachers**

The results show that the shared views in the current life and before they became teachers were:

- teaching is a highly structured activity in which students' behaviour is controlled;
- knowledge of subject matter, students' test scores, class management and student behaviour, are considered the most important aspects of teaching and learning;
- successful teaching and learning are defined by students' ability to recall facts covered during teaching.

The results also show that teachers' choices of teaching strategies were influenced by the knowledge and skills they had to implement these strategies; availability of resources; types of students in the class; and less importantly, by their views about teaching; the school policies, and views in the community. There has been a very little change in the teaching and learning conditions since the participants were students.
SECTION 5: Summary

In terms of general teaching and learning conditions, the survey results illustrate shared views of the following three constructs:

• teaching is a highly structured activity in which students' behaviour is controlled;
• knowledge of subject matter, students' test scores, class management and student behaviour, are considered the most important aspects of teaching and learning;
• successful teaching and learning is defined by students’ ability to recall facts covered during teaching.

The results also show that teachers' choices of teaching strategies were influenced by the knowledge and skills they had to implement these strategies; availability of resources; types of students in the class; and less importantly by their views about teaching; the school policies, and views in the community; and that there has been a very little change in the teaching and learning conditions since the participants were students.
CHAPTER 5: INTERVIEW RESULTS

As previously stated, this study used a mixed method approach that involved a survey and an in-depth interview. Data collected in both methods was similar. It included views of participants on technology conditions in everyday and professional lives in Lesotho. General teaching and learning conditions in school environments were also investigated. This information was collected in a series of three interviews, meaning three separate interviews were conducted for each of 14 student teachers who volunteered to participate. There were 159 survey participants, of which 14 also participated in the interviews. The survey asked closed questions which participants responded to by filling in, selecting or rating statements. Results from the survey were presented in the previous chapter. The in-depth interview consisted of a series of three interviews for each of the 14 participants who participated.

**Interview 1:** Participants were asked to describe available and accessible technology resources in their individual lives and in their communities, and how these resources were used and valued in everyday life.

**Interview 2:** This interview focused on technology conditions in teaching and learning. Participants were asked to describe existing technology conditions in Lesotho that affected them as individual teachers and that affected schools as organisations. These conditions included technology resources that were available and accessible, how they were used and the influencing factors.

**Interview 3:** Participants' views that were collected in this interview were on the general teaching and learning conditions in Lesotho that affected them as individual teachers and that affected schools in general. These conditions included how teaching and learning was interpreted and practised in their lives, resources available and accessible and influencing factors.
Interview questions were open-ended and required participants to express their views by explaining, describing and providing reasons and factors. This chapter presents the results from this investigation. The results are presented accordingly, as data was collected. But, first Section 1 describes the profiles of 6 participants whose data is used to support these results. Chapter 3 described how these six participants were selected. Section 2 presents participants' views on technology conditions in everyday life in Lesotho, and these were collected in the first interview. Technology conditions in teaching and learning which are presented in Section 3 were collected by the second interview. Finally, Section 4 presents participants' views on the general teaching and learning conditions that were collected by the third interview.

SECTION 1: Participants’ individual profiles

The following are the descriptions of the profiles of the six participants who were selected as described in Chapter 3. These profiles are also summarised in Table 5.1.

**Thandiwe**

Thandiwe is a 43-year-old female student teacher in the first year of study in the Faculty of Education at NUL. She completed primary education in 1980 and secondary education in 1989. She attended church-owned schools in the rural and peri-urban areas of Mokhotlong district, which is in the highlands of Lesotho. The highlands are the least developed regions in the country, with very low literacy level, and most households living in extreme poverty. The climatic conditions are harsher than anywhere in the country, with long and cold winters. Most of the schools in this region are poorly resourced and everyday students have to walk a long distance to go to school. Thandiwe completed her teacher college education in 1994. She then taught business education for two years in church-owned schools located in the urban area in Mokhotlong district. During the interview, Thandiwe indicated that she did not have computer skills; she had very low confidence in the use of computers, and had never received computer education.
Khera
Khera was a 39-year-old male student teacher in his second year of study. He completed primary education in 1983 and secondary education in 1988. He attended church-owned schools in the rural and in the peri-urban areas of Mafeteng district (Foothills). Khera completed his teacher college education in 1993. Before teacher training, he taught for two years (1989 -1990) in a church-owned school. After training, he worked as a teacher for two years, again in church-owned schools. The schools in which Khera worked were located in the urban and rural areas in Mafeteng district. In these schools, Khera taught mathematics and science. During the interview, Khera indicated that he had never received computer education and did not have computer skills. As such, he had very low confidence in the use of computers.

Ello
Ello was a 37-year-old male student teacher in his third year of study. He completed primary education in 1989 and secondary education in 1994. He attended church-owned schools in the peri-urban and urban areas of Maseru, the capital of Lesotho. Maseru is in the lowlands of Lesotho. The lowlands have warmer climatic conditions. Economic conditions in the communities and in the schools are not as poor as in the other two regions. The rate of literacy in the local communities is higher than in the other two regions. This region also has the largest number of schools compared with the other two. Students in this region walk short distances to school or use transport. The economic conditions in the schools also reflect those in the local communities.

Ello completed teacher college education in 2002. After training, he worked as a teacher for five years in the schools owned by the church. These schools were located in peri-urban areas of Maseru. In these schools, Ello taught language and literature. During the interview, Ello suggested he had received computer awareness education offered at the National University of
Lesotho when he was in the first year of study. He rated his computer skills and his computer confidence as average.

'Mathoba'
'Mathoba' was a 41-year-old female student teacher in her third year of study. She had completed primary education in 1979 and secondary education in 1984. She attended church-owned schools in the peri-urban areas of Maseru district, which is in the lowlands. 'Mathoba completed college teacher education in 1989. 'Mathoba had five years of teaching experience, in area of languages and literature. Her teaching experience was in the church-owned schools located in the peri-urban areas in the Maseru district. She described her computer skills as beginner. During the interview, 'Mathoba indicated that although she had received computer awareness education offered at NUL, she had a very low confidence in computer use.

'Morake'
Morake was a 32-year-old female student teacher in her fourth year of study. She completed primary education in 1987 and secondary in education 1992. She attended church-owned schools in the foothills in Berea district. Although still underdeveloped, the economic conditions in the foothills are not as harsh as in the highlands. It is also less cold. There are more schools within a short walking distance, and schools are not as poorly resourced as in the highlands. The rate of literacy is also better than in the communities that are in the highlands (see Appendix I).

Morake completed her college teacher education in 1997. She had five years of teaching experience, in subject areas of English and Sesotho. She worked in the community-owned schools located in the urban area in Berea district. She received computer awareness education

---

3 In the Sesotho language, an apostrophe at the beginning of a word or a name that starts with an m suggests that the name should pronounce as double m (mm)
offered at NUL. During the interview, Morake indicated that she had very high confidence in the use of computers. She described her computer skills as intermediate.

*Mona*

Mona was a 44-year-old male student teacher in his fourth year of study. He completed his primary education in 1974 and secondary education in 1979. He attended church-owned schools in the urban area of Mafeteng district. Mona completed his teacher college education in 2002, after which he worked as a teacher in Business Education for five years in church-owned schools in urban areas in Mafeteng district. During the interview, Mona suggested that his computer confidence and skills were average, and that he had received computer education offered at NUL.
Table 5.1: Summary of participants profiles

<table>
<thead>
<tr>
<th>Profile</th>
<th>Thandiwe</th>
<th>Khera</th>
<th>Ello</th>
<th>'Mathoba</th>
<th>Morake</th>
<th>Mona</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of study</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>43</td>
<td>39</td>
<td>37</td>
<td>41</td>
<td>32</td>
<td>44</td>
</tr>
<tr>
<td>Gender</td>
<td>F</td>
<td>M</td>
<td>M</td>
<td>F</td>
<td>F</td>
<td>M</td>
</tr>
</tbody>
</table>

**Schooling**

<table>
<thead>
<tr>
<th>Region</th>
<th>Highlands</th>
<th>Foothills</th>
<th>Lowlands</th>
<th>Lowlands</th>
<th>Foothills</th>
<th>Foothills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Rural / Urban</td>
<td>Rural / Peri-Urban</td>
<td>Peri-Urban</td>
<td>Peri-Urban</td>
<td>Urban</td>
<td>Urban</td>
</tr>
<tr>
<td>Ownership</td>
<td>Church</td>
<td>Church</td>
<td>Church</td>
<td>Church</td>
<td>Church</td>
<td>Church</td>
</tr>
</tbody>
</table>

**Teaching**

<table>
<thead>
<tr>
<th>Region</th>
<th>Highlands</th>
<th>Foothills</th>
<th>Lowlands</th>
<th>Lowlands</th>
<th>Foothills</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Urban</td>
<td>Rural / Urban</td>
<td>Peri-Urban</td>
<td>Urban</td>
<td>Urban</td>
<td></td>
</tr>
<tr>
<td>School Ownership</td>
<td>Church</td>
<td>Church</td>
<td>Church</td>
<td>Church</td>
<td>Community</td>
<td>Church</td>
</tr>
<tr>
<td>Computer knowledge</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

SECTION 2: Technology conditions in everyday life

The views that are presented in this section were collected in the first interview. The views are on the technology conditions in the everyday life of the participants. These views are presented in two major sub-sections: i) the views on the current conditions and ii) the views on the conditions before they became teachers.

**SECTION 2.1: Current conditions**

For the current conditions, the views that were investigated were those that affected participants as individual and those that existed in their communities. Therefore, these views are presented in two parts: first the conditions that affect the participants as individuals and then the conditions that exist in their communities.
1) Conditions that affect the participants as individuals

The participants were asked to explain the current technology conditions in their personal lives. These conditions included:

- technology resources currently available and accessible for their personal use;
- how they were using technology resources that were available and accessible;
- how important it was to them that they used technology resources available and accessible;
- the challenges they encountered when they want to use these resources;
- their aspirations for technology use, and;
- how technology conditions could be improved to meet their needs.

a) Available and accessible technology resources

The available and accessible technology resources that were mentioned by most of the participants in their discussion included: radio, mobile phones, television and video related technology, landline telephone, computers and Internet, and digital camera. Each of these is discussed in turn.

i) Radio and mobile phone

Radio and mobile phones were mentioned first as technology resources that were commonly available and easily accessible to all 14 participants. The participants all indicated that they had unlimited access to these resources. These results are similar to or confirm those presented in the previous chapter, where almost all (94 percent) of the participants indicated unlimited access to radio, and 98 percent had access to mobile phones.

ii) Television and video related technology

There were only five participants who mentioned television and video related technology resources such as digital video recorders, video players and video disks available for their personal use. Other participants did not mention whether these technology resources were available and accessible to them. Therefore, it was inferred by the researcher that perhaps these technology resources were not important enough in their everyday life for them to mention.
The difference between these results and those presented in the previous chapter is that in the survey television and related technology resources appeared to be easily available and accessible for personal use to many participants (about 76%). Yet, in these results it is only few (5) who claimed it was available and accessible.

**iii) Landline telephone**
Only three participants indicated that landline telephone was available in their personal lives and that they had unlimited access for their own use. Most of the participants did not mention this technology in their discussion. A similar inference was made, that most of the participants did not mention access to landline telephone in their responses because they had limited or no access to the landline telephone. Even, the survey results have indicated that this technology was not as accessible to participants as radio, mobile phone and television. For example, only 56 percent of the participants claimed easy access to this technology.

**iv) Computer and Internet**
All the participants indicated that they had limited access to computer and Internet because they could only get access in the university and they shared these resources with others. Only one participant suggested that she owned a computer to which she had unlimited access. However, this participant also indicated that, for Internet needs, she relied on the university resources. These results seem to explain why only 35 percent and 23 percent claimed easy access to computers and Internet respectively. They imply that there were very few participants who owned computers and that many relied on the university resources.

**v) Digital cameras**
Only one participant mentioned a digital camera and indicated exclusive access because she owned it. Other participants did not mention this technology in their responses. Similar to other responses in which the participants did not mention some technology resources, inference was made, that the participants did not mention this technology because they did not have access to it. This view is based partly on the findings of the survey that indicated that about 87 percent of the participants rated their level of access to digital cameras as none or limited.
Generally, the interview results mirror the survey results in the sense that most of the participants were of the view that technology resources that were available and mostly accessible for their personal use were radio, mobile phones and television and related technology, and access to other technology resources was limited.

b) Technology uses
The response of the participants to how they were using the technology resources in their everyday life mentioned communication, access and transfer of information, recording and storage, entertainment and their personal education. These are explained below.

i) Communication
All the participants indicated that they mainly used mobile phones and landline telephones for communication. A typical description of the participants about how they were using technology was “The things [technology] that I use mostly are mobile phone and partly landline” (Morake). The participants also demonstrated in their responses how important the mobile phone was for their daily communication. For example, this is what Morake further said:

...and my Cell phone, that one I use it almost every day and I think, the Cell phone… I use it a lot.

I send SMS [Short text Message System]. I receive calls and also call in most cases during off peak hours, that, I use it a lot for communication.

The survey results showed similar findings, that most of the participants were using technology for communication and in both results there appears to be a link between communication and access to mobile phone.

Although all the participants said they had some sort of access to the Internet, none of them mentioned using electronic mail (e-mail) or other forms of communication that rely on the computers and the Internet. This could imply that the participants were not using these digital tools to communicate. For example, the survey findings highlighted that only 16 percent of the participants claimed they had confidence using email.
ii) Information access

All the participants indicated they were using technology to access information. They particularly mentioned using radio and television for accessing information such as local and international current affairs. Two participants also mentioned they accessed international current affairs through the Internet. One of the participants explained by saying:

... Things such as Internet, for example, if there are some things happening somewhere, in other countries, we know instantly. Yes, instantly. Once, you get on the Internet and start downloading the current affair (Ello).

All the participants stated that they sometimes had used Internet to access information from the Internet for their studies at NUL. A typical response was: “Sometimes I use it [Internet] to download information maybe for assignments, Ache⁴, in fact, mostly I use it…when I do, and it is for school [University] purposes” (Morake).

iii) Information recording, transfer and storage

Two participants suggested that they were using technology to store and transfer information they needed for their studies. Their responses suggested that they used memory stick (also known as a USB or a flash drive) to store information for later use:

Yes, computer. If I have school work I can go to ICT lab and browse [on] the Internet. And it helps me [because] I can take the flash [drive] home and then put it in my computer and that I can work at my own time without worrying about having to leave ICT because there is going to be a class. Then, when I am rested, am able to write my assignments using the information I got [from the lab]. That’s how it assists me (Morake).

---

⁴ This is a Sesotho that can be used to say no. Sometimes it used to show uncertainty. People have also used it as interjections in the sentences.
The importance of this quotation, in the responses of all the participants is that there was a need in the lives of the participants to use the Internet for educational purposes even though access to Internet resources was very limited. This quotation illustrates one of the strategies the participants used to meet their everyday need to access online information.

A digital camera that was used to capture and store information such as taking pictures and video during educational trips was also mentioned by Morake. She explained that she stored such information specifically for historical or teaching purposes. Although the participant was asked to talk about technology in everyday personal life she also included using technology for teaching purposes. This happened a lot in the interviews, where although the question was specific about personal life, the participants kept 'sneaking in' information about their professional lives. This is another indication of multiple identities that are held by teachers, which although some may be subdued in some situations, their presence still registers.

### iv) Recreation

All the participants said they were using technology such as television and radio for recreation. Specifically, they used radio to listen to music and drama and the television to watch *soapies* and movies. There was only one participant, Khera, who mentioned his children using television for video games. This may appear irrelevant to mention in this study because the response referred to the children of the participant. However, the importance of this response is that during the interviews, none of the participants mentioned using technology for games.

### c) Importance of technology

The response to how the participants valued technology in their everyday lives indicated that all the participants valued technology mostly for communication and information related needs such as access and storage. Using technology, particularly mobile phones, for communication appeared very important in the lives of the participants, mainly for social interaction and networking, business, and learning. This was indicated by 'Mathoba in her response when she said: “I use Cell phone to communicate with people close to me… my friends and my family”.

The importance of social networking for the participants was also indicated by Mona who talked about using mobile phones to “chat and talk” and for “keeping family ties”. 'Mathoba elaborated
on the importance of Cell phones for social networking when she said, “I usually feel out of place without it, not knowing where people are, people who you [meant I] share issues with”.

Communicating for business purposes, which was also mentioned by four participants appeared important for access to mobile phones. The participants indicated that mobile phones and sometimes landline phones were important for business communication, such as arranging meetings or to discussing business issues related to their work (teaching) and other types of business. One participant gave an example of where she used mobile phones to inform the school administration when she was going to be absent from work. Using mobile phones for communicating issues related to the studies of participants at NUL also appeared important. This was a typical explanation given by most of the participants: "... communication, maybe sometimes for school work. Sometimes I can call somebody to explain something to me, or at times we arrange times at which we meet” (Mathoba).

There were four participants who also had the view that the general use of technology in everyday life was important for the societal transition from old practices into the new ones. For example, Khera said, “... because it helps us to transform from our old ways of living, from our norms and habits and whatever...” Another participant, Ello, explained further how technology affects societal transformation by saying:

> It is needed critically. I see technology as part of our contemporary life. Yes ‘m’e.... contemporary lifestyle is fast....... in fact, contemporary lifestyle requires such things which are able to put it on the fast pace, things such as [technology]. Technology by itself makes life faster.

**d) Everyday challenges of using technology**

All participants expressed their dissatisfaction about how they were using technology in their everyday life. The main source of their dissatisfaction was the limited access they had to the Internet and to computers. They were of the view that this limited access had and continued to hamper their personal progress and development. For example, Morake complained: "I use it to a very limited extent. .... My view is that my life is blocked. I have very limited activities in my life. So, I use a limited technology to achieve those limited activities."
Chapter 5

The participants listed various factors that they considered responsible for the limited access they had to technology, particularly digital technology resources. These included: i) the poor national infrastructure and hence the limited availability; ii) the high cost of technology resources; and iii) management of institutional facilities and resources.

i) National technology infrastructure and resources

All the participants indicated that their access and use of technology was hampered mainly by the conditions of technology infrastructure and the availability of resources in their communities. They pointed out access to electricity and telephone infrastructure as a serious widespread problem in Lesotho. Ello explained this by saying: "Ehlile\(^5\), facilities such as... I mean, particularly in relation to electricity, which has not yet spread to our villages. Yes, and telephone lines. Yes, they have not yet come to villages." While, some participants indicated that they could not access these resources at all, there were some participants who indicated that such access differed by locations and regions, indicating that it is very limited in the rural areas. Thandiwe explained this by saying:

The use is very minimal. For example, there are very few people with TVs and PCs in the mountainous areas where we live, meaning our homes. That differs from the workplace because at my workplace there is electricity and you see many TVs, many radios, and many phones, but it is different from the rural places which are our homes. It differs.

Thandiwe’s response clarified many issues about access to technology in this study. In both the survey and interview results, there has been an indication that mobile phones, television, radio and landline telephones were easily accessible in the lives of the participants. However, this response by Thandiwe explains that such availability and access depend on location and regions. As the response suggested, the technology infrastructure and resources are almost unavailable and inaccessible in the rural communities, particularly in the highlands.

\(^5\) Sesotho that means “it is so” but sometimes it is used as an interjection.
ii) Technology costs and affordability

The participants explained that even where there was electricity and landline telephone infrastructure, technology resources were still unavailable in the local communities for personal use. Therefore, they believed that they needed to acquire their own technology resources and facilities in order to have unlimited access and use. However, five of the 14 participants pointed out the challenges of high costs and user charges associated with these technology resources. This was vivid in Mona's explanation when he said:

I believe it depends only on me or people close to me. I believe what I need is to acquire technology resources for myself. But, the important issue is that technology resources should be available; it should be easy for us to buy them. Also, it should be easy to pay for them, not necessarily by lowering the prices. My view is that people who have business with technology should relax ways of selling it. Technology resources should be easily available. They should provide loans which we can settle over a long period of time, also by reducing prices if possible.

iii) Management of institutional facilities and resources

Participants stated that they access technology facilities and resources at their workplaces. Some participants pointed out there were also problems of technology access even at their workplaces and at NUL. They indicated that these problems were the results of the absence of policies that defined how technology resources should be used and managed. They explained that there were no institutional procedures that prescribed or described how technology resources should be used. Hence, there was mismanagement and abuse by the users of resources and this impinged on others’ access. This view is expressed in the following dialogue:

‘Mathoba: I am not satisfied.... Even, you will find that in schools, [the computer] is locked in the office of the secretary. When she is in her happy mood towards you she will allow you to have access. If you are not one of her friends who she gossips with, you will never have access. ...

Even if you go to the University lab, maybe you want to use a computer ... Sometimes even that
student who is on the computer, is there just watching pornography and cannot let you use it for your studies because he booked it first. *Kehore*<sup>6</sup>, he is just indifferent to your plight.

*Interviewer:* Why don’t you complain to those who are in charge?

*Mathoba:* Ache, thinking about it, I don’t know where I could complain, you will always find that there is nowhere to complain. There is lack of information about where to complain. ... Also, it is the matter of what you are going to say when you complain, because you believe that if a person has booked to use [the computer] for a specified time then he has a right to stay until such time. You just look at them with a bleeding heart and walk away.

It is important to point out that so far none of the participants mentioned the challenge of the knowledge and skills as one of the challenges the participants faced in their everyday use of technology.

**e) Aspirations for using technology**

The participants were asked to express their aspirations for technology in their everyday life, how they would like to see the situation of technology in their everyday life improved, and how they would use technology in those situations. All 14 participants in the interview indicated that they aspired for the improvement of infrastructure, particularly electricity and telecommunication networks. They expressed the view that if these facilities were improved and become easily available in the wider community, perhaps people could afford to acquire their own technology resources, which would provide them with unlimited access. This in turn would make uses such as communication, information access and learning easier.

Only one participant expressed the desire for better technology knowledge and skills. This observation is important because, in the survey, most of the participants (72%) described their computer skills as limited. As such, it was expected that participants in the interview would demonstrate the desire to improve their knowledge and skills. However this was not evident in

<sup>6</sup> *Kehore* could be translated as “this means”. However, this word could be used as an interjection that used to emphasise the emotions, such as frustrations, felt by the speaker
the interviews. The inference that could be made from this observation is the lack of access to resources, that appears to be such a profound barrier, dominated all other factors that the participants could have considered important for improvement.

2) Technology conditions in the community

The participants were asked about the impressions they had about the technology conditions in their communities. They were asked to indicate:

- types of technology resources available and accessible to other people in their communities;
- views about technology by other members in the communities;
- how other members in the community value technology in their everyday activities;
- the challenges of using technology encountered by others in the community; and,
- technology conditions in the community aspired by the participants.

The findings are presented as follows.

a) Available and accessible technology resources

The responses of all the participants (14) were that radio, mobile phone, television, and landline telephone were the main technology resources mostly available and accessible to others in their communities.

i) Radio

All the participants indicated that the radio was the most available and used technology in their communities. Four participants indicated different levels of access to radio in their communities. Two of these four participants indicated that they were of the impression that every household in their community owned a radio. In contrast, two participants had the impression that very few households in their communities owned radios. The impressions of the latter participants were based on the fact that most people in their communities were not employed and poor, and as a result could not afford to acquire radios for themselves. These participants were from the rural areas in the highlands region, whereas the participants who suggested that in their community every household owned a radio were from the lowlands and the foothills regions.
This finding provides support for the comment that was made about the findings presented in the previous section. That is, the general picture portrayed by the results about technology access is that, some technology resources are accessible in some communities while other communities lack access. This view appears to be true with the radio, which about 95 percent of the participants in the survey believed radio was easily accessible to all members in their communities.

\textit{ii) Mobile phones}

All participants indicated that they believed mobile phones were easily available in their communities. Nine further indicated that these resources were also accessible for use to most people in their community. The other five were of the view that most people in their community had very limited access and were not using this technology in everyday life. For example, one of these participants, Thandiwe, described this limited access by saying: "You know what; there is no technology [meaning mobile phones] in my village, not at all. Those, signals [transmitters]… We only use Cell phones when we are in town or workplace". The common access to mobile phones in the communities of the participants is also indicated in the survey results of this study.

\textit{iii) Television and landline telephones}

The participants indicated that television and landline telephones were accessible in some communities and inaccessible in others. They said that in the communities without electricity infrastructure and telecommunication networks availability to these technology resources was rare and very few people had access to them. Morake expressed this by saying:

\begin{quote}
Now you find that many people have Cell phones where I live ... because, it is not where they could be thinking about landline [telephones because of the poor conditions of infrastructure and human services]... In relation to technology, there are few households which you are likely to find with television sets. There are few households which you would see them with satellite dishes. That itself, tell you that there are no such things as televisions in those houses.
\end{quote}

This finding further explains why mobile phones have been rated in the survey to be available and accessible by more participants than those who rated landline telephone. Morake supports the argument that was made in Chapter 4. That it was likely, that mobile phones were mostly
available and accessible to many participants because it is a technology that relies on a battery and network signal for everyday use, unlike landline telephones that require immediate access to the physical structure.

iv) Other digital technology resources
It was not surprising that all the participants mentioned access to digital technology resources such as computers and Internet or hand-held devices not being used in their communities. For example, the survey results have indicated that this technology was generally inaccessible to the participants, and in their communities. Only 17 percent of the survey participants believed these resources were available and with unlimited access in their communities.

Generally, the results in this chapter, about technology resources that were available and accessible in the lives of the participants, confirm those presented in the previous chapter, that radio, mobile phone, television and related technology resources were the most available and accessible technology resources in the lives of the participants. However, this availability and access was relative to the region and location of the communities in which the participants live and work. For example, the results in this chapter explain that these resources were mostly available and accessible only in the communities with electricity and telephone infrastructures. In Lesotho, such communities are mostly in the urban and peri-urban areas. Hence, the results suggest that this is where these resources are mostly found and used.

b) Technology uses
The response of the participants to how available and accessible resources were in their communities indicated that they all had the impression that in their communities technology was mostly used for communication, information access and recreation. This finding also supports other findings presented in this chapter and in the previous one, about how technology is used by the participants and in their communities in everyday life. The results show that for both the participants, and their communities, technology resources are valued mostly for basic communication, information access and entertainment.
c) Technology importance

In support of the results about how technology was used in the communities of the participants, all participants indicated that technology resources that were available in their communities were mainly valued for those basic uses such as communication, information access and recreation. In their responses, they explained and linked mobile and landline telephone with communication use, and television and radio were linked with information access. For example, Mona demonstrated how much television and radio were valued for information access by saying:

> I believe that is related to communication. Yes, ‘m’e\(^7\) the technology that disseminate information [is important]. Let us take a radio and a television; they are the things which I find people relying mostly on. … Also, with the information they acquire from these technology resources, it’s very hard to remove them from it [to give them another side of the story of what they heard from the radio or saw on the television]. They consider information from these technology resources very reliable (Mona).

Some of the participants also demonstrated that the importance of information access through technology in their communities has created the culture of technology sharing. For example, these participants explained that in their communities, people who do not have radio and television in their households usually go to their neighbours’ houses for news programs, which had extended to include entertainment programs. This is how this participant expressed his view:

> … And for those who have installed TVs, you see people coming crowding. It is like an adventure to come and watch. “So and So owns a TV” and they just come. … They watch news and movies, music programs, particularly traditional music like bo-famo\(^8\) and others (Khera).

However, in their discussion, the participants also made it clear that technology was not used and important in core everyday activities. Therefore, these resources were used only during spare

\(^7\) Literally this word means mother. It is also a title used by young people to address any female adult. This word is also used in the formal setting for any female personnel

\(^8\) Famo is traditional music and dance. This type of music uses concertina and drums. The singing in this type of music is combines singing and some form of rap.
time, which were in the mornings and evenings before or after the core activities of the day were carried out. This is how it was explained by this participant:

Yes, truly. Nothing else.... And the use of radio in the households, you will find that it is used at certain times, in the morning we listen to the news. During the day, we are all scattered. We go to our different jobs, into different activities (Thandiwe).

Thus, indicating that information and entertainment access provided by these resources was valued in these communities and they were viewed somewhat less important than other everyday activities, in which there was no indication from the participants that technology was integrated.

**d) Challenges of use technology in the community**

The participants also expressed their views about the challenges of using technology resources in everyday life in their communities. In their expressions, most of the participants first indicated that other members in the community were as dissatisfied as they, the participants, were about how technology was accessed and used in everyday life. They explained that the challenges of accessing and using technology in their communities were similar to those that were in their individual personal use. These included poor technology infrastructure and facilities, inadequate knowledge and skills, and technology affordability. In relation to affordability, the participants’ explained that many people in their communities were unemployed; and as a result of their economic situation, acquiring and using technology was costly and unaffordable. The participants also indicated that this situation has led to the dominant view in their communities that acquiring most of the technology resources discussed in this study is not essential but an act of extravagance.

The participants also indicated that there were also additional challenges faced by others in their communities, which were not relevant in the participants' individual lives. The main challenges are literacy, ignorance and awareness, lifestyle, generation gap and language. These are explained as follows.
i) Literacy, education and lifestyle

There was a view among some of the participants that literacy played an important role in how people were using and viewing technology in their communities. They gave the explanation that educated people make informed decision about how to acquire and use technology, while for the uneducated such decisions are difficult to make. This is how Thandiwe explained:

I can say that technology, I think, goes together with education or literacy level of people. [In the community most people] are not educated. Most of them are illiterate. You would be surprised to learn that it is only my family which has that light of education [meaning, they have basic literacy and value education], only my family. So, if you are educated or literate you can be interested in [technology] and make decision [about whether you want it or not]...But since they are not educated they don’t know and they cannot make such decision (Thandiwe).

“Having light of education” is a figurative phrase that suggests that a person has basic Western style education, and is aware of the importance and benefits of education. Sometimes “illiterate” is used literally to mean not being able to read and write. However, sometimes it is used figuratively to mean being ignorant of modern ways or stuck in the traditional ways of life. Therefore, being “illiterate” as used by Thandiwe in this quote seem to suggest that other members in their communities were ignorant of modern ways of life. According to Thandiwe, this cohort of people live a very prescriptive and traditional life, such as going to ‘initiation’ school⁹, working as migrant labourers in South Africa, marrying and producing children:

They get married at very early stage, and then the light education stops there. Once they are married, their education stops. …how can I explain this? The kind of people you see, are the people who are still living old lifestyle, our traditional [ways]. They depend more on traditional life: they just go to traditional initiation schools; from there they marry; from marriage they

---

⁹ Initiation schools are traditional schools in which young people are taught the norms and values of their societies. These schools are attended by boys and girls who are in their teenage years. The program could last between six months and a year. The schools are considered as a transition from childhood to adulthood because school graduates are viewed as adults.
produce children; from there [their children also] go to initiation schools, just like that, that sort of thing. Yes, the circle continues (Thandiwe).

Accordingly these people could not value technology beyond entertainment. They viewed technology as an act of extravagance, not as something to use to improve or change one's lifestyle. Ello also indicated the importance of good technology knowledge and understanding in order to access and use technology meaningfully or effectively:

It is true that they use such things as telephones, mobile phones, radio and TVs which are just basic and close [easily available], those which a person in need of them could easily access. But for other technology resources that could be most helpful, they do not understand. They have not yet understood them. Yes. The fact is that I have realised that they have not yet conceptualise technology properly. Perhaps, if they could have perception and knowledge [may be they could use them]. They do not have awareness of those technology resources that are advance. They do not understand them (Ello).

In view of the participants' explanation about how technology knowledge affects how one perceives and uses related resources, the level of education seems to define the lifestyle of a person, and such lifestyle influences attitudes and practices with technology. This observation is supported by Morake, who expressed her view this way:

It is not that they are not [financially] capable. If I will not be insulting them, [I would say] they are ignorant. Because, let me give you an example that is not much related. As a community, were decided to work on the road leading to our village because it was in a very bad condition that it was hard to use it. Yet, other people refused. They said they don’t have cars, and they never! ... Hakare\(^\text{10}\) Owning a car... it is obvious that owning a car is another form of technology. They just said, “We don’t have cars”. So, when it is like that, they won’t, and the road conditions continued to deteriorate. With that, you should be able to understand how much they value technology.

\(^{10}\) This is Sesotho word that means “isn’t it that”. It is usually used to seek confirmation from the listener. However, it could also be used as an interjection in the sentence to attract the listener’s attention.
Morake continued to illustrate that in her opinion, the ignorance of people in their communities had obstructed their development, not only in relation to the appreciation of technology, but also in relation to their ability to link the importance of good basic infrastructure to their own welfare. As a result, they could not be expected to appreciate the use of technology in their everyday life, which many viewed as an extravagance.

**ii) Language**

Some participants (7) also mentioned language as another challenge for technology appreciation in their community. They indicated that most of the technology resources, particularly those that are digital, are not important in their communities because they are packaged with foreign languages, which many people in their communities cannot read or write. They particularly mentioned the English language, which in their view was a barrier that made it difficult for most people in their communities to access technology resources, particularly those that are digital. The participants even pointed out that this was also a contributing factor that many people in their communities prefer radio and television programs that are broadcast in the local language (Sesotho).

**iii) Generation gap**

There was also a generational aspect to the use of technology, which was mentioned by few participants (2). These participants were of the view that the younger generation appeared to have more knowledge and appreciation of technology than the older generation in their communities. However, in view of the results presented in the previous sections of this Chapter, it seems the generational aspect that is linked to technology knowledge and appreciation could also be linked to level of literacy and mobility. For example, in Lesotho, the younger generation has higher level of literacy than older generations. Also, the exposure of this generation to other communities appears to be better than of older generations, due to modes of transport and communications that have developed and improved through the generations.

**e) Aspirations for technology conditions in the community**

The participants in this study expressed aspiration for technology conditions in their communities, which were similar as those aspirations they expressed for conditions in their
personal individual lives. These included the improvement, availability, affordability and access to of technology infrastructure and resources. However, for the conditions in their communities, the participants also mentioned improved community education. They all indicated that it was important that their communities were provided technology education, particularly education about digital technology resources, their capabilities and how they could be used at individual and community levels to improve livelihoods. The participants indicated that they believed that community education, aimed at changing the mindset and lifestyles in the communities, would improve technology access and use in their communities.

SECTION 2.2: Technology conditions before the participants became teachers

This section presents the views of the participants on technology conditions that were in their lives before they became teachers. They include those that affected the participants directly as individuals and those that existed in their communities.

1) Technology conditions that affected participants as individuals

The participants were asked to talk about their views on the technology conditions that they were exposed to before they became teachers. Particularly, they were asked to describe technology resources available and accessible to them, the stages at which they began to appreciate technology and the challenges they faced in using technology. These are elaborated as follows.

a) Familiarity with technology

All the participants indicated that they were familiar with radio, landline telephone, television and computers prior to becoming teachers. These views were consistent with the survey results that indicated that about 80 percent of the participants were familiar with radio, landline telephone and television before they became teachers. However, there were some inconsistencies with computers and mobile phones. For example, in these results, all the participants suggested they were familiar with computers before they became teachers, yet in the survey results it was only 16 percent of the participants who claimed this familiarity.
There is also a query with the responses to familiarity with mobile phones. For example, in view of the survey results, in which about 50 percent of the participants claimed they were familiar with this technology, it was expected that in these results, there would be some participants who would claim that mobile phones were significantly available in their past. However, this was not the case. This technology was not mentioned in the response of any participant during the interview, raising doubts of whether this inconsistency is the result of different interpretations of this question by the participants in the two instances, the survey and the interview.

b) Technology Uses
In their discussion, the participants indicated how they used different technology resources before they became teachers. The uses that were mentioned by all the participants were information access, recreation or entertainment, and information processing. These uses are similar to those presented in the previous section and in Chapter 4. Thus, the implication of this consistency is that technology uses in the present lives of the participants had not changed much from the uses in their past.

c) Technology challenges
 Asked about technology challenges they faced in the past, the participants indicated they had a very limited knowledge about technology resources and their uses. They also indicated that they believed this lack of knowledge was the result of the limited exposure they had to technology, which in their view was also caused by technology resources which were not available in their lives because of underdeveloped and poor national infrastructure, particularly electricity and telecommunication networks. As a result, they did not have a broad knowledge about existing technology resources and their uses. In their explanations, they talked about their technology phobia on their first encounter with some technology resources, lack of understanding of how those technology resources operated, and their curiosity and desire to explore their uses. One participant explained how puzzling and scary it was for him in his first encounter with landline telephone. For example, Ello expressed this initial reaction to first technology encounter by saying:
Before that I used to see people using them [technology resources], some of which I had phobia towards. Kehore, particularly telephone, yes some people were calling and calling. I had not used it before. I thought I would be scared (Ello).

Another participant also demonstrated how she and others in her age desired to explore the uses and capabilities of the new technology resources on their initial exposure:

Another thing which I liked, we liked to use phones [landline] I know. We frequently found excuses to go to the office [school office] so that we could dial. ...We wanted to know whether truly whether a person could succeed to talk to another person just through the wire. I found it fascinating (Morake).

d) Technology aspirations
In their response to the question that asked about technology conditions they aspired for in their everyday life before they became teachers, none could recall if they had any aspiration. They indicated that since they were not exposed to many types of technology resources, it was not possible for them to aspire for anything apart from what they already knew at the time. This is an example of how they responded:

I cannot remember very well, but I think the issue of not knowing causes you not to think about it. If you don’t know about something, you don’t even think about it. You cannot crave for something you have not eaten before. Because you do not know how it tastes like. It is that fact; we did not know anything at all (‘Mathoba).

2) Technology conditions that were in the community
The participants were also asked about their recollections of how technology was used and viewed in their communities before they became teachers. First, they indicated that technology resources that were available in their communities included radio, television, landline telephone, and record player and then they explained how these resources were used and viewed, also describing the factors which in their view were influential. These are presented as follows.
a) Technology uses

All the participants had the impression that the technology resources that were available in their communities were used for community education, in addition to information access and recreation mentioned in the previous sections. In relation to community education, the participants believed that in the community people listened to radio programs that were for community development, particularly those related to agriculture. Khera expressed this by saying:

The radio was important because people got *eh* [expression of hesitation] … news on the radio about different developments within their country and maybe the neighbouring countries, particularly on agricultural products. In my area, there was a project called *Mantša-tlala* [Poverty Alleviation] by then. In this program agricultural products from this project would be compared with those in other countries such as Thai one or China.

One participant also indicated that another radio program, which people in her community liked to listen to, was about *Bokhoba ba tai* (Drug and Alcohol Abuse). This program was broadcast as a radio drama intended to educate people and to make them aware of the dangers of alcohol and drug abuse. Using a radio for distance and community education has been documented as one of the achievements of educational technology in Lesotho (Hawkridge, 1996).

b) Technology challenges

The participants were also asked to express their views on the challenges of using technology in their communities before they became teachers. All of them were of the view that technology infrastructure and resources, education and lifestyle, technology exposure, and technology costs and financial abilities were responsible for the way technology was used in their communities. However, to this list the participants added that factors such as values and norms of the community, and willingness to embrace change and the younger generation have been positively influencing change.
i) **The values and norms of the community**

About seven participants indicated that in their opinion the beliefs that existed in their communities about life priorities had affected how technology had been acquired and used. These participants explained that in their communities there were other needs that were considered more important than acquiring and using technology. Therefore, where such needs compete with technology, technology was considered second. An example was given that demonstrated how acquiring technology before addressing other household wealth issues such as domestic animals was viewed as being irresponsible. Thus, any person behaving as such would be scorned by other members in the community. This is how 'Mathoba explained:

> It was a scorn in my area if you would come with a radio from the mines yet you did not have cows. Yes, they would say, “he does not have cows”. I mean, other men in the village would laugh at you, saying you don’t not have cows yet you have bought a cow with one horn, it is there in your house on the table mooing [a radio aerial is referred as a horn in this case]. Yes, it was a mockery….it was a mockery to buy a radio. It was a must that before buying a radio, you had cows outside. You should not have a cow which is on the table with one horn.

Livestock is very important in the culture of Basotho nation. For example, subsistence farming, and traditional festivals and ceremonies depend on the use of livestock. It is used as a mode of transport and as another form of currency in the exchange of goods and services. Therefore, livestock is considered a very important form of family wealth. Hence, sometimes the community measures household’s wealth by the size of the livestock the household has. This culture may explain why people in the participants’ communities valued acquiring livestock as more important than acquiring technology. However, it is also important to note in this results, the failure to link the importance of radio with farming in these communities even though the information provided by this technology is valuable for such activities as farming and community development. For example, despite the results presented earlier, that showed that radio was valued for access to information relevant to farming activities, these results suggest that this technology was also somehow viewed as a rival to the farming needs. This further shows the failure in the community to link technology with the core and important everyday activities.
ii) **Willingness to embrace change**

Some participants expressed the impression that unwillingness to change is also responsible for how technology has been used in the past, explaining that it takes a long time for people in their communities to embrace change because of their lack of understanding and scepticism. Therefore, in their view, limited willingness to embrace changes could have been another reason why people were not using technology before they became teachers. This is how Mona put it:

> It is just the question of interest and preparedness to change that goes along with technology use. We were still reluctant to use technology.....it was already available but not that much. Because my view is that for it to be more available, that should be triggered by people’s interest. There was lack of interest, caused partly by not embracing change, and sticking to the old ways of doing things and also not wanting to explore new things (Mona).

Three participants also mentioned some other factors which they believed had positively contributed to technology use in their communities. An example of these positive factors they mentioned was the exposure to the outside world other members in their communities had. They indicated that student mobility and labour migration in their communities have played an important role in how technology was used in the past. For example, they explained that in their communities, technology change could be attributed to students, particularly those who attended secondary schools and tertiary education and training institutions located in the urban areas, and men who worked in the mines in South Africa. In the view of the participants, it was these groups of people in their communities who brought new technology resources, ideas and views, which other members in the communities copied. For example, this was demonstrated by one participant, who indicated that some households in the community had acquired technology because of pressure from their children. According to this participant young people who left home to attend secondary school in the urban areas became exposed to technology resources used in the urban communities. When these young people went back to their communities they demanded their parents and relatives to acquire these resources they had been exposed to. 'Mathoba used her own experience as an example:
Even the radio, my father was working in the mines, but I remember very well that for the radio to be bought in family, I think I was already in Form D (senior secondary education). Even, that happened because I began complaining saying, “ache, I wonder how much the radio is. Why is it that my father does not buy a radio…? I actually demanded it, I demanded ('Mathoba).

The importance of exposure to technology in order to be used was observed in the results presented earlier in the previous sections. Although these results show that the positive exposure to technology could lead to technology use, they have also indicated that limited technology exposure also denies technology knowledge and use.

SECTION 2.3: Summary

This section presented the results of the views of the participants on the conditions of technology in their current lives and before they became teachers. These conditions included available and accessible technology resources, how they were used and valued, and challenges that were encountered. The results showed that in the lives of the participants:

- technology resources and uses were limited;
- available technology resources were mostly analogue and limited to radio, television, landline telephone;
- with the exception of mobile phones which were widely accessible, access to digital technology resources was significantly limited;
- available and accessible technology resources were mostly used and valued for communication, information access and storage and entertainment;
- there was a general lack of knowledge and skills related to digital technology resources;
- limited technology access, knowledge and use was linked to:
  - the national electricity and telecommunication infrastructure that were underdeveloped and poorly maintained;
  - technology costs that were high and unaffordable;
  - low level of literacy and the lifestyle that does not require technology use
  - reluctant to change;
• foreign languages packaged with technology, and;
• limited exposure to technology resources and their uses.

SECTION 3: Technology in teaching and learning

This section presents the views of the participants on the conditions of technology that were in their teaching and learning environments. This information was collected in the second series of interviews. The views that were collected were on the current technology conditions and technology conditions in the past, before the participants became teachers.

SECTION 3.1: Current technology conditions

The information in this section includes the participants’ views on the conditions that affect them as individuals and those that existed in their schools and in their communities. Therefore, this information is presented in three parts, the views on the conditions that affect individual participants, the conditions that exist in their schools, and the beliefs that were in their communities about teaching and learning with technology.

1) Conditions that affected individual participants

The conditions that affected participants as individuals included technology resources that were available and accessible to them for their instructional activities; how the participants were integrating these technology resources in these activities; how they valued technology integration in their instructional activities; the challenges of integrating technology in their instructional activities; and the aspirations they had to integrate technology in their instructional activities.

a) Technology availability and access

In response to the technology resources that were available and accessible for their classroom activities, the participants mentioned the following technologies without indicating whether were accessible for their individual use:
• Radio and tape recorders: Twelve participants indicated radio and tape recorders were accessible for teaching in their schools;

• Overhead and slide projectors: Only two participants indicated that overhead projectors were available and accessible for teaching in their schools;

• Television, VCR, DVDs, and film projectors: Five participants suggested that television and related technology such as VCR and DVDs were available for instructional activities. Of these five participants, two also mentioned access to film projectors;

• Computers and related digital devices: twelve participants claimed that there were computers and a digital camera in their schools and that they were available for teaching.

• Other resources: All the participants mentioned access to chalkboard and paper-based resources such as textbooks and charts. The participants indicated that they had access to these resources for teaching all the time. Although the participants mentioned these “other resources”, it was observed that they did not view these resources as other forms of technology resources. Mostly, this view was reflected in their responses in which they indicated that they had never used technology resources in their teaching. The example of such responses was from Thandiwe who said:

   In the classroom, I have never used [technology]. As I have said yesterday, radio is being used by the primary teachers. [In the secondary schools] we don’t use it. I use hardcopy [print] materials such, textbook and charts, chalkboard and so forth. It is only the chalkboard. The teacher can come with other teaching materials like I have said, the charts, yes; and the textbooks. That’s all. No technology (Thandiwe).

The results that radio and television were available and accessible for teaching in the schools of most of the participants are consistent with the survey results. However, the survey results also established that that availability of these resources was less common for instructional use than for personal use. It is also worth noting that unlike in the survey results that suggested computers and other digital technology resources were not available for teaching and learning, the interviews indicate that the participants claimed that computers were available for teaching
activities in their schools. For example, the survey results indicated that it was only 18 percent and 3 percent of the participants respectively who indicated that computers and digital cameras were available for teaching and learning activities in their schools.

Also observed from the responses of the participants was a clear distinction between availability and access. Most of the participants indicated that although these technology resources (listed by the results in this section) were available in their schools, access to them for use in the classroom was very limited. This explanation cast a doubt on the survey results in which the participants indicated that these technology resources were available and accessible for teaching. Perhaps, in the survey, the results were influenced by the structure of the question that collected this information, which paired availability and access.

b) Technology integration

Although the participants first talked about radio, tape recorder and televisions as the most easily available and accessible resources for teaching and learning, it was established from their discussion that these resources were not easily available and accessibility to this technology for teaching and learning was limited. For example, asked how they integrated technology in the teaching and learning activities, the participants first indicated that, with the exception of textbooks and chalkboard, the integration in their instructional lessons, of other technology resources that were available in their schools, was very infrequent. They claimed that they used mostly textbook and chalkboard for their teaching. Sometimes they used charts and posters, and occasionally they integrated radio, tape recorder, video player, film and overhead projectors in their teaching activities. Except for one participant who claimed that she occasionally used a computer for teaching, most of the participants indicated that they never integrated any of the digital or analogue technology resources, which they claimed were available or accessible for classroom activities. For example, this is response from one of the participants about the integration of radio in teaching and learning.

“In the classroom, I have never used it [radio]. As I have said yesterday, this technology is used mainly by primary teachers. [In the secondary schools] we don’t use it” (Thandiwe).
In relation to how they integrated technology resources when they use the, all the participants indicated that when they integrated technology, they mostly used it to:

- *To concretise information:* The participants indicated that they sometimes needed to use technology to facilitate student learning of the subject matter by using various forms of media to deliver such content. They suggested that they mostly used this strategy for literature, history, and religion classes. In particular they used commercial videos and films based the prescribed textbooks for their students. ‘Mathoba explained how she used film and video for literature in the classroom:

  When I teach literature, the books which I teach, like Tom Sawyer for instance, *The Adventures of Tom Sawyer*, they have films. Sometimes you take students to the reading room to play the film for them, after or sometimes before teaching. If you have already taught them, you play the film. Sometimes you would pause it, *hakere*, and then explain. You would say “at this point this is where this and that happened.” Then, you would see students successfully following [the plot of story].

Two of these participants explained that sometimes they used tape recorder to playback some forms of literature such as poetry, that have been enacted by some members of their communities who had expert skills:

  They are mostly used by us people who teach languages, and literature [English and Sesotho]. Sometimes we use [audio tape recorder]. Let suppose we want to teach poems, *hakere*. When we want to teach poems at times, you feel you don’t know how to read well. We had one person called *Ntate* Putsoa who recites poems very well. So, sometimes we record his recitations for future use later use in the classroom. Just like that (‘Mathoba).

One of the participants also indicated that sometimes he recorded his own poetry recitations for later use in his literature class.

Five participants, whose teaching subjects were in Business Education, indicated that the integration of technology in their teaching was usually opportunistic because sometimes they plan their lessons to coincide with television and radio commercial programs that are relevant to
their curricula so that students who have access to television or radio at home could access these programs and relate them to the current topic of discussion in the classroom. This is an example of what they said:

... And we even ask students to go and watch related TV programs at home when they get home. They should pay attention to some commercial programs which will normally show different modes of transport or anything embracing commerce. So we always use that type of assignment (Mona).

One participant talked about using a computer in the classroom to display learning material that she pre-recorded with a digital camera.

- To save teaching time: Two participants also indicated they used overhead projector in their classroom to save teaching time because the transparencies could be prepared well before the class. This saves the time spent writing the teaching content on the blackboard. According to the participants, such time could be used to explain and facilitate class discussion of such content. 'Mathoba illustrated this by saying:

... Like the overhead projector, all the times you are the one with a chalk. Sometimes you have a lot of writing to do and you realized that you will delay because you also need to do a lot of explanation. So, you prepare overhead transparencies before the lessons and use them during lessons ('Mathoba).
Chapter 5

- **To manage big classes:** One of the participants indicated that the use of overhead projectors in the classroom with a large class assists them in managing information and class behaviour. According to this participant some of the classes they were teaching were so big that sometimes it was difficult for the students at the back of the class to see what was written on the blackboard. That is why they found overhead projectors very useful. They argued that technology such as the overhead projector that displayed information gave them extra time to attend to other classroom needs. In their argument they linked their choice of integration strategies that display and manage information to time and student behaviour management in the classroom. They indicated that managing content and student behaviour in large classes was difficult. Usually, in such large classes students tend to disengage from intended classroom activities and engage in undesirable behaviour if such technology was not used.

c) **The importance of technology**

The participants were asked about their views on the importance of integrating technology in teaching and learning. The response from all of them was that technology was important in teaching for various reasons, with the following as key reasons:

- **Handling teaching content:** Six participants indicated that they found technology important for handling teaching content. They indicated that they sometimes needed technology to organise and display the teaching content. They also found technology useful for drill and exercises. In the view of one participant who was teaching maths and science if students had unlimited access to computers he would put information and drilling activities on the computer for the students to practice on.

- **Substituting the teacher:** Nine participants talked about technology being important for substituting the teacher in the classroom. One participant pointed out the importance of technology when it is used to substitute or support a teacher who cannot handle teaching content very well. This is what she said:

> Sometimes I find certain topics difficult to handle in the classroom. That is when I wish that such topics could be programmed or recorded on the [audio] tape, and students listen to the tape instead of a teacher who is not competent with the topic. That is, if they listen to [the tape], of
somebody who has mastery skills, then it is replayed, and then they write down some important points, I believe it could have been helpful (Morake).

Another participant indicated that it also assisted to break the monotony of classroom routine. This participant suggested that students could be tired of listening to the same teacher every day. Therefore it could be helpful to these students if sometimes technology is used instead of the teacher.

- **Motivating students:** All the participants indicated that technology was important for motivating students. In this exchange, one participant explained how technology could motivate students:

  ['Mathoba:] .... particularly because I have realized that these students, *kehore*, once they see you coming to the classroom without [technology] you will find them like this...

  [Interviewer:] Like what?

  ['Mathoba:] you will see that they are not motivated. Sometimes, they are just normal [their usual selves] in the way you find people [in their normal state]. Yet, once you come through the door and say, “students, let’s go to the reading room.” They know something exciting is going to happen. So you see them with great expectations. When you get there, they sit and watch that thing. You see them watching, ... You see them motivated to answer questions, because you realise that they see “this is thing alive, it arrives with life”. Once they have seen it. You noticed their happiness. Actually, they become more active than usually. Also, the way they will answer questions, and even those that are always struggling, you realize that they try, because there is something they have seen.

- **Making education relevant:** Four participants were of the view that using technology in teaching was important for making education relevant. This response was somewhat based on a general view and not specifically to the participants’ situation. This is a typical of what they said:

  It is very much necessary because the world we are living in today is integrating technology a lot in the daily activities, so it is best if we try to integrate technology resources in the subjects that are taught in schools [Khera].
• **To provide students with technological skills:** Five participants viewed integrating technology resources in the teaching activities to be important for student’s acquirement of knowledge and related skills. One of these participants explained by saying: “... even to learn how to use them, how to use video and other devices. It is important for students to learn how to use them” (Thandiwe).

• **To provide access to additional learning information for students:** Most of the participants also indicated that they valued technology in teaching because it is capable of providing access to additional teaching and learning content, which otherwise would be impossible to access. For example, Ello explained this by saying:

  ... If the computers are there at school, when the students have been taught the material in the class, they can go and access additional information from the Internet or from the DVDs. This can help the students fully understand the literary texts.....Actually this is far more important than the other things I have just talked about.

**d) Challenges and aspirations**

All the participants indicated that they were not satisfied with the way they were using technology in their teaching. One participant demonstrated this dissatisfaction by saying: “I use it to a very limited extent. .... My view is that my life is blocked. I have very limited activities in my life. So, I use limited technology to achieve those activities” (Morake). According to them the current technology conditions in their schools were not conducive for successful technology use. In their responses, the participants described the challenges they encountered in their practices with technology in their classroom and their aspirations for technology use in the teaching.

**i) Challenges**

The challenges that were listed by the participants for technology use in their everyday teaching included those that were at system level, school level and teacher’s level, and they are described as follows.
• **At system level**

**National policy:** All the participants complained about the national policy on education and technology, suggesting that there was no policy at national level that mandated the use of technology in teaching and learning. As a result, schools also did not have policies, and were not making efforts for technology to be integrated in the classroom activities. The participants argued for a change of policy at system level that mandates technology integration in the curriculum and teaching and learning activities. One participant explained this by saying:

... and then maybe as a country we have to sit down and try to develop a new policy that cover[s] the new technology into all subjects in all our schools in this country, not only for those schools in the towns, even for those in the rural areas, because this will bring development to our society as a whole (Khera).

The view of the participants was that a policy at system level could change the attitudes of the schools towards acquiring technology resources and how they are used in the classroom.

• **School level**

**School policy:** All the participants suggested that the other challenge was the lack of school policy on the use of technology in the classroom and the allocation of resources to the teachers and the students. According to the participants the absence of such policies has left teachers and students not knowing their entitlements for access to technology resources and the guidelines that explain how the resources were allocated and accessed. This is how 'Mathoba explained:

The issue is that there should be straight ways of what should happen. What should happen when who wants to use what? There should not be frustration of not knowing who to approach when wanting what. It should be known, if you are a teacher, who to approach. It should also be known for how long [should the required technology be in the possession of one teacher]. Maybe if there are such policy guidelines about using technology...

**Availability of technology resources:** All the participants suggested that there was acute shortage of technology and other teaching resources for teaching and learning in their schools. They linked this shortage with factors such as limited school funding, technology costs and affordability, class sizes and leadership knowledge and skills. For example, all the participants
were of the view that most schools in Lesotho were poor and were operating on budgets that were unable to acquire technology and other teaching and learning resources required in the classroom. Furthermore, the high costs of these technology resources made this even harder for the schools, which may aspire for technology integration in teaching and learning. In her response Morake demonstrated the seriousness of this situation by indicating that sometimes when there was a need of teaching and learning resources that the schools could not afford to acquire, schools pass the costs onto parents. Yet, coming from the poor communities, most of the parents could not afford to meet such costs:

... Ache, my view is that schools have problems. Sometimes parents have to… even with building the classroom, you will find that the money comes out of the parents pockets. That itself creates problems. Some parents cannot even afford to contribute those R10s [South African currency which is about AU$1.47] for schools. That is, there are many things which are frustrating. Schools are struggling for basic resources (Morake).

### The knowledge and skills of school leadership and management:

According to the responses of participants, ignorance in the school leaderships and managements when it comes to issues of technology in education was also contributing significantly to the current technology conditions in their schools. These participants explained that sometimes when teachers required access to technology resources, even with those available in the schools, they had to ‘teach’ those in the decision-making positions about the importance of using such resources in the classroom. The participants explained that school leaders wanted to be convinced that integration of such resources would result in the improvement of student scores. Ello, who was one of these participants, explained how his school management’s ignorance denied them access:

The other reason was that the [administrators] did not even know about those things….Not really. They did not know things like e-mails. The administration tends to ignore teachers’ requests. They actually require persuasion. The teachers should persuade the administration.

Another participant added to this explanation by saying:
Another thing is that when you have willingness, wanting to use technology, it’s like you want to waste, sometimes you want to waste electricity. Sometimes it’s like you want to waste the school [financial resources], [to] put the school in unnecessary expenses of just hiring that thing [video recorder]. It is like this here, even with the resources the school already has... for example, you would find old stage costumes, those that were worn during Shakespearean times. When you want to use them, you see them being collected from somewhere, sisters’ corners [some hiding places only known by the nuns in the school] (‘Mathoba).

Class sizes: Large class sizes were also mentioned as a problem in the schools. They suggested that even in the case where schools could afford to acquire some resources, they could not acquire sufficient quantities to match the number of students in the classrooms. As a result, even if teachers could access technology resources there would always be a problem of students’ access.

Readily available technology programs: Three participants indicated that in addition to acute shortage of technology hardware resources, there was a problem of the lack of readily available technology software programs that could be integrated in their teaching. They indicated that most of educational radio programs that were available in Lesotho were designed and developed for primary education. One of these participants further indicated that because of the absence of resources for secondary education, teachers in the secondary education were less motivated and more ignorant about existing and available educational technology software that could be used in the classroom:

I believe another problem, perhaps, was that there were no lessons which were programmed on the radio to be used in the secondary education similar to those available for primary students. We have noticed that in primary schools there are radio programs which are used for lessons. So, at secondary level, hakere there are no radio lessons. That is why the radio is not commonly used. Also with us, teachers, considering the poor infrastructure, we became ignorant. Truly, there is less motivation behind us (Morake).
This explanation links the results presented earlier in this section that indicated that the participants were not using radio and television in their teaching even where these resources were available; rather, they were used by teachers in the primary education.

• **Teacher level**

**Knowledge and skills about technology:** Three participants mentioned that they and other teachers in their schools had limited knowledge and skills of using available technology resources in their teaching. They claimed that even if there were resources available in their schools, they did not know whether and how they could be integrated in teaching in the classroom. For example, Thandiwe suggested that although radio was accessible for teaching in her school, she was not using it in her teaching activities because she never had a notion that it could be integrated in the business education classes she was teaching:

> “Because in my school… It never occurred in our minds or had an idea that we could use [a radio] in the classroom. But as for me, truly, I was not aware how this could be used in the subject I teach” (Thandiwe).

Most of the participants blamed teaching strategies that were used in their technology education at the college and in the university. They claimed that these strategies were ineffective and that was the reason why they had limited knowledge and skills required to integrate technology in the classroom. These participants suggested that the strategies that were engaged in their training did not provide them with hands-on practice or a clear understanding of how they should apply this knowledge in the teaching situation. Mathoba demonstrated this by saying:

> My understanding was that if I am a teacher, I am being trained to be a teacher, I am bound to use technology, and there would be a situation where we are shown how a computer is used in the classroom. ... In an educational technology course, I know there was a time when we talked about it [a computer], about how it could be used, its advantages and shortcomings, and how it is being used. The discussion went as far as that, “it could be used this way and that way”. We went as far as that. But, what we were actually talking about was not there, something like that. I would say it was in an abstract. [The lecturer] was just demonstrating that she was using it when she was
displaying things there [on the screen or wall].... You just see that she is operating things but you go way not knowing what she has been doing. You just saw things appearing on the wall ('Mathoba).

There was one participant, who was teaching languages and literatures, that suggested that while she was aware of the readily available technology resources that could be used for the teaching of English language and literature in English, she was not aware of those that could be used to teach the Sesotho language and the literature in this language. This is what she said:

... Because I don’t see a situation in which I could use it. In the teaching of Sesotho, it does not look like there is a situation in which it could be helpful. Unless there could be some people who could develop Sesotho software, so that we could also just press the buttons [operate]. Hakere, I always see this in English literature ('Mathoba).

Again this response and others in this subsection indicated lack of innovativeness that was among the participants, which was probably the result of a lack of knowledge and exposure to technology use. For example, this was also demonstrated in Mona's response who indicated that integrating technology in the teaching and learning activities was not making much sense to him because it was all about recording and playing back to the students the same information that could be delivered successfully by the teacher without the assistance of technology:

We also don’t use tape recorders, mainly because you will find that … the information they provide, most of the time it comes from us. So, to me it does not make any sense that I [record] something which I am going to give to students. Most of the time, the information comes from us teachers. So it is always easier when you present it live, and elaborate immediately (Mona).

This participant further indicated that he believed that perhaps a significant exposure to a wide range of uses technology might change his attitude.

Lack of information sharing among teachers: Some participants were of the view that the existing culture in their schools, in which teachers did not share information about their professional practices, could also be another contributing factor that technology was not integrated in teaching and learning by many teachers. They indicated that professional practices
and ideas are not voluntarily shared among teachers in their schools. Therefore, even some professional practices and ideas of other teachers in their schools, which could be worth copying, could not be because they were not known by other teachers. Hence, in their schools the individual teachers tend to rely mostly on their individual knowledge and views.

**e) Aspirations**

The participants indicated that their aspirations for everyday technology use in the classroom included:

- projecting and displaying information for purposes similar to those discussed in the previous sections (all participants);
- recording and storing teaching and learning information (five participants);
- communicating with students through email to deliver teaching content and other materials for teaching and learning purposes (one participant). For example, this participant said:

  ... maybe something like the email, for example, if all the students could have email accounts, then I could prepare the materials and send to students by email, so that they can access the information on their own at home (Ello).

- all the participants indicated the importance of acquiring technology knowledge and skills that are particularly relevant to their teaching. The participants also expressed their wish to learn operational skills, troubleshooting skills, and the skills needed to integrate technology in their teaching. This is how one of them explained:

  I think what we need to have the basics and more than the basics of technology knowledge. Because, for example, if I am a driver of a car, I should be able to put a spare wheel in case I am on the road and then I have a problem with a wheel, to have the basics of being able to make small repairs on the computers. Because the topology of our country does not allow us to move easily from one place to another in case we need to search for technicians. We need these skills so that we can solve our minor classroom problems. So, I think the basics that teachers need should be all about the available technology in schools (Khera).
Another participant supported this view by giving an example of instilling such knowledge and skills by saying:

We should be trained how to use them. This means we should know that if you are using a tape recorder, “you take this thing and insert it here. My purpose is for this and that to happen. The advantages are these and the shortcomings are that.” That’s my wish (Morake).

As demonstrated by the results in this subsection, the aspirations of the participants were also very limited in view of how technology could be used in their teaching and learning activities. These results show that their main aspiration was to understand how technology works and how it could be used to enhance their current teaching practices.

2) Conditions in the schools

The participants were also asked about the general technology conditions in their schools. For example, technology access by other members of the school, their integration strategies, and their views on the importance of students learning with technology, their aspirations, and the general challenges.

a) Technology access

All the participants were of the view that there was no difference between how they accessed technology for teaching and learning as individual teachers and how other teachers in their school accessed it. All the conditions described in the previous subsections also applied to other teachers. However, one participant indicated that she believed that sometimes teachers who were teaching certain subjects had more access and use technology more than other teachers:

[In relation to] teaching of science, mathematics and computers, the technology is there for such subjects. Most of the times these subjects are preferred to have equipment and facilities. So, it becomes easy for [teachers in this areas] to access and integrate technology in their teaching compared to [teachers in other subjects] (Mona).

Three participants also talked about some teachers who brought their own technology devices to school for teaching. These participants indicated that teachers who had technology resources
such as laptops and televisions at home sometimes brought them to school to use in the classroom. This is how one of these participants explained:

There was another teacher who used to bring his own laptop. But I did not know how he was using it the class, but I saw him taking it to the classroom. Yes, maybe he utilised it in the classroom. I did not know….Maybe for [literature] because he was also a literature teacher. Maybe he brought DVDs to play them on the laptop for the class. I did not know how he was using it (Ello).

Although, this participant further explained that the teacher was an expatriate volunteer from one of the Western countries, according to the responses from other participants, it was a common trend for teachers who needed to use technology in their teaching to bring their own devices or devices of other members in the local communities. Sometimes such teachers held the lesson in their private homes for access to technology, particularly video players.

b) Technology uses

All the participants had the impression other teachers who used technology in the classroom used similar integration strategies and for similar instructional purposes that included:

- to handle and manage teaching content by supporting it with concretised and visualised information (14 participants);
- to substitute a teacher (4 participants);
- to motivate students (10 participants);
- to teach it as a subject of learning (4 participants);
- to manage big classes by projecting information (14 participants).

c) Technology importance

Asked about how other teachers valued technology in their teaching, most of the participants (12) indicated that they did not know because they did not discuss their teaching practices with other teachers. This was their typical response, “I really don’t know. As for that, I don’t know. Eh, we don’t discuss it” (Thandiwe). However, there were two participants who suggested that other teachers did not value technology in their teaching. They explained that their opinions were
based on the fact that they could not recall occasions in which these teachers made efforts to use
technology in their classrooms.

d) Aspirations and challenges

About the aspirations of other teachers to use technology in the classroom, most of the
participants (13) said they did not know because they were not discussing such issues with other
teachers. Only one participant indicated that she believed that although they were not integrating
technology in their teaching, other teachers might have had aspirations for using technology in
their teaching. This participant's opinion was based on the complaints she had heard from other
teachers about the absence of computers, printers and photocopiers in their school. Based on
these complaints she was of the opinion that these teachers would use such resources to handle
teaching content by preparing course outlines and working sheets for their students if they had
the technology.

All the participants were of the view that other teachers encountered the same challenges they
themselves encountered in their attempt to use technology. They mentioned unavailable and
inaccessible technology resources, inadequate school policies, poor management of resources,
and teachers’ poor technology knowledge and skills. Two participants went further to argue that
knowledge and skills were the most challenging factors in the practices and views of other
teachers. This participant explained this by saying:

I think, also it is because of the calibre of the teachers we have....because teachers themselves
have never used a computer in their lives. So, I think they don’t find the need to include this
technology in their teaching because they are technologically illiterate. They don’t know how to
use it. As a result, I think they don’t find it that relevant in their teaching.

This argument was supported by another participant who pointed out that the lack of knowledge
and skills had resulted in teachers being passive towards technology. He said:

To some extent it is because teachers are passive towards technology, including myself. We were
never exposed to technology before. We were not brought up in the world of technology. …and
unfortunately, the technology we grew up with, films, radio, and those that I mentioned in the
previous interview today are regarded outdated. We talk of television and Internet…. The radio is viewed as outdated (Mona).

Another participant supported this argument by indicating that ignorance about technology among teachers in Lesotho has led to the current poor technology conditions in the schools because the teachers failed to put pressure on the school administration that would bring such resources in the classroom. This is what she said:

I don’t want to say it is because the schools are not supplying [technology resources]. Because, well and truly, I believe technology is expensive. Usually the schools make complaints about the costs. However, I still believe that something could be done by the schools if teachers were actually putting pressure on the administration to acquire technology (Morake).

**SECTION 3.2: Conditions before the participants became teachers**

The views about technology in teaching and learning included the views of the participants about technology conditions during their primary and secondary education, and during college teacher training. The responses in this section are presented in two subsections: technology conditions during primary and secondary education; and technology conditions during college teacher training.

1) **Conditions in the primary and secondary education when the participants were students**

The participants were asked to describe technology resources that were available and accessible for teaching and learning when they were in primary and secondary education, and how they were integrated in their learning activities, how they valued these technology resources in their learning activities, their aspirations and the challenges about learning with technology, and how their past experiences with technology had influenced their current views and practices.

a) **Availability and accessibility**

The technology resources listed by the participants to be available in their schools when they were in primary and secondary education included: radio (14 participants) and tape recorder (9
participants), film and slide projectors (4 participants), overhead projectors (2 participants), chalkboards (14 participants), textbooks (14 participants), computers (2 participants), and typewriters (1 participant). However, all the participants indicated that the technology resources that were regularly integrated in their learning activities were chalkboards and textbooks, that other technology resources were infrequently used. One participant's recollection was that when he was a student, a radio was used perhaps only once or twice in a year. This is how he explained it:

In everyday teaching, it was used very sparingly. Well I don’t know reasons for that. It was very rarely used….perhaps that is why we fail to link it to teaching and learning. There were some technology resources in our schools. Overhead projectors were there also, and slides, but they were never used [Mona].

b) Uses
All participants indicated that technology that was used in the classroom was mostly used in the English language and literature classes, for listening and speaking skills, to demonstrate, and to display information, visualise and concretise teaching content.

i) For listening and speaking skills
Three participants suggested that technology was used in their language learning activities, particularly English language. During English lessons their teachers made the class to listen to the radio for accent or language teaching related aspects such as use of tenses. Mona indicated that he also used radio outside the classroom to improve his English language vocabulary. He explained this by saying,

I used to listen to the radio a lot. I remember it was around 1976, when the political situation in South Africa was [bad]. So I used to listen to different political leaders [talking on the radio], with the intention of acquiring some language skills and learning new vocabulary in English language (Mona).

ii) For demonstration and display information
All the participants claimed that when they were students overhead slide projectors and chalkboards were used mainly to demonstrate and to display learning information. According to
one participant these technology resources were mainly integrated in their teachers’ activities and not students’ activities. This is how he explained: “It was used for demonstration. The teacher would be the one handling technology and us as pupils would just be watching” (Khera).

iii) For visualisation and concretisation of information
Most of the participants (13) indicated that once in a while in their literature lessons, their teachers used slides or films of the prescribed textbooks to visualise the elements of literature such as story plot, setting and characters. One participant explained this by saying:

I think [it] was in classes which were taught by white people, the English. There were white people who use to make us watch slides of prescribed [literature] books. Hakere, on the slides there is no talking or movement, you would just see that they were showing [the characters in the story], and then you realized that “oh, in this slide is where Juliet was crying [a character in Romeo and Juliet]. That is, you just see an actor posing in the way that you would realize that that’s where she was crying. Then you would think “I think this person came to stab”. There was no dialogue, nothing (Mathoba).

The above quote about white people is important because in the past most volunteer teachers from the Western countries were of European decent. These volunteers, as it emerged from the responses, came with technology projects attached to the schools. As a result, they had knowledge of how to use project resources and were the only ones who were mostly seen using technology for teaching and learning. However, it also emerged from the responses that such resources were mostly used in the literature and science related classes. This may also explain how and why these integration strategies became very common among the participants; they may have been the only strategy they had been exposed to.

Two participants also suggested that tape recorders were also integrated in their literature classes, particularly, in the teaching of Sesotho poetry. In such classes, teachers sometimes brought pre-recorded tapes of Sesotho poems in the classroom and made the class listen to them. This also appears to be similar to how some of the participants indicated they were currently using technology in their lessons.
iv) As a teaching subject
Two participants suggested that technology was also included in their learning activities as a subject. One of these participants said that he learnt typing while at school. The other participant said he learnt how to use computers in the computer literacy classes.

v) For entertainment
All participants indicated that in the schools’ technology resources such as film and television were used mainly for school entertainment. Because access to films and television was scarce in the community, schools sometimes brought or hired these technology resources to entertain students after school hours.

c) Technology importance
The participants were asked to explain how important it was for technology to be included in their learning activities. In their responses, most of the participants (10) explained that they did not think much about the importance of technology in relation to learning. To them, technology was more for entertainment than for learning. Mona, who was one of these participants, explained this by saying: “[Technology resources] were never related to our learning. Instead, we always wished to end our classes and go and watch a film. There was nothing connecting the two”. Another participant also indicated that she believed they appreciated technology in the class because of its novelty and not necessarily because how it would influence their learning. She said,

    Maybe it was just that I was coming from the rural areas [where there was not much of technology]. I would feel excited. But I don’t think it was that helpful because you would just see characters without necessarily knowing how to link that to your learning (‘Mathoba).

Asked about whether their attitudes towards technology in teaching and learning have changed since they became teachers, many (10) indicated that now they believed they had because when they reflected on their past, they realise that most of the content they learnt through technology they could still recall. This is how one of them explained:
I don’t know if it is in the view of my current mentality [but] I believe [my views] must have [changed] now. [I believe] it was truly very helpful. You understand that we liked the film very much. So much that even now I can talk about plot [of *The Merchant of Venice*]. Even now when I am this age, I still remember how things were happening, at least the main events are still retained in my head; I remember those ones. They are still registered in my head; I still remember the plot and sequence of the events, because I [also saw the film version of the story] (‘Mathoba).

The participants also indicated that they believed that if their education had more technology integration, their learning would have been easier and perhaps more meaningful. However, since this was not the case, they explained, they did not even know that integrating technology in teaching was actually crucial for the learning of students.

**d) Challenges and aspirations**

Most of the participants (12) pointed out that did not have any aspirations of learning with technology because they have never associated technology with classroom learning. This is how one of them explained:

> I did not have any aspirations because we did know that we needed technology in the classroom as learners, also because it was not there. Since we did not know, I just thought that maybe we did not need to learn with technology [Khera].

Two participants claimed to have aspired to have their own technology devices such as tape recorder so that they could record instructional material such as learning content, as it was delivered by the teacher, for later practice and drill. These participants indicated that these could have helped them succeed in their learning. This is what he said:

> When I was first exposed to technology by that teacher, then I thought to myself, “If I could have this tape recorder and then record some of the [class] information [on the audio tapes] and play them quite often then I could remember things”. ….sometimes I was even thinking about biology and physics [classes] (Ello).
e) The influence of the past experiences on the current views

In response to how past experiences of learning with technology in the classroom had affected their current use of technology in the classroom, all the participants were of the view that how they viewed technology in their current teaching has been affected by their past experiences with technology during primary and secondary education. Eleven of these participants indicated they used the same technology integration strategies in their lessons as their teachers used when they were students.

One participant indicated that her past experience with technology had influenced her to use her own personal technology devices in the classroom to allow her students to have “a feel” for technology. The participant indicated this was the case because during schooling, they were never allowed to operate or even touch the technology used in their lessons. Therefore, they all indicated, they knew through experience how important it was for students to have the basic exposure to technology resources. It was their view that this had been the reason for very rudimentary technology operational skills among teachers and others who attended schools in Lesotho.

Two participants indicated that they did not think the experiences they had with technology in the classroom had affected how they viewed and used technology in the classroom. They indicated that although technology was sometimes integrated in their learning, they still fail to link available technology with the classroom. They gave an example, of using a radio in the classroom:

> Like radio, I still do not link [technology] to the classroom. Because as I have said when I need teaching materials, I try to improvise or bring anything that I could from the outside world into the classroom, as a teacher I do that (Thandiwe).

Although, these participants claimed their current views were not influenced by their past experiences with technology, the results in the previous sections showed the relationships. These were some of the participants who indicated that although radio was accessible in their school they were not using technology because they had never seen it being used before. These
participants came from the schools that were located in the rural areas in the Highlands region of Lesotho. As already stated, schools in this region are poorly resourced and isolated from the national infrastructure. It is sometimes difficult to access even a radio signal or find a battery for the radio in local shops. This explanation suggests that perhaps these participants’ exposure to radio during primary and secondary education was significantly limited. As a result, they had been affected by their past because they did not anticipate that radio could be used to teach, particularly in the secondary schools. Therefore, they had somewhat been affected by their past even though they did not think so.

2) Technology conditions while training at the college

The participants were also asked to describe how technology was used when they were in training at college. Few participants (5) indicated that they took computer literacy classes at college. In these classes they learnt about hardware and mostly Microsoft Office applications. The rest of the participants indicated that they never received technology education or had it integrated in their training when they were in training at the college. Those who claimed they received computer education indicated that the knowledge of Microsoft Office applications they gained while in training was useful because they mostly used it to prepare the assignments.

In response to how technology integration was addressed when they were learning about theories of teaching and learning, the participants indicated that, during training and similar to other aspects of their training, technology in teaching and learning was addressed in theory only; and that there were no related learning activities or demonstrations used which they could learn. Thandiwe explained this by saying:

When I was at NTTC, I did not see any teacher using technology, or being shown how to use it. We were just being told in theory [that you can use technology to achieve] two, three, or this can happen. For example, in commerce, like I said, we were told about the capabilities of telecommunication; that we could communicate with people overseas through the use of Internet or you can communicate or attend meeting with people overseas through teleconferencing. Those
were just concepts given to us, there were no examples that were local that we could copy from. We never even believed the possibilities of these concepts anyway (Thandiwe).

All the participants believed that the significant lack of technology integration in their training had influenced negatively their knowledge, skills and uses of technology in their professional practices. That, it failed to provide meaningful technology knowledge and skills that relate to classroom use, they lacked knowledge of using even technology resources such as radio and television which could be accessible in their schools. Consequently, it was not possible for them to have aspirations about technology use while they were in training because they did not know that it was critical to integrate for their training and in their future teaching and learning activities.

SECTION 3.3: Summary

The results about technology conditions in the professional lives of the participants indicate that educational and professional backgrounds of the participants were defined by:

• general lack of available and accessible technology resources which were mostly limited to analogue technology, and digital technology was almost absent;

• infrequent technology integration in teaching and learning activities when the participants were students, student teachers and teachers;

• few instances in which technology was integrated mainly to support teachers’ activities, such as managing and supporting teaching and learning content, and managing large classes;

• factors at national, school and individual levels that influence availability, access and integration of technology resources which included: underdeveloped and poor basic infrastructure necessary for technology use; absence of national and school policies on technology in education, small government and school budgets that were overstretched and could not afford to acquire and maintain technology for teaching and learning; and the widespread lack of technology knowledge among teachers, and school leadership and management.
SECTION 4: Conditions in teaching and learning

The results that are presented in this section are from the data that was collected in the third series of interviews of this study. These interviews investigated the participants’ views on the general teaching and learning conditions in their professional lives. These conditions included those that were current when this study was conducted and those that were in the past before the participants became teachers. This information is presented in two major sections.

SECTION 4.1: Current conditions

The participants were asked to describe their practices and views about teaching. This information contextualises the views and practices of technology in the wider professional environment of the participants. For example, it describes the personal views and practices of teaching of the individual participants and relates these views and practices to the views, which the participants believed were in their communities. Therefore, this information is presented in to two parts: conditions of teaching and learning that affect individual participants; and the conditions they believed existed in the community.

1) Conditions that affect individual participants

The responses of the participants teaching and learning conditions that affected them as individual professionals included: their interpretation of teaching, how they described themselves as teachers, the teaching strategies they were using in the classroom, the match between their views and their choices of teaching strategies, and factors that influence their views and practices.

a) Interpretation of teaching

Only one participant provided a full description of teaching. She described teaching as:

...An activity that involves a teacher and a learner. In this activity, the teacher does not dominate the learning process of the learner. They contribute just a little. They allow learners to bring their experiences and ideas into the classroom, and the things they have discovered outside the classroom (Morake).
Other participants instead described teaching and learning by outlining the responsibilities of a teacher. Their belief was that there were certain roles and responsibilities that the teacher should carry out as a professional. They mentioned the following as the key professional roles and responsibilities:

- setting learning goals and expectations (10 participants);
- planning, preparing, and providing simplified learning content (13 participants);
- guiding, assisting and monitoring learning (6 participants);
- assessing and providing feedback (7 participants);
- providing pastoral care for the learner’s emotional well-being (3 participants); and
- enforcing discipline (8 participants).

b) Participants' description of themselves as teachers

The participants also described themselves as teachers. In their descriptions, they indicated aspects of teaching they considered important, and their aspirations about teaching. From their responses emerged six types of teachers, namely: a facilitator, a helper or assistant teacher, a disciplinarian teacher, a parent teacher, a democratic teacher, an actor teacher, and a goal achiever teacher.

i) A facilitator/helper/assistant

Few participants (4) described themselves as facilitators rather than teachers. They distinctively described the role of the helper as opposed to the role of a teacher. They described a helper as a teacher who helps students to learn by guiding and sharing knowledge with them. These participants viewed a teacher as someone who assumes to know the knowledge needs of a learner. Hence, the teacher decides how knowledge should be delivered to the learner and how the learner consumes it. These participants pointed out that, teachers who view themselves as helpers in addition to being facilitators, value classroom management and students taking responsibility for their own learning.

ii) A disciplinarian

Some participants (3) described themselves as disciplinarian teachers. Accordingly they described a disciplinarian teacher as preferring a teaching and learning atmosphere that is
orderly, and encourages cooperative and team work among students, and the promotion of
learners’ individual learning styles, preferences and abilities.

**iii) A parent**

One participant described himself as a parent whose responsibility was to nurture and pass
knowledge on to the next generation. The view of this participant was that knowledge empowers
the next generation in the community and they would use such knowledge to sustain the human
race. To this participant, learner’s exposure to the external world and discipline is an important
aspect in his teaching. He stressed the importance of a disciplined learning environment by saying:

> I value discipline. Discipline to me is multifaceted, success, failure, ability to learn and be guided
are all centred on discipline. So, I think discipline plays important part in the learning of students.
And it makes my work easier as a teacher. When students are disciplined they are able to listen, to
take instructions and commands, to be obedient (Mona).

**iv) A democratic teacher**

One participant described herself as a democratic teacher. According to this participant, in a class
of a democratic teacher, learners take the lead in discussions in the classroom, and they use their
own experiences and artefacts (such as magazines and newspapers) in their learning. This teacher
claimed that in her classroom, students have some sort of power that they use to make their own
decision about how and what to use to learn. This participant suggested that a democratic teacher
values teaching aspects such as learner’s unlimited exposure to the external world and when
learners are using their own personal traits to take control of their own learning and to make their
own interpretation of knowledge.

**v) A player/actor**

One participant described himself as an actor on the stage. He described the classroom as a stage,
on which teaching is a game, where a teacher and a learner have roles to play. He therefore
described the role of a teacher as motivating students and ensuring that they continue to
participate in this game. This type of a teacher maintains the motivation of the students by
creating a relaxed teaching and learning atmosphere in which students are free to ask questions, to make critical comments and to engage productively in the discussion.

*vi) A goal achiever*

Four participants described themselves as goal achievers. They indicated that an overarching goal of teaching is for a learner to gain some form of knowledge. Therefore, the responsibility of a teacher is to create an environment that enables and promotes successful teaching and learning. These participants listed the following teaching aspects as important to a teacher who is a goal achiever:

- teacher’s good knowledge of learner experiences and views of the world;
- valuing and involving other professional and community members in the teaching of the learner;
- employing teaching and learning strategies that ensure successful teaching and learning.

There were some common aspects in the descriptions the participants provided of themselves as teachers. In all the descriptions provided, a teacher whose general goal is that a learner successfully acquires knowledge was fundamental to their professional practice. However, there were slight differences in the views of the participants on how teaching and learning should occur and what was important in this process. From their description a wide range of aspects of teaching appeared important. Those mostly emphasised were classroom behaviour management (discipline), teacher-learner interaction in the classroom and teaching and learning strategies.

Classroom management also appeared important to many participants (at least 71%) in the survey results.

Also observed from these results is that the wide range of aspects of teaching mentioned as important by the participants may imply that the participants were using a wide range of instructional teaching strategies in their lessons. In anticipation of these results, teachers were also asked to describe the instructional strategies they commonly used in their lessons. This information is presented next.

**c) Teaching strategies**

The participants suggested that they used various teaching strategies such as lecturing,
discussion, discovery, demonstration, question and answer, field trips, games and songs, and dramatisation in their teaching.

i) Lecturing method
All the participants indicated that in most of their lesson times they used lecture method, which they described as providing information and explanations to the students and sometimes using graphics to demonstrate some concepts. According to their explanations, in lessons that use a lecture method, students listen and take notes and occasionally ask questions for clarifications of some concepts.

ii) Discussion Method
All the participants indicated that they also used discussion method in their teaching. They implemented this method in two ways; either as a large group discussion or small group discussion. They explained that large group discussion involves the whole class, with the teacher leading and directing the discussion, while small group discussion divides the class into small groups and assigns each group a topic to discuss. During this discussion, the teacher moves around the groups to monitor or to troubleshoot problems encountered in these groups, and perhaps redirect the discussion where necessary.

iii) Demonstration and discovery method
Some participants (3) indicated that sometimes they used discovery and demonstration methods concurrently to illustrate a process or a procedure. They also claimed that in the discovery method, students carry out activities such as experiments to create their own knowledge. However, the participants' further explanation of this method contradicts these claims. It indicates that students carry out experiments to verify the information they received from teachers during lessons.

iv) Question and answer
Two participants suggested that they also used question and answer method in their teaching. Their description of this method is that the whole lesson is spent on a teacher asking students
questions and students answering the questions. They suggested that this method is used when
the teacher attempts to establish knowledge the students already have about the new topic.

v)  **Field trips**
Two participants suggested that they occasionally used field trips for teaching. They took their
classes to places of interest where students would be required to collect information that would
later be discussed and used in the classroom.

vi)  **Games and songs**
One participant said sometimes she used games and songs for teaching. They suggested that they
mostly used this strategy where learners found it difficult to retain information in the order it
existed. In this strategy students and teachers compose songs and create games that use the
learning content. The participant gave the teaching of noun classes in the Sesotho language as an
example of where these methods were used.

vii)  **Dramatisation**
One participant mentioned using dramatisation for teaching. For example, she explained that she
found this method particularly suitable and useful in the literature classes. This method engages
students by assigning passages extracted from the prescribed literature books for the students to
role-play or dramatise.

These results show that despite the participants' differences in how they described themselves as
teachers, and different strategies they claimed they used in the classroom, their description of
how they engaged students indicate that all their teaching strategies were geared towards
students acquiring and retaining content that the teacher presents during the lesson. Other
teaching methods mentioned appear to support or enhance student absorption of this information.
These strategies used by the participants diverge from the descriptions the participants assigned
to themselves as teachers. The results also show uniformity among the participants in the
instructional strategies they use in their lessons, suggesting that the descriptions of the strategies
used by the participants did not match those that the participants provided and indicated defined
them as teachers.
d) Participants’ choice of teaching strategies and the influencing factors

When asked whether their views about teaching were reflected in the strategies they were currently using in the classroom, all the participants indicated that they did not believe that their professional views were reflected in their current classroom practices. They also expressed their dissatisfactions in their current classroom practices. However, they also listed a range of factors that were responsible for not realising their professional views in their current classroom practices. They listed such factors as teaching facilities and resources that were not only in poor condition but also were unavailable or inaccessible in the schools; class sizes that were too big, students 'calibre which held a different view on how teaching and learning should occur, the conflicting views of the school management and leadership about teaching, and the general limited knowledge and skills about various teaching and learning methods. These are discussed as follows.

i) Teaching facilities and resources in schools

All the participants indicated that the conditions of teaching and learning facilities and resources in their schools limited the choice of instructional strategies they could use in the classroom. They explained that in their schools, teaching and learning infrastructures and resources were limited and poorly maintained. This situation dictated to a considerable extent teaching strategies to be used, and that could work in such environments. One participant pointed out that in some schools the teaching and learning conditions were so bad that even the fundamental facilities and resources that make a school were absent or in poor conditions. This is how 'Mathoba explained:

[Sometimes] even the building is not there. Sometimes you find that that there is no [school] building. I am talking about those schools that belong to the teacher Marantha\textsuperscript{11}, where when it rains, lessons have to stop completely; because the whole school population has to crowd in one

\textsuperscript{11} (Marantha is a character in short story book written by 'Masechele Khaketla, a well-known Sesotho author and playwright in Lesotho. In the story, Marantha had been portrayed as a very irresponsible teacher whose attitude towards teaching and life in general has been frustrated by the conditions of the school in which he was working.
building, or in a corner, trying to avoid the leaking roof. [In such schools] how can you teach? Sometimes even just a chalkboard is not available. Have you ever seen a school with a chalkboard is just a small piece of the size of my hand, which worse still, this piece is so worn out, that a teacher has to prompt with stones so that they could write on it? I am not exaggerating. I once worked in such a school (‘Mathoba).

**ii) Big classes**

Two participants mentioned the challenge of teaching big classes, that some of the classes they were teaching were so big that only lecture methods could be effective to deliver content and manage big these classes. They explained that sometimes even these methods did not work. This is what one of them said:

In my school, classes are overcrowded. As a result, you cannot implement your [learner centred teaching approach] or even control the class that contains about 75 to 80 something students. It becomes difficult for me to implement my teaching style or even to control the class. Most of the time and because they are so many that it is difficult to move around the class, those that are at the back of the class do not pay attention. They start playing and their behaviour escalates and affects the whole class. In the class like this, students don’t even bother to listen. They just engage in other things during the class. So the best teaching strategy in such classes is to present information (Thandiwe).

**iii) The calibre of students**

Most of the participants (12) also suggested that the type of students in the class also influenced their choice of teaching strategies, also indicating that most of their students believed that teaching occurred when a teacher delivered information and learning was absorbing this information and reproducing it when necessary. They indicated that as a result of this view, sometimes their students reject the teaching strategies that do not promote this view. One of these participants explained this by saying:

You will find that they do not appreciate that they have to find things for themselves. They just want information ‘thrown’ at them. They do not appreciate [other methods of teaching] because they are expecting you to be giving them information all the time (Thandiwe).
This was also reiterated in the response of Ello who said:

The type of students [we have] actually discouraged me. I remember a lesson in which I had planned to use question and answer method. One student raised his hand up indicating that he wanted to speak. When I allowed him to talk, he said “Sir, teach us. You are not teaching us. You are asking us questions. Please teach us”. This student wanted to be given information. Yes. They wanted me to use lecture method. Yes. I tried to clarify to them why I was using question and answer method, that it was another way of teaching. They were not interested. They just said “No, no, no, teach us please. We don’t want you to ask us questions. Teach us” (Ello).

The response from another participant defended this attitude of students by blaming the lack of compressive knowledge among teachers about methods that are learner-centred. His explanation was that methods that are learner-centred, including question and answer methods, were not compatible with current conditions of the teaching facilities and resources in their schools. In his opinion, methods based on learner-centred approach require students to have access to resources that they can use to source information and to create their own knowledge. However, this participant's concern was that other teachers assign activities to students without explaining how and where students should access the necessary resources. He explained by saying:

In my school, most of teachers resort to question and answer method. They expect lot from students. Also they do not make research before they give learners tasks and provide clear guidelines on how students should carry out given tasks. This sets to underplay the importance of resources, because most of the information is expected to come from the students who do not even know how to access the resources they need and where to find them (Mona).

One participant also pointed out that it was important that they used teaching methods that were agreeable to students and did not frustrate them in their quest for knowledge. The view of this participant was that students could influence their parents' views on teachers and their teaching methods. According to Morake, when students do not talk in favour of the teacher to their parents it can cause problems for the teacher concerned because parents have the power to decide who should and who should not teach their children. She said:
I also think the fact that these kids talk, they would be telling their parents that “in ‘M’e Morake’s class, we play and we do all sort of things”. Some parents are really serious about their children education. You find that in some cases they come to school and fight. I experienced a similar situation in the past. They could get to that school and complain about a certain teacher. They would even want to pull their children out of that classroom and tell the principal that “I don’t want my child to be taught by this ‘M’e. I want her to be put in ‘m’e Chere’s class. She taught my other child or children. They were good children and they learnt a lot”. Parents monitor what happens in schools through their children. This makes things worse because you have to take all these things in to consideration (Morake).

The participant further pointed out that usually when such incidents occur teachers do not get enough support or protection from the school management, particularly in the case where the management has a different view from that of a teacher on how teaching should occur.

In the survey results, the participants gave an impression that the beliefs existing in the community about teaching and learning were not influential in their choice of teaching strategies. However, these results demonstrate that when the participants make decision about teaching strategies they have, at the back of their minds, the response they would get from the community about their teaching.

**iv) Conflicting views of the school management and teachers**

All the participants indicated that another challenge they faced in their teaching was the conflict that sometimes arises between them, school management and leadership in the schools on what should constitute teaching and learning. This is particularly the case in schools where management and leadership believed in teaching strategies that were teacher-centred and that do not require specific teaching resources. One participant explained by saying:

Their view is that when you use lecture method, shouting and roaring, then you are teaching very well. If you teach by involving students in the strategies that are student-oriented then you are lazy and you don’t want to teach (’Mathoba).

Three participants further highlighted the absence of standard description of teaching and learning in their schools, indicating that usually school management and leadership use their
personal views rather than of the position they occupied to define teaching and learning. Furthermore, such views were usually framed around students’ performance in the national examinations. As a result, there were no clear guidelines that explain how teaching should occur. One participant explained this by saying:

We are always told that we should make sure that we give the best to the learner. “Make sure that the learner gets the best out of you”. This means as a teacher, you should make sure that students learn and perform well in the exams…. and that is said only verbally. There are no policy guidelines in our school, but I know that what they usually say is that we have to make sure that we give the best to the learning of the learners, make sure that they get the best out of us. The school values good examination results. They are happy to get good results at the end of the year (Morake).

The participants further explained that this had influenced how most teachers in their schools conduct their lessons. Teachers mostly used lecture methods that pass as much information as they could to students, particularly the content they anticipated would appear in the examination. These participants pointed out that usually students of the teachers who used those methods of teaching perform very well in the national examinations.

\textit{v) The conflicting views of teachers with those that exist in the community}

Four participants considered the beliefs existing in the communities in which the schools were situated also playing an important role in how they chose instructional strategies. They believed the views of the parents of the students on teaching in their schools were strongly framed around the performance of their children in the national examinations and sometimes on the behaviour their children present in the school and in the wider community. One participant explained this by saying:

...and also the teacher should be accountable if their students do not pass [the exams]. The community expects their children to pass, all of them, regardless of situation. Then, when they fail, they want to know why their children have failed. All they want is the teacher to give them answers to why the children did not pass final exams (Morake).
The participants also explained why in their communities, students’ performance in the national examinations was very important. They said the existing view in their communities links student performance in the national examinations to secure job opportunities or opportunities to further their education. For example, in the community there is a belief that students who perform well in the national examination have better opportunities securing employment or furthering their education beyond primary and secondary education, while those who are not successful in these examinations tend to drop out of school even before they get qualifications and their employment opportunities are limited. This view is based on the current educational system in Lesotho. For example, student promotion from one level of education to another, and admission in the post school education system depend on their academic performance in the preceding levels. When Morake described this situation she said:

I do believe that the parents realise that the secondary education is no longer an important education. You find that after their children have completed that level of education some people start talking about, “Ache, maybe this person should go and look for a job at Thetsane or Maputsoe, in the factories [textile factories owned by foreign companies]”. They are quite and fully aware that for a person to be recognised as having good education there has to be some tertiary education this person undergoes after some secondary education (Morake).

**vi) Relevant teaching skills**

Most of the participants (11) spoke of the knowledge and skills teachers acquired from college training, which were irrelevant and incompatible with the teaching conditions that existed in the schools. This response was quite surprising because in the survey results, almost all the participants indicated the professional teaching knowledge and skills they acquired through college teacher training were relevant to the teaching conditions in their schools. However, in these results, they suggested that the knowledge and skills they received from teacher training college could only be used in the teaching situations that have good facilities and resources. They claimed that the knowledge was incompatible for the current teaching conditions in their schools. One participant explained this by saying:
Chapter 5

We should not have been trained from the classroom all the time. We should have been allowed to explore what was happening in the schools and learnt appropriate knowledge and skills. I just feel like the training I received was not enough. .... My experience is that some of the things that we have been trained to do did not exist in the schools. I went back to the very same situation I was in before when I was a student. Sometimes I feel like I have been put in the little corner I used to stay [when I was a student]. Yet, sometime I am given a chance to play in this big field of teaching, and then thereafter, I am told, “go and sit down there in your corner, you know your corner, that’s where you belong”. And then you go back there and sit in the corner. Every day you are in the classroom, you cannot make good teaching decision because, if it is not because of resources, it is because of the students, and management, parents and the list goes on, and you need to deal with them all. Also, your knowledge and skills have put you in the corner because you don’t know what to do. You just do the best out of the situation (Morake).

This response illustrates the views of many participants; that the challenges they were faced with in their profession were complicated and combined various aspects from the internal and external environments of the school. An important aspect that emerged from these results is the view of the participants on teaching and learning conditions in schools that had hardly improved since they were students, and how these conditions continue to frustrate their instructional efforts.

SECTION 4.2: Conditions before the participants became teachers

The results in this section are about the views of the participants on teaching and learning conditions in the schools during primary and secondary education. Particularly, these views are on available and accessible teaching and learning facilities and resources, teaching and learning strategies used in the classroom, preferred learning styles, interpretation of successful learning, and the qualities that made a good teacher. These are discussed in turn.

1) Available and accessible teaching and learning facilities and resources

All the participants indicated that during primary and secondary education, their classrooms were almost bare, furnished with only a teacher’s desk, a blackboard and students’ desks, which sometimes were even inadequate for the number of students in the classroom. The participants
also indicated that blackboard and textbooks were the only resources that were used in everyday teaching and learning activities and that slides and films were used rarely in their literature classes. In addition to the absence of resources in their teaching and learning activities, the participants said their classrooms were crowded and uncomfortable, and students struggled to perform basic classroom tasks such as reading and writing. This is how he explained:

Overcrowded! Ironically, when I talk of the typical classroom, it brings sad memories of the experiences we had. Like, we were very much over crowded in our classroom. We struggled to write because in my school one bench which was designed to take three students was occupied by over five students. The classroom was the most uncomfortable place to be in the school (Mona).

2) Teaching strategies

All participants recalled lecture methods and drill and exercise as the methods that were mostly used in the classroom when they were students. The classroom routine comprised the teacher presenting the learning content, explaining and discussing important concepts, and students listening and copying notes. Field trips were taken on rare occasions. Three participants explained that usually, learning content that was given to them in the classroom by a teacher was mostly geared towards examinations. They believed that all teaching strategies that were used, including drill and exercise, and resources such as graphics (posters with drawings or pictures), films and slides were mainly intended to assist them to assimilate and retain information. This was demonstrated by one of the participants who gave an example of how they were drilled to write compositions in an English class. This is what she said:

For example we were even given a composition. The teacher would write a composition and then we copy and reproduced it during exams, exactly as it was given by the teacher. At that time, truly learning was just too much teacher-centred. All activities, learning activities, and styles of
learning, were dictated and run by the teacher. Teachers were sources of everything. Ours was to copy from board and memorise. Copying *Hae*¹² (Thandiwe)!

However, the results also show that in science and mathematics related classes, teaching strategies used were more engaging to students than in other classes. For example, these classes involved students in the activities such as problem solving, experiments and practicals. Morake explained this by saying:

> You find that during science lessons we would go to laboratories and do experiments; during agricultural lessons we would go to school farms, go and feed the pigs, go and feed the chickens and milk cows and do stuff like that (Morake).

The participants expressed the view that these methods were appropriate for those classes because the subjects were ‘practical subjects’. Practical subjects, according to the participants, are able to engage students because they have theory and practical classes. On the other hand, teaching subjects such languages and social science were not practical and therefore, their teaching relied more on theory than practice.

In view of the results presented earlier in this section and in Chapter Three, the teaching strategies that were in use in the past, when participants were students, were then used by the participants as teachers in their own lessons. It is clear from the discussion so far that teaching conditions in the schools had not changed much since the participants were students and factors that affected their teachers in the past remained the same in the current teaching of the participants.

**3) Participants views about how they were taught**

When asked whether they liked the way they were taught, the response of the participants was that they had never been exposed to other styles of teaching. As a result, they did not have any

---

¹² *Hae* is an expression or exclamation used to indicate that something was overdone.
views on how teaching and learning should occur. Furthermore, in their early years of schooling, they did not have any notion of what schooling and education was about. They attended school because their parents wanted them to. Morake explained this by saying,

Schooling was like a routine. You are a child and you are told to go to school, “go to school. Go. Go to school. I have paid the school fees. Go to school.

In such situations the question of whether they liked the way they were taught could not even arise. Even in later years of schooling when they began to appreciate the purpose of education, their limited exposure still affected their knowledge about their learning needs. This was also explained by Morake who said:

It only become clear at the level of COSC [Cambridge Overseas School Certificate], as I have said, that going to school was not about your parents sending you to school, it was more than that. [However], even at that level I don’t think that there was anything that I felt I wanted to know. When you grow up in area and attend school in the same area, your exposure becomes limited. You find out that there isn’t a lot that you have seen for you to say, “I would like to know about, 1, 2, or 3 things”, or to become this or that. You just inherit the views and the beliefs that exist in communities, which in our case, the teacher knew everything.

The participants pointed out that when they were going through this system they believed teachers knew best about learning needs of students, that is, what they should learn and how they should learn. However, despite these beliefs about teachers, the participants claimed to have enjoyed teaching strategies that actively involved students more than those used in the lessons where students just sat and copied notes. They particularly enjoyed methods that required them to demonstrate knowledge they had or gained. They gave examples of being asked to demonstrate problem solving procedures during mathematics lessons or demonstrating their experiments in science laboratories.

There were some participants however, who indicated that they wished there were more resources that could have been used to expand or supplement the knowledge they acquired from their teachers. Mona explained how lack of such resources hindered their learning,
Lack of materials required to support us students was also another disadvantage to us. It actually crippled us in many ways. If there were other resources, we could have used them to learn new concepts; we could have observed different writing styles used in [creative writing], or get any extra information that was additional to what we were getting from our teachers. [Yet,] because of lack of resources, when it came to exams, it was like we were channelled; it was like anything outside what we were taught was not for us. That caused great problems in our learning. We could not even perform well in the final exams (Mona).

a) Participants’ interpretation of successful learning

In their description of successful learning, all participants indicated that they linked successful learning with examinations and that good performance in the examinations was taken as an indication of successful learning. This is how they typically explained: “Ok. If in the exam we were able to refer to what we had been taught, and we had good scores, we considered that as a successful learning” (Khera).

The past description of successful learning by the participants also appears not to differ much from their current description. As teachers, the participants still associate successful learning with students’ performance in examinations, but now they also believe that application of knowledge outside the classroom also demonstrated successful learning.

b) Participants’ interpretation of a good teacher

The participants were also asked to describe views they had as students on qualities that made a good teacher. Generally, they considered a good teacher to be a teacher who was knowledgeable and interacted with students. A good teacher had empathy for students. In addition, students performed very well in examinations of subjects taught by a good teacher. This is a list of the qualities they used to describe a good teacher:

- A teacher that created interactive activities and guided students learning (13);
- A teacher that demonstrated wide and interdisciplinary knowledge and related learning content with everyday life (9);
- A teacher that was interested and took care of students' emotional wellbeing and that was available for students when they were in crisis (11);
Chapter 5

- A teacher that instilled confidence in students (5);
- A teacher that gave assessment and feedback on time (12);
- A teacher that had good relationships with students (10).

i) How the views of the participants have changed since they became teachers

The participants’ responses about teaching and learning, particularly about successful learning and qualities of a good teacher, indicated that their views have not changed much since they became teachers. The views they had about teaching and learning in the past, along with some of their teaching and learning experiences, formed basis for their current professional practices. In other words, they used these experiences to model their own teaching styles. Mona explained this by saying:

For the good things that I still remember which I experienced as a student, for many of them my views have not changed. They have actually remained with me and I am proud to be building my teaching style and personality on those qualities I observed from good teachers. I always want to emulate them, when I teach.

However, there were some exceptions that they viewed differently now as teachers. These included:

- Guiding and not channelling students’ learning: As teachers, they now believed that students’ learning should be guided and not channelled. Also, students should be guided and encouraged to be creative and they should be provided with tools that enable them to carry out their learning tasks.

- Monitoring and assessing students’ learning: Three participants were of the view that instead of being a one off event, student assessment should be continuous and their performance should be used determine strategies that can help students learn better in terms of their theoretical knowledge as well as practical or technical skills.

- Teaching resources: One participant suggested that perhaps teachers could have used resources that were available in the schools to enhance students’ learning. This participant pointed out that radio and television could also have been used in other classes similar to how they were sometimes used in the language and literature classes. Further, she pointed
out that even though the limited resources for teaching and learning had constrained the teaching strategies their teachers used in classrooms, their teachers could still have used strategies that engaged students in some ways, such as staging debate and engaging students in performing arts and not relying only on lecture and other methods that were not interactive.

c) The existing beliefs about a good teacher in the communities
The participants recalled three major qualities that were used in their communities to describe a good teacher. They mentioned academic qualities, leadership qualities, and social and moral character.

i) Academic qualities
All the participants recalled that in their communities a teacher that was liked and respected was one who demonstrated wide and deep knowledge in their teaching area and other disciplines, and who successfully instilled such knowledge in students. These qualities were measured by student's performance in examinations, and also by students’ application of knowledge in everyday life in the community.

ii) Leadership qualities
All participants indicated that how teachers demonstrated their leadership skills, in school environment and in wider community was also influential on how other members in their communities viewed them as professionals. A good teacher was expected to provide solutions to everyday problems in the community. Two participants gave examples of teachers that were highly respected in their communities because of these teachers' engagement with the community at individual and community level. Morake gave an example of a teacher, who was considered to be a good teacher because of her interaction and support to individual members in the community,

People liked her, you see people in the village going to her for advice. You could hear people saying, “Ache, you know I don’t have a clue of how to approach this problem. I will go and see ‘M’e’ Matichere, to find out how she would approach it if she was in my position”. That is, you realized that they trusted her for good advices. People who could not read and write in the village
used to go to her to ask for assist to write letters to their husbands who were working in the mines (in South Africa). Even when they received letters from their husbands, you would hear them saying, “I have received a letter from the post office, yes, Braakfontain post office. I am going to ask ‘M’e 'Matichere to read it to me.” They would go to ‘M’e 'Matichere’s place. ‘M’e 'Matichere would read and translate the letters. Yet, even in a single day, I had never heard anybody saying that this teacher had betrayed the confidence of people who went to her for assistance. She was trusted for many things. That was a typical model of a good teacher in my community.

Mona also gave an example of a good teacher, who displayed leadership skills at community level,

I remember, Ntate Matete who was very much respected in my community. He held a high position in the church and therefore he was highly involved in the affairs of the church. In the community, he used to attend everything that had to do with the community, at every occasion, every scene. He would volunteer to solve problems. He was never isolated from his community. So people respected him for that. He even communicated all information about his students to the parents, because of the close contact and interaction he had with parents. So he was viewed as a good teacher and respected very much for that (Mona).

So far the responses of these two participants show that professional responsibilities of a teacher in the communities of the participants extend beyond school boundaries. In other words, the responsibilities that a teacher carries out in schools should be the same in the communities. Perhaps these attitudes could be linked to literacy levels in these communities as per some of the findings in this study. Generally, there is a low literacy level in the communities of the participants. As a result, people with low literacy in the community rely on teachers for literacy related solutions.

That many people have low literacy in the communities in which the participants' live could also be used to explain why there were some inconsistencies in the participants’ views about the influence of their communities on their professional practices. For example, in the survey results, sometimes participants indicated that their practices were influenced by these views, and sometimes the participants claimed that these views did not have impact on how they worked in
the classroom. In view of these results, such low literacy levels that are in the communities of the participants, as explained by Mona, could not have much influence on how teachers work, particularly when such teaching is based on Western education which many in the community do not have a wide experience to refer to. For example, the results indicated that the views in the local communities of what makes a good teacher are influenced by the views of students, or student performance in examinations.

iii) **Social and moral character**

Recollections of participants about their past were that their communities liked teachers who displayed good social and moral behaviour. These qualities were expected to be reflected in the behaviour of students. In other words, teachers were expected to instil good social and moral behaviour in their students and young people. It was not surprising that the participants mentioned this aspect as important in their communities given the fact that schools are church-owned in Lesotho.
SECTION 4.3: Summary

This chapter presented the views of 14 participants which were collected by this study using interviews. The chapter began first by describing the personal, educational and professional profile of six participants whose responses were used to support the results presented in this chapter. The responses of these participants were taken to be typical and representative of the views of the other 8 participants of the interviews. The views that were collected and presented in this chapter were collected through a series of three interviews. The first series of interviews collected views that described technology conditions in everyday life of participants; the second series of interviews collected views that described technology conditions in teaching and learning in the professional lives of the participants; and the third series of interviews collected views that described general teaching and learning conditions that were general teaching and learning. Therefore, these views were presented as three major sections of this chapter. These are summarised below.

Technology conditions in everyday life

These were collected in the first series of interviews in which participants were asked to describe available and accessible technology resources in their individual lives and in their communities, and how these resources were used and valued in everyday life. According to the results the participants' views on technology conditions in their everyday life are:

- technology resources available and accessible are limited;
- technology resources mostly available are limited to analogue technology such as radio, television, landline telephone, digital mobile phones, and computers to a very small scale;
- technology resources are mainly used and valued for basic communication, information access and storage, and entertainment;
- these limited and basic uses are linked to limited available and accessible resources which is also linked to:
  a. underdeveloped and poor national electricity and telecommunication infrastructure; the high cost of technology resources and facilities; low level of...
literacy that leads to limited access to the language used by technology resources;
b. general lack of knowledge and skills related to digital technology resources and that is linked to limited exposure to digital technology resources and their capabilities.

Technology conditions in teaching and learning

These views were collected in the second series of interviews. The participants were asked to describe the existing technology conditions that affected them as individual teachers and that affect their schools as organisations. These conditions included technology resources that were available and accessible, how they were used and the influencing factors. The results in this section show that the views of the participants were that:

• there is a general lack of technology resources available and accessible for teaching and learning;
• resources that are available for teaching and learning are analogue (radio and television) while digital resources were almost absent;
• limited availability and access to resources is linked to:
  – underdeveloped and poor basic infrastructure that is necessary for technology use, national and school policies on technology in education,
  – widespread lack of technology knowledge among school leadership and management, and teachers;
• available technology resources are integrated in teaching and learning mainly to support teachers’ activities such as managing teaching and learning content, and managing large classes;
• limited functions of technology integration in the teaching and learning is linked to:
  – limited access to technology resources,
  – lack of knowledge and skills that has also resulted from limited exposure to the use of technology resources in the classroom.
General conditions in teaching and learning

These views were collected in third series of interviews. They were on the general teaching conditions in the lives of the participants. They included the conditions that affected participants as individual teachers and that affect the schools in general. These conditions included interpretation of teaching and learning, available and accessible teaching and learning resources, and factors that influence the existing conditions. The views of the participants on the general teaching and learning conditions in which they work are:

• teaching is defined by teacher's activities that present information to students, while students learn by absorbing this information and reproducing it when necessary and these views are held by students, teachers, schools and the local communities of the schools;

• students' achievements in the examinations define teaching strategies and resources used in the classroom;

• schools lack infrastructure and resources that facilitate teaching and learning;

• there are no school policies that define how teaching should occur; and

• the schools are mostly situated in communities that are defined by high levels of poverty, unemployment rate, low literacy rate, and life styles that do not compliment teaching and learning that happens in the schools.

Generally, the results in this chapter indicate that, according to the participants' views how they used technology in the classroom was strongly linked to technology conditions that were in their personal landscapes, in their situational landscapes and in their socio-economic and cultural landscapes. The discussions of findings and the conclusions based on them are presented in the next chapter.
CHAPTER 6: DISCUSSION OF THE RESULTS

This study investigated teachers’ perceptions of technology in secondary schools in Lesotho. How these perceptions are influenced by professional identities of these teachers has also been investigated. Research conducted to date has shown that many technology initiatives have not been successful in schools in most of African countries; Lesotho included (Unwin, 2005; Odera, 2002). A key factor associated with the failure of these technology initiatives is their unsuitability to the current classroom conditions in African schools. Hence, conclusions drawn in some of these reports are that technology initiatives proposed for teaching and learning should be realistic to the conditions in these schools and thus, focus on enhancing existing classroom practices, rather than try to change classroom practices. However, very little is known about the current classroom practices in classrooms in these schools.

Classroom practices are, to a large extent, directed and controlled by a teacher. Therefore, understanding classroom conditions from teachers’ point of view is important and could benefit a successful change in a classroom. For example, there also an increasing belief that successful implementation of classroom projects result from teachers’ preparedness to embrace and accommodate such changes in their classroom practices; that teachers tend to embrace change if it matches their current professional views and classroom practices (cf. Labbo, 2005). This confirms that teachers are to large extent important element for the success of school projects that bring change and innovation in a classroom. Therefore, it is logical to expect that technology initiatives intended for classrooms to take into account teachers' perceptions of how they are likely to affect their professional practice. Therefore, the design and implementation of such projects should take into account factors that are influential on teachers’ professional practices and how they could be addressed so that teachers' respond positively to change.

In the case of Lesotho, there is very little information available about teachers and factors influencing their perceptions. Therefore, a study that investigates this issue is necessary. This is
why this study investigated teachers’ perceptions of technology in teaching in their profession how these perceptions are influenced by their professional identity.

It has already been established that teachers’ professional identities have a very strong influence on, and form a foundation for teachers’ perceptions of their profession (Beijaard, Veloop & Vermunt, 2000; Sachs, 1999; Connelly & Clandinin, 1988). Professional identities of teachers are largely informed and shaped by aspects found in their professional landscapes. These landscapes are personal and professional, situational, and contextual. Professional identities of teachers are not generic. They could be particular to one or a group of teachers. Hence, it is important therefore, that projects intended to introduce change in the classroom understand professional identities of a particular teacher or group of teachers for which change is intended.

In view of this explanation, it is understandable therefore that technology projects intended for schools in Lesotho have not been successful. This is because information about teachers and their professional identities in Lesotho is missing. There is also very little information on teachers’ perceptions of technology in schools in Lesotho. The purpose of this study was to investigate such information, particularly about teachers’ perceptions of technology in their profession, and how these perceptions were informed by their professional identities. Therefore, the research question for this study was: how does teacher professional identity inform teachers' perceptions of technology in teaching and learning in the secondary schools in Lesotho? For data collection this question was translated into two major questions:

- How do teachers perceive technology use in the classroom?
- What factors influence teachers’ perceptions of technology integration in the classroom?

More specifically:

- What are personal and professional factors that affect teachers' views of technology in the classroom?
- What are situational factors that affect teachers' perceptions of technology in the classroom?
- What are the socio-economic and cultural factors that influence teachers’ perceptions?
This chapter presents the answers to these questions. Thus, the chapter discusses the key findings of this study and implications for practice, further outlining how this study could inform future technology initiatives in Lesotho and other countries. In addition, the chapter states the limitations of this study and recommends areas for further research on teachers’ professional identities in Lesotho.

SECTION 1: Key Findings

The key findings in this section include participants’ perceptions of technology in teaching and learning the secondary schools in Lesotho and how these perceptions were informed by aspects that defined personal and professional landscape, situational landscape and contextual landscape. These are presented in turn.

SECTION 1.1: Participants’ perceptions of technology in teaching and learning

The key findings in this section include participants’ views on the importance, access and uses of technology in their personal and professional lives. First the section describes teachers’ perceptions of technology in their personal and professional lives as individuals. Thereafter, aspects of teacher professional identity which influence these perceptions are discussed.

1) Participants’ perceptions of technology in the personal life lives

The study found that the perceptions of a sample of student teachers who participated in this study were that technology, particularly digital technology, plays an important role in the everyday and business activities of contemporary societies. They also pointed out that technology is a progressive agent in how modern societies think and do things. Referring specifically to their own personal lives, the participants believed that digital technology resources were important for communication, information access and recreational activities. They explained that these technology resources continue to make communication and information access easier, and provide more diverse ways of entertainment than before. The
participants were also of the view that although technology has not yet influenced most aspects of their everyday lives, they believed it would eventually become dominant in their everyday activities as it has with people in other communities. As a result, their aspirations were to acquire knowledge and skills that prepare them for when the time comes. In particular, they would like to gain knowledge and develop skills related to digital technology resources currently in the market so that they can exploit their capabilities.

In regard to technology uses in their personal lives, the participants showed that there were resources such as radio, television and mobile phones, which were used mainly for basic functions such as information access, communication and entertainment. Radio and television were used to access local and global current affairs and for entertainment such as drama, movies and music; landline and mobile phones were valued for communication; and computers and Internet were less available and used in a limited way for their current university studies, in which the uses were also limited to word processing and using Internet for information search for assessment tasks.

2) Participants’ perceptions of technology in their professional lives

In relation to their professional lives, participants believed technology is important for education in modern societies, and could benefit teaching and learning activities. They indicated that where accessible and used in the classrooms digital technology resources make classroom activities such as managing and presenting content to students easy. Consequently, the professional aspirations of these participants were to acquire knowledge and skills that would enable them to use technology to support their current professional practices which present information to students. Participants also indicated that they believed it was important for their students to have access to and use technology in their learning activities. They view was such access would enable their students to search online for information that supplement learning content delivered during teaching.

However, participants’ perceptions were that technology use in their professional lives was also limited. They indicated that they rarely integrated technologies (analogue or digital) in teaching
and learning. From their viewpoint, their teaching relied mostly on the use of blackboards, flipcharts, and textbooks. Occasionaly, they integrated analogue technologies such as overhead projectors, slide projectors, film projectors, or audio and videotapes to support teaching strategies such as lectures, demonstrations, discussions and question and answer methods, particularly in the history, literature and geography classes.

SECTION 1.2: Aspects of professional identity which influenced teachers’ perceptions

A combination of aspects of professional identity which appeared to inform teachers’ perceptions of technology in their profession included those which were in their personal and professional landscapes, situational landscape, and contextual landscape.

1) Aspects of personal and professional landscapes which influenced participants’ perceptions

Participants’ limited exposure to technology and the general lack of knowledge, and beliefs on teaching and learning appeared to be key aspects which appeared influential on teachers’ perceptions of technology in their profession.

The results indicate that participants had limited exposure to technology resources in their individual social and professional lives. In the early days of their lives, most of participants were exposed to radio only. There were some who did not have any technology exposure at all until when they were in the primary and secondary education. Most of participants did not know about other technology resources such as television and landline telephones until late in their secondary education, or even later when they were at teacher training college. Many participants could remember only few occasions in which technology was integrated in their learning activities. Also, the most frequently used technology was commercial films based on the literature, history and religion textbooks. Even when they were in college teacher training, exposure to technology was also relatively limited because:

• college tutors integrated technology in their practices in a very limited way;
• teacher education curriculum had a very small component on technology integration which:
  – was delivered as theory and provided no opportunity to the student teachers for practice;
  – emphasized integration strategy that supported teacher’s activities such as presenting content to students;
  – mostly referred to technology resources which were unfamiliar to student teachers. Hence student teachers viewed this component irrelevant and paid very little attention to the content.

The limited exposure during primary and secondary education and in their professional life the participants had to technology resources and their uses in their social setting, seemed to have contributed to their limited technology knowledge and skills. Because of the limited exposure, these participants appeared not to have adequate knowledge and skills fundamental for integrating technology in the classroom. Also, the limited technology exposure they had during school education and teacher training emphasised technology integration which supported teacher’s activities to deliver teaching content. This exposure appeared to have influenced participants’ perceptions of how technology should be used in teaching and learning. Therefore, it was no surprise that the perceptions of all of the participants, who indicated that they occasionally integrated technology in classroom, were that technology should be used to support teacher’s delivery of teaching content. The results also revealed that participants’ lack of knowledge of other models of technology integration. Their knowledge appeared to be limited to integration strategies that supported learning content delivered to student by a teacher. This was further exemplified in the response of one participant who indicated that because they had never seen radio integrated in the teaching of Business Education, they were not using this technology even though it was available in their schools. This response indicates how the limited exposure these participants had to other technology integration strategies had resulted in lack of innovativeness when they thought of technology integration in their teaching.
Participants’ lack of involvement in in-service training activities related to the integration of technology in the classroom appeared also influential on their perceptions of how technology could be integrated to enhance teaching and learning. These perceptions demonstrated lack of imagination and creativity as they indicated in their responses that technology could only be used to support teachers’ activities which deliver learning content to student. Hence, not engaging in professional development activities has denied them exposure to other technology integration strategies. Teachers’ lack of engagement in professional development has also been observed by Oplatka (2007), that after pre-service training, teachers in Lesotho and other African countries rarely engage in professional development activities. As a result, these teachers end up being oblivious of new developments in education since their training. This finding, therefore, explains to a large extent, why the participants’ perceptions in this study demonstrated limited knowledge about digital technology resources that are used in teaching and learning. This finding also affirms that the participants’ current perceptions of technology in teaching and learning were mainly informed by their past experiences as students and student teachers at the college, which had very limited technology exposure.

In view of these results, personal and professional aspects of teacher professional identity which influenced participants’ perceptions were their limited knowledge about technology resources and their capabilities in teaching and learning. This lack of knowledge seems to have resulted from their educational and teacher training experiences which rarely integrated technology in teaching and learning activities, and which in turn, limited participants’ exposure to technology resources and their uses in teaching and learning. Even, their perception that technology resources should support teachers’ classroom activities which present learning content to student seem to be informed by their past classroom experiences as students, in which technology was used on few occasions to support teachers activities. Also, when in training, technology was integrated in their education in a similar fashion as when they were in schools as students. Further as professionals they had never been engaged in the in-service professional development programs that promoted their professional technology knowledge and skills.
Relating these views to teacher professional identity, the results show that some aspects in the personal and professional landscapes of teachers in Lesotho were influential on how they viewed technology in their profession. These aspects included lack of technology knowledge and skills which is a result of their educational and training background that lacked technology integration, and lack of involvement in training programs that intend to promote technology in their teaching and learning in Lesotho.

The results also show that there was a link between how participants thought about teaching and learning and how they perceived technology in teaching and learning. The participants described teaching as a process whereby a teacher presents learning content to students with the expectation that students would receive and retain in their memory, and later reproduce when required to do so. As a result, from the viewpoint of the participants, it was important that students learned about facts in their subject areas. These views about what was important in their professional practice were also similar to those found in the previous studies (Oplatka, 2007). Hence, the participants’ perception of how technology should be integrated in teaching and learning was linked to their perception of effective teaching. In their explanation participants indicated that they considered the main value of technology and other learning resources as to present learning content using multiple forms of media which communicate information in multiple channels. In their view, this integration strategy enhances learner absorption, retention and retrieval of information. Therefore, they preferred teaching strategies and resources that enhanced learners’ absorption and retention of information presented during teaching. These teaching strategies included lectures, demonstrations, discussions and questions and answer methods. Hence, they perceived integration of technology resources such as overhead projectors, audio and video tapes, and films potentially important in their teaching. The results also show that in the absence of these resources, the participants mostly relied on textbooks, blackboards and flipcharts to support content presentation.

Participants’ perceptions of teaching and learning and use of technology and other resources appeared consistent with the learning theory of information processing. This theory asserts that in the teaching and learning process, learners actively synthesize and store the new knowledge.
while it is being presented. During this process, the learner integrates the new knowledge with that already stored in long-term memory (Newby, Stepich, Lehman, & Russell, 2006). Thus, teaching and learning based on information processing theory emphasizes the importance of learners’ cognitive process and the critical role memory plays to assist learners to translate new information in the form that they can remember and use. Therefore, a deliberate effort to assist the learner to execute this process is important in this theory. That is why teaching and learning activities based on the information processing theory emphasize the organization and delivery of the learning content in such a way that learners are able to link what is new to what they already know.

Participants’ explanation of why they integrate technology in their teaching also matched the goals and strategies suggested by information processing theory. For example, teaching based on the information processing theory of learning often uses technology and other learning resources for two main purposes: to motivate and capture students’ attention, and to present learning content in the multiple forms of media such as audio and visuals (text and graphics) to assist learner's assimilation and retention of information. This strategy is known as dual-coding. Dual-coding theory states that people have different systems in their short-term memory to process visual and verbal media. Thus combining visual media can lead to more efficient learning (Paivio, 1971, 1986; Clark and Paivio, 1991).

Based on this explanation of learning theories of information processing and of dual-coding, participants’ interpretation of teaching, and descriptions of their professional practices suggest that participants' practices were largely formed by these theories. Further and as the results indicate, this view also informed their way of thinking about technology in the classroom. As it appears, their perceptions of teaching and learning were that: teaching is teacher-centred; teachers deliver information to students who student receive, store and retrieve it when required to do so. It is clear then, from these results, that technology projects that are based on the constructivism theory or other learner-centred theories are likely to conflict with the existing beliefs of these teachers.
2) Aspects of situational landscape of professional identity which influenced participants’ perceptions

Some of the aspects of situational landscape that appeared to influence participants’ perceptions of technology in their profession were related to schools as organizations. This study found that teachers’ perceptions were that it was difficult to integrate technology in their teaching because their schools lacked teaching and learning facilities and resources, leadership expertise and support and there were no guidelines in their schools on teaching and learning with technology.

The results show that participants’ perceptions were that even without mentioning technology it was already difficult to teach in schools in Lesotho because they lacked basic resources necessary for teaching and learning. Some of the outstanding problems relating to poor facilities and resources cited by the participants included:

- acute lack of basic teaching and learning resources such as classrooms, student desks, blackboards and textbooks;
- large and overcrowded classes due to shortage in staffing and resources;
- lack of electricity and heating and cooling systems in the classrooms;
- teachers who have heavy teaching loads and thus are overworked;

Given these conditions in the schools, participants’ viewpoint was that technology integration in teaching and learning was not a priority in their profession. The general concern expressed among participants was improvement of basic teaching facilities and resources that could provide basic teaching. Hence, the debate on how technology could be used in the classrooms was premature. This finding illustrate that participants’ perceptions did not value technology because of lack of basic resources required for basic teaching and learning activities. From the point of view of the participants, it was not important to be thinking about technology when there was a shortage of basic teaching resources. This view that failed to perceive technology as a possible solution to some of the problems they listed was found interesting. For example, one of the benefits of digital technology resources, as demonstrated in Chapter 2, is that they make learning accessible and flexible. They also provide access to vast amount of free online resources. Yet,
the participants failed to see technology as a solution to some of the problems they cited. This is a further demonstrated how lack of knowledge has shaped their thinking of technology.

The results also indicate that participants’ perceptions of technology in their profession were also shaped by lack of leadership and role models in schools in Lesotho. According to these results, leadership and management type found in schools in Lesotho lack technology knowledge and skills. Therefore, this has affected technology conditions in this environment in many ways:

- there is no one to lead teachers on or role model how technology could be used in teaching and learning;
- schools lack policies that guide and encourage teachers to use technology in teaching and learning. As a result, teachers do not feel any pressure to integrated technology in their teaching. This policy vacuum then suggests to teachers that technology was not important in their teaching.
- School leadership and management have been acquiring some technology resources, without a clear goal of how they would be used in teaching and learning. Hence, most of these resources are locked away and teachers are required to negotiate with those in the management team when they need to use them. This arrangement appeared not favoured by teachers. Their view was that first by looking these resources away was an indication that they were not viewed important for teaching by school management. Therefore, they did not find it necessary to go through this trouble if technology was not valued by the management. Participants were also of the view that this arrangement wasted of their time and added frustrations to their practice.
- Participants also perceived that school leadership and management lack of knowledge of how technology could be used in teaching and learning had also created fear among those occupying management positions, that bringing technology in the classroom would empower teachers and this could result in management losing control they have on teachers. This view was considered particularly notable because sometimes teachers themselves are reported to be resistant to technology for the fear of losing the power they have over their students (Sherry & Gibson, 2002).
These results indicate that in Lesotho schools there is lack of knowledge about technology. Therefore, there are no role models or leadership who use of technology or could support teachers to use technology. Also schools do not have policies that guide technology use in teaching and learning. Further, technology facilities and resources are acquired haphazardly, and without a clear vision of how they would be used; and therefore, teachers do not feel obliged to use these resources in their teaching. Those who may be motivated to integrate technology in their teaching, they usually end up frustrated by the current technology setup in their schools which technology resources available in their schools inaccessible.

3) Aspects of contextual landscape which influenced teachers’ perceptions of technology

Other aspects of teacher professional identity that appeared to influence participants’ perceptions of their profession were in the contextual. They were socio-economic and cultural conditions that existed in the local communities in which schools are located and participants live. For example, the participants’ perceptions were that schools were not entirely responsible for technology conditions found in their classrooms. The conditions of infrastructure and facilities in the local communities were unfavourable for schools to pull technology resources into their internal environments. They also indicated other aspects such as views on teaching and learning in the local communities were also influential on the availability and uses of technology resources in schools.

Participants’ perceptions were that technology infrastructure and resources were underdeveloped and poorly maintained in the local communities of schools and at national level in Lesotho, resulting in a reduced incentive for schools to adopt technology for classroom use. Participants' descriptions provided a vivid picture of infrastructure that was inconsistent and irregular, with communities in the urban and some peri-urban areas which had relatively improved and better infrastructure and resources, compared to those in the rural and other peri-urban areas which resources were absent or severely underdeveloped.

From participants’ explanations, it was evident that many schools in Lesotho were located in communities without adequate technology infrastructure such as electricity and telephone lines.
These perceptions are supported by ICT Development Index report (ITU, 2009) which shows that a very small percentage of the population has fixed telephone lines (2.9% of inhabitants); only a small proportion of households have computers (6.8%) or the Internet (0.9%); and fixed-line broadband subscriptions are only accessible to 0.1% of population. The results of this study also indicate that participants were of the view that access to technology infrastructures was mostly accessible in the urban communities. Therefore, if schools do inherit technology conditions of their local environments, this then suggests that many schools outside the urban areas in Lesotho do not have access to technology infrastructure. Also, as viewed by the participants of this study, the scarcity and poor conditions of technology infrastructure and resources in the local communities have also resulted in these infrastructures and resources being expensive for schools to acquire. Consequently, this limited availability in the schools has resulted in teachers’ limited technology use for classroom use.

Limited access of technology facilities and resources in the local communities influence teachers’ professional practice in this way: there is no push from local communities that teachers integrate technology in the education of their children. For example, according to participants’ perceptions not many people in their local communities knew about technology resources and their benefits in education. Therefore, there were shortage of people in their communities who could influence and lead teachers to use technology in schools. In their view, lack of technology push in teaching and learning from their local communities, or technology pull by school administrators was due to lack of general lack of knowledge that shared among teachers, in the schools and the local communities about these resources. Therefore, accordingly, there was no leadership or role models in the local communities, who could lead and guide teachers to use technology in their teaching.

Participants were also of the view that the absence of national policy on education, and that include guidelines on the integration of technology teaching and learning was also a testimony that there was a profound lack of technology appreciation in teaching and learning in their communities. As a result, this has left schools and teachers in disarray and unprepared to embrace technology when it is introduced by technology projects from outside Lesotho. From
their viewpoint, participants believed Lesotho educational system lacked clear national objectives to guide schools on the type of graduates they should develop; as a result, schools were using national curriculum and church ethos to guide their programs. The participants indicated that they believed therefore, that it was important to school owners, and managers as overseers of schools that teaching is aligned with the national curriculum and subject syllabi. Because of these expectations, participants indicated that is why subject syllabi, prescribed textbooks and past examination questions were important documents in teaching in Lesotho. This view was also reflected in the participants’ responses about their interpretation of successful teaching, which indicated that teachers' interpretation of successful teaching was when teachers had covered all the topics prescribed in a subject syllabus and textbook before students could take their national examinations. Similarly they described successful learning as students’ good performance in these examinations. Teaching that is based on the national curriculum, subject syllabus in the educational systems in schools in developing countries has also been observed by Oplatka (2007). The results in this study indicate that this type of teaching is viewed important by teachers and school leadership and in the local communities in Lesotho. As a result, this puts a great pressure to individual teachers to align their teaching with this view. It is also logical that participants' perceptions were that technology resources should be used to support this type of teaching.

In view of technology use, participants indicated that, the curriculum and syllabus they were aligning their teaching practices with did not integrate technology, except where technology was a taught subject such as computer literacy or computer studies. Even, the prescribed textbooks also lacked technology integration. Therefore, in their view, this made technology use not very important in their teaching profession except where it was used to support teaching and learning as suggested in a curriculum, syllabus and a textbook. They were of the view that because technology integration was not in the curriculum and in the textbooks, it was not in their mandate to use in their practices.

The results in this section indicated that there are aspects of professional identities of teachers that influence their perceptions of technology in their teaching. Particularly, the results have
demonstrated that lack of technology knowledge and skills by teachers, in the schools in which teachers work, and in the local communities in which schools are located had influence on how teachers perceived technology. Scarcity of access to resources and facilities in the various professional landscapes of teachers has also limited teachers' exposure to technology had limited their imagination of how it could benefit their teaching. The perceptions of teachers’ role in education among teachers, in the school and in the local communities also appear to have influenced participants’ perceptions of technology in teaching and learning.

SECTION 2: Conclusions and implications

Participants’ perceptions of teaching with technology in Lesotho secondary schools have been presented. The results have demonstrated how these perceptions were influenced by their professional identities. Aspects of teacher professional identities that appeared to be influential on participants’ perceptions of technology in teaching and learning were in the (i) personal and professional landscapes, (ii) situational landscape and (iii) contextual landscape.

Participants’ perceptions of technology in schools in Lesotho were that technology use in teaching and learning was very limited. These perceptions also suggested that when technology was used, teachers used mainly to support teaching activities that delivered learning content to students.

Personal and professional landscapes were influential to teachers’ perceptions of technology

Aspects of teachers’ personal and professional landscapes which this study found influential on teachers’ perceptions of technology in teaching and learning in Lesotho included:

- Technology resources which have been limited in availability and not easy to access in the personal and professional lives of individual teachers. Therefore, teachers had limited exposure to various technology resources, and as a result, lacked personal and professional technology knowledge and skills which they could transfer to classroom. This limited basic technology knowledge was demonstrated by participants’ perceptions
of benefits of digital technology in teaching and learning. From their perceptions, the only benefit they knew of digital technology resources in teaching and learning was to project and playback learning content to students. This integration strategy appeared to have been used in their school education and when they were in training.

• Participants’ view that digital technologies should be used to project and playback information to students also appeared to have also been informed by their personal and professional beliefs about teaching and learning. These views perceive teaching as an act of presenting learning content to students by a teacher, while successful learning is measured by students’ ability to receive, store and retrieve this information when required;

• Exposure and orientation to technology use in teaching and learning was another personal and professional aspect of teacher professional identity which appeared to be supportive of teachers’ perceptions of how technology should be used in teaching and learning. Teachers’ interaction with technology was limited from their childhood, through their school education, and into their adult and professional lives. Their exposure to technology in childhood and during school was limited to radio, television and landline telephones, which were used by their teachers mainly to support teaching activities and for entertainment. When they were in pre-service training at college, teacher educators also used technology to support teaching activities. Furthermore, at college, technology component, which was in teacher education curriculum, was more theoretical than practical and emphasized technology as a tool that supports teachers’ activities in the classroom. This limited preparation for integrating technology, coupled with a lack of participation in in-service professional activities that focus on technology, has resulted in teachers in Lesotho schools with limited knowledge about how technology could be used in their professional practice.

Therefore, how teachers are exposed to technology in their social, educational and professional lives seem to contribute to their perceptions of technology use in their profession. For example, As a result of limited exposure to technology, teachers in Lesotho lacked fundamental knowledge about various types of digital technologies and how they could be integrated effectively in their profession.
This brings up an argument that before supplying software and hardware to schools in Lesotho and similar countries, technology projects should engage teachers and other stakeholders of education in in-service training activities that provide broad and basic technology knowledge, skills and understanding of technology in teaching and learning. It may also be important that initial training first introduces integration strategies which align with current teachers’ perceptions of teaching and learning. This is to convince teachers that: technology improves teaching; it is effective; and it can do more if explored. For example, Labbo (2005) indicates that teachers are receptive of and turn to embrace change if it aligns with their practices and fits in their zones of proximal comfort.

**Situational landscape was influential on teachers’ perceptions of technology**

There are also influential aspects of professional identity that were at school level (school as teachers’ workplace) and were situational to teachers’ work. They were also influential on how teachers perceived technology in their professional practices in schools in Lesotho. They include:

1) acute lack of basic teaching and learning resources such as classroom buildings, blackboards and textbooks, and students desks. Hence teachers’ perceptions were that technology was not a priory in their profession;

2) large and overcrowded classes that make teaching methods other than those that are teacher-centred very challenging;

3) limited technology facilities and resources that are immediately available to teachers when they need to use them; teachers were also of the view that technology resources were not easily accessible in their schools because they were not viewed important by school leadership for teaching;

4) teachers who are overloaded with tight schedules that allow very little time to prepare and organize for teaching and learning;

5) lack of leadership and guidance for technology integration in their schools did not encourage teachers to think about technology in their practices. In their view, their school managements and leaderships lack knowledge about technology in teaching and learning and as a result they were not able to put pressure on teachers, role model, or provide
leadership and support to teachers who aspired to integrate technology in their practices (Farrell, Isaacs, & Trucano, 2007; Molenda, 1996).

Participants’ view was that any teacher working in an environment that is characterised by these conditions would not consider teaching with technology as a priority in their professional practices. They indicated that their job was difficult and frustrated by facilities and resources which were limited for successful basic teaching and learning. Therefore, many would like these conditions to be improved first even before they could start thinking of using technology in teaching and learning could be discussed.

**Contextual landscape was influential on teachers’ perceptions of technology**

The results in this study also link participants’ perceptions with contextual environment of the schools in Lesotho. They indicate that technology infrastructure, facilities and resources in the local communities of schools in Lesotho are underdeveloped, poorly maintained and costly for schools to bring in the classroom. Because of these technology conditions in these contexts there was a prevailing lack of technology knowledge and use in the local communities of the schools. Members of the communities (which teachers, and school leadership and managements are part of) lack knowledge about technology in teaching and learning. Therefore, they have not yet placed value on technology in education. Therefore, national policy and curriculum which teachers are expected to use as their guidelines lacked technology integration. In fact, there was no policy in Lesotho on education or on technology in education which teachers could use to guide their professional activities. Therefore, that this technology integration was missing in these documents, teachers’ perceptions were that technology was not important in teaching in schools in Lesotho.

The perceptions that were also held in the local communities and shared with schools and with teachers as individual also appear to have influence how teachers think of technology in teaching and learning. All these groups view teaching as transmission of knowledge by a teacher to students. Therefore, it is important that teachers align their perceptions of technology integration with this view.
Limited technology infrastructure and resources that are in the local communities of the schools and which teachers live is also linked to how teachers perceive technology in schools in Lesotho. This technology scarcity has failed to have a recognisable influence on communities’ perceptions of technology role in the modern life. Hence, these communities still manage their everyday activities with bare and minimal use of technology. These perceptions also translate in the workplace of teachers. School leaders, teachers and students still view the role of technology in teaching and learning in a minimal way. Therefore, contextual landscape of professional identities of teachers in Lesotho appear to be influential on how teachers perceive technology in teaching and learning in schools in Lesotho.

**SECTION 3: Limitations**

The limitations of this study are in the selection of participants and research methods used to collect data. The participants in this study were recruited from a cohort of teachers who were upgrading college certificate and diploma teaching qualifications to university undergraduate degrees in the Faculty of Education at the National University of Lesotho. First, this cohort of teachers (500) comprised approximately 14 percent of the population of 3,470 teachers in the secondary schools in Lesotho (World Bank Report, 2005). Other cohorts of teachers were not included in this study. This approach has narrowed the scope of this study. Further, of the targeted group, only 31 percent participated in the survey, which corresponds to 4.5 percent of the total secondary teacher population in Lesotho. This is too small to be considered representative of the population. Hence, the results of this study are to be interpreted with this in mind. A study using a large sample that is inclusive of all cohorts of teachers of secondary teachers in Lesotho is necessary.

It is also acknowledged that, because those who participated in this study were temporarily removed from the classroom by their engagement in their studies, their views about classroom practices in Lesotho could have differed from the views of teachers who were teaching at the time. For example, some teachers had been out of classroom for more four years. Thus, research
that investigates the views of teachers who are in their natural setting, the classroom, is necessary.

Another limitation of this study is in the research methods that were used to collect data. Data for this study were collected through survey and interviews. That is, the study depended entirely on teachers' self-reporting of their perceptions. Research methods that observed teachers in practice and the conditions in which these practices occur were not used. Therefore, similar studies, but that use these methods are necessary. These studies could include methods which:

- Take stock of technology resources and uses in teachers’ everyday life;
- Test technology knowledge of teachers, students, school leaders and in the communities;
- Review national and school documents on technology integration;
- Observe technology use by different groups in the schools;
- Take stock of technology resources in the schools;
- Take stock of teachers’ technology uses in teaching and learning;
- Investigate perceptions of school leaders and managers on teachers’ use of technology;
- Investigate perceptions of students in the secondary education on their teachers’ use of technology;

SECTION 4: Recommendations for further research

The results of this study have raised some issues about technology, which need further actions in the area of research and training in Lesotho, such issues include:

- Investigating current teaching and learning practices in Lesotho;
- Reviewing evaluating technology projects in schools in Lesotho;
- Taking stock of technology facilities and resources available and accessible in schools, and investigating how they are managed and used. This knowledge could also be useful in the design and implementation of training programs for various groups in schools, particularly teachers and those in management position.
• investigating teachers' involvement in professional development activities on teaching and learning in Lesotho and other developing countries. This information is also important because, as the results have indicated, teachers’ engagement in the professional development activities emerged as one of the reasons responsible for teachers’ limited knowledge about technology integration in the classroom.

SECTION 5: Summary of key findings

The key findings of this study are that aspects of landscapes of teacher professional identity in Lesotho are influential on teachers’ perceptions which only value technology use in teaching and learning other to support teachers’ activities. These landscapes of professional identities are characterized by:

• teachers' limited exposure to technology facilities and resources;
• teachers' limited access to the available technology facilities and resources;
• teachers' limited knowledge about uses of technology resources, particularly in teaching and learning environment;
• lack of participation in technology related in-service professional development activities for teachers, school managers and leadership;
• absence of good national technology infrastructure that could enhance availability and uses of technology resources;
• general national poverty that limits governments and schools to initiate and maintain technology projects in schools;
• lack of basic classroom resources meaning that technology is not a high priority for schools;
• views reflected in the national curriculum documents and examinations, and the general culture in schools that teaching is about transmitting knowledge to students and learning is when students are able to absorb, retain and recall delivered information.

Given the conditions that are in the landscapes of professional identities of teachers in Lesotho, there is a need to improve some of the aspects of teachers’ professional landscapes to encourage
teachers to use technology in their professional practice. This improvement could be achieved particularly by improving teachers’ knowledge and skills through exposure and training. It is believed that with adequate knowledge and skills, teachers could influence some aspects of professional identity in their situational landscape and contextual landscape.
APPENDIX I: A brief description of socio-economic conditions, education and pathway to teaching in Lesotho

It has become a cliché for many research reports or studies done in Lesotho to introduce “Lesotho [as] a small country with an area of about 30,355 sq. km, a population of about 2 million, limited resources, and completely surrounded by South Africa” (for example, see World Bank, 2005; Wison, Maapetla, & Power-Drutis, 2008). The importance of this statement is that succinctly gives a picture of geographical and political landscapes of Lesotho, which have greatly influenced the socio-economic and cultural landscapes in Lesotho.

Topography
The mountains in the eastern part of Lesotho occupy two thirds of the country. Before, it become a protectorate of Britain (1868-1966) Lesotho engaged in recurrent wars with the Boers, that trapped Basotho in the mountains and lose of most of the land which is now forms part of modern South Africa (Eldredge, 2002). Although, the then British government reclaimed some of the land back, most of Lesotho land that was fertile and arable was forever lost. As a result, only less than 10 percent of the land is suitable for crop cultivation. The modern Lesotho has four distinctive the ecological features that have accordingly shaped the socio-economic lives of their inhabitants.

The Highlands region
As the name implies, the Highlands region is about 2,300 metres above the sea level and has high mountains, deep valleys and gorges. It is the coldest region in the country and sparsely populated, with people living in small villages. It is not uncommon to find villages with less than ten households. Infrastructure roads, electricity and communication networks, and social welfare services are poor and almost absent. Most of the inhabitants here depend on subsistence farming for a living. Because of the poor farming conditions resulting from poor soil texture harsh cold weathers, farm yields are low and most of households live below poverty line. Otherwise, the
households depend on the remittances from the relatives working mainly in South Africa and in the small towns in the Lowlands.

Education infrastructure is the poorest in the country, and there are not many schools in this region. Most students walk long distances between their homes and the schools every day. Some have to leave their homes to stay in the communities with close proximity to schools. The schools in this region are in poor conditions that are characterized mostly by lack of teaching and learning resources.

The Foothills region
The Foothills region lies between the Highlands and the Lowlands, at an average height of 2,000 metres above sea level. Living conditions in this region are less harsh than in the Highlands: the terrain is less hostile, the temperatures are warmer, and the soil is more fertile. As a result, villages are larger and there are more human activities. However, even in this region households depend on farming and remittances from working relatives, mainly in South Africa and in the urban areas in Lesotho. Infrastructure and social welfare services are still very basic but better compared to the Highlands region. Road, electricity and telecommunication networks and health facilities are rudimentary and poorly developed. Schools are also relatively bigger, in better condition, and are easier to access by students.

The Senqu Valley
The Senqu Valley is in the south of Lesotho along the Senqu River, the largest river in Lesotho. This region has some similarities with both the Highlands and Foothills regions.

The Lowlands
The lowlands are located in the western part of the country, at about 1,500 metres above sea level. It is a home to the largest portion of the population in the country (according to 2009 statistics Lesotho has a population of about two million). Human services, such as health and education are more advanced than in any of the other regions and, are more easily accessible. There are more income earning activities than in the other two regions, and the largest proportion
of the labour market of the country is located in this region. Schools are large, relatively in good condition and easily accessible.

**Economy**

Lesotho is one of the poorest countries in the world and based on the Human Index, it ranks 141 out of 177 countries (UNDP, 2010). It has very limited natural resources. Hence, it appears that much of the poverty in this country is the result of lack of resources and employment opportunities. Most of the households (86%) in Lesotho live on substance farming, of which its annual yields are not enough to feed the household until the next harvest. As a result, about 49 percent of the total households in Lesotho live below poverty line.

*National sources of revenue and services*

Lesotho trades mostly with South Africa, which accounts for 90 percent of its imports and 65 percent of its exports (World Bank, 2006). There is small manufacturing sector and dominated by the textile industries. Most private businesses are owned by foreign companies (World Bank; 2005). Lesotho’s economy relies heavily on royalties from Lesotho Highlands Water Project, revenue from the *Southern African Customs Union (SACU)*, the remittances from Basotho migrant workers in South Africa, and foreign aid (World Bank, 2005).

Lesotho depends heavily on the Republic of South Africa for imports and some of the services such as medical and education and employment. For example, a large number of Basotho cross the border into South Africa on daily basis for jobs, shopping or for medical treatment. In addition, there is also a significant number that access primary, secondary and post-secondary education in South Africa.

**Employment**

The employment rate in Lesotho is about 55 percent. This includes those employed by the government in the public service and in other sectors such as health and education, and the 14 percent in the manufacturing sector and other service (CIA, 2010). There is also a 35 percent of male population that work in the South African mines. According to Lesotho Bureau of Statistics, in 1996 over 100 thousand unskilled Basotho were employed as miners in South
Africa. This number has since fallen to 55 thousand in 2008 due to the restructuring of the mines and the new political dispensation in South Africa\textsuperscript{13}. There is also a significant number of unreported Basotho men and women who work as farm labourers and domestic servants in South Africa. In fact, the economy of Lesotho relies significantly on the remittances of the migrant workers, which constitute approximately 25 percent of GDP of the country and also an important proportion of income of households of the migrants. Lesotho has the third highest level of remittances as a proportion of GDP after Tonga and Moldova.\textsuperscript{14}

**National infrastructure**

Like in other developing countries, infrastructure in Lesotho is rudimentary, underdeveloped and poorly maintained (CIA, 2011).

**Roads**

There are few tarred roads, with many towns and villages served by gravel or dirt roads, most of which are in poor conditions. People depend on buses and mini buses mostly for transport. However, in some areas, because of the developed or poorly maintained roads, particularly in the highlands and foothills, people use on horses and donkeys as mode of transport.

**Electricity**

Very few households (14\%) have access to electricity in Lesotho. Even, the Household Budget Surveyor 2002/03 showed that this access is primarily concentrated in the lowlands, as only 1 percent is in the rural areas. Further, this survey also shows that of those that have access to electricity, only 11 percent has reliable access. The households that do not have access to electricity mostly rely on kerosene or wood for heating and cooking.

\textsuperscript{13} Lesotho Bureau of Statistics (2009)
\textsuperscript{14} World Bank (2006)
Telecommunications and Media and information technology

Information and communication technology infrastructure is as poorly developed as the road and electricity networks in Lesotho. The telephone system is rudimentary and as it is in much of Africa, more people in Lesotho depend on cellular (mobile) phones than landline telephones. The potential subscribers for landline telephones have been deterred by the high connection fees, connection delay and poor maintenance (World Bank, 2009).

Most people depend on the radio, television and to a less extent newspapers for media needs. Newspapers and televisions are mostly used in the urban and peri-urban areas whereas in rural areas, people depend mostly on the radio. However there are some parts of the country, particularly in the Highlands, where people cannot access radio signals. In the Lowlands the use of computers and the Internet is on the increase.

Radio: Radio is the most readily accessible and commonly used technology in Lesotho. Most households have a radio. For a long time there has been only one radio station in the country, Radio Lesotho. Recently, however, few private local radio stations have emerged. Most people in Lesotho listen to Radio Lesotho and the new local stations for local news. For international news and programs, many radio users prefer South African radio stations and BBC.

Television: Television (TV) is not well developed in Lesotho. Most of TV subscribers in Lesotho watch South African channels. TV Lesotho was established as a response to the media demands in 1988 when Pope John Paul II visited Lesotho. It was a collaboration of the government of Lesotho with the South African Pay-TV producer, M-Net. TV Lesotho currently provides three hours of programs per day, from 7 – 10 PM daily.

16 Personal communications with Computer Services Unit of the National University of Lesotho
Computers and Internet: The use of computers and the Internet is beginning to emerge in Lesotho, particularly in the Lowlands (UN, 2010). However, mostly the use of Internet and computers is the industry, public service and tertiary institutions. Thus, very few people have Internet and computers in their homes (see Table 0.1)\textsuperscript{18}

*Table 6.1: Access to Information and communication technology indicators in Lesotho Form 2000 – 2009*

<table>
<thead>
<tr>
<th>Population:</th>
<th>1,919,552</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephones - mobile cellular</td>
<td>65,200 (2008)</td>
</tr>
<tr>
<td>Radio broadcast stations</td>
<td>581,000 (2008)</td>
</tr>
<tr>
<td>Television broadcast stations</td>
<td>AM 1, FM 3, shortwave 1(2007)</td>
</tr>
<tr>
<td>Telephones - main lines in use</td>
<td>65,200 (2008)</td>
</tr>
<tr>
<td>Internet hosts:</td>
<td>127 (2009)</td>
</tr>
<tr>
<td>Internet users:</td>
<td>73,300 (2008)</td>
</tr>
</tbody>
</table>

**Education**

**Literacy**

Lesotho uses a universal definition of literacy, which is being able to write at the age of 15 and over. In 2009, the literacy rate in Lesotho was recorded as 85 percent of the entire population, with of 95 percent of female population and 75 percent of male population. The pattern of higher rate of literacy in the female population than in the male population is the reverse of that found in other African countries. In these countries, literacy rate is usually higher in the male population than in the female population.

In Lesotho, this pattern could be the results of cultural practices that expect male children of household welfare at a very young age. For example, it is common that at school age male children from poor families are given a responsibility take care of the economic needs of the households such as minding livestock and working in the fields. Where the families do not have

livestock or fields, such children are forced to work for others as in return for a small pay. This cultural expectation from the male children in the family has resulted in the boys leaving school early to mind family wealth or search for employment opportunities that do not require and any specialised skill or level of education. Also, the cultural practices have also put girls on the more advantageous position to access education than it does with boys. For example, culturally, girls have been viewed important in the investment for the household wealth because of the dowry that is paid by the groom’s family when they marry. As a result, among other things, the educational level of the girl counts in the amount of dowry negotiated during the marriage process. Therefore, this has acted as an incentive for parents to focus more on the education of the female than male children.

School ownership

The government has been in partnership with the churches in the provision of primary and secondary education in Lesotho for a long time. Churches, as pioneers of education in Lesotho, own a large number of primary and secondary schools in Lesotho. The government owns a very small proportion of number of schools. In 2004 out of 1476 primary schools and 264 secondary schools, only 136 primary schools (9 percent) and 31 secondary schools (12 percent) were owned by the government of Lesotho (the World Bank, 2005). However, the government has started building more schools since the Free Primary Education initiative that began in 2000. There are also an insignificant number of schools owned by communities and private individuals.

Before, the role of the government in the educational partnership with churches has been to provide teaching materials to the schools, to develop national curriculum, and syllabi of the subjects taught in the primary and secondary schools, to monitor the quality of education and, to provide teachers’ salaries. The churches, through their school managements recruit teachers, implement the national curriculum in schools, and manage school resources and day-to-day activities.

The partnership between the government and churches had been based on the view that education is the responsibility of the government, the church and the community. Thus,
education in Lesotho has been assumed to be a “three-legged pot”. However, since its inception, the partnership between the government and the churches has been problematic and has hindered many educational initiatives and reforms proposed by the government. This has also been observed by Muzvidziwa and Seotsanyana (2002) whose view is that because of the problems posed by school ownership in Lesotho, there it has been difficult to implement effective educational reforms in Lesotho; and as a result, there have been “few structural changes ... since [the] independence in 1966”. For example, they cited 1978 and 1988 reforms\(^\text{19}\), which despite the support by donor international agencies, such as World Food Programme, USAID and World Bank, and good morale and efforts by the Ministry of Education, these reforms were “met with opposition and generated a lot of huff and puff from churches”.

*Primary and secondary education*

Schooling in Lesotho consists of seven years of primary education, followed by three years of junior secondary education and two years of senior secondary education. Early childhood is not formalized. Most of the children start their primary education without early childhood education (UNESCO, 2007).

There are three examinations that are taken at national level, sometimes referred to as external examinations. At the end of seven years of primary education, students take the national Primary School Leaving Examination (PSLE), which determines their progression into junior secondary education. At the end of three years of junior secondary education, students sit for Junior Secondary Certificate examination, (Junior Certificate or JC for short). At the end of two years of senior secondary education, which is the last level of school education, students sit for Cambridge Overseas School Certificate (COSC) examination. After COSC education students follow various paths of education, which could be tertiary or vocational.

---

\(^{19}\) 1978 reform advocated for school education that advocated education for self-discipline, self-sacrifice, and self-reliance. 1988 reform promoted free education, starting from the first grade at primary level. There has been what could be viewed as abnormal practice in the educational system in Lesotho.
Teacher training

There are only two teacher training institutes in Lesotho, the Lesotho College of Education (LCE), formally known as National Teachers Training College (NTTC) and the Faculty of Education at the National University of Lesotho (NUL). The LCE/NTTC trains teachers to the diploma level for primary and secondary education. The Faculty of Education at NUL provides undergraduate diploma and degree, and postgraduate certificate in teaching.

LCE/NTTC: Until 1975, there were seven teacher training colleges in the country. All these were owned by the churches. In 1975, the government closed all seven colleges and established the National Teachers Training College (NTTC). The NTTC offered three-year programs in primary and secondary education leading to the qualifications in Primary Teachers’ Certificate (PTC), and Secondary Teachers’ Certificate (STC). There was also an in-service (LIET) program for teachers who were teaching in the primary schools without teaching qualifications (Mohono-Mahlatsi & van Tonder, 2006).

In 1995 transformation of the College resulted in the change of name of the College form National Teachers Training College (NTTC) to Lesotho College of Education (LCE), and the upgrading of training programs offered (from certificates to diplomas). Entry requirements in these programs were also upgraded; for example, instead of just pass grade of secondary education that is at least 45 percent, the applicants are now required to have at grades that comprise of at least three credits (60 percent or more pass) and pass grades.

Faculty of education at National University of Lesotho: At the time of collecting data for this study the National University of Lesotho was the only fully operating university in Lesotho that offered teacher training programs at undergraduate level. There were, however, small campuses of some foreign universities which provided open and distance learning, in areas of education other than teacher training. The minimum requirements for admission in the teaching programs in the Faculty of Education at are higher than those se by the Lesotho College of Education. The admission requirement is a minimum of a Cambridge Overseas School Certificate (COSC) second class pass, with a grade aggregate not exceeding 34 in six subjects (English Language included).
Post school non-university and vocational certificates or diplomas and prior teaching experience could also be used as pathway into these programs. For example, teaching qualifications obtained from the college and a minimum of two years could be used for admission in the NUL programs. Student teachers who used college qualifications and teaching experience for admission forms quite a significant cohort in the Faculty of Education. For example, at the time of collecting data for this study, this group formed almost one third of the student teacher population.

Interestingly, for years this cohort has posed administrative problems for the Faculty of Education. For example, the Faculty has struggled to find a proper placement, in the programs for these student teachers. For example, sometimes the qualifications of this cohort of student teachers are not considered and they are required to do the first year of the University, similar to these who received direct entry from schools. Sometimes their qualifications have been considered and they are exempted for the First year of the University. The usual argument used for the placement of this cohort of student teachers is usually the knowledge and skills they have about teaching. Also important about this group is that although it forms a significant part of student teacher population in NUL, there has not been any investigation that explores their characteristics.
APPENDIX II: Letter of Ethics approval by the University of Wollongong

<table>
<thead>
<tr>
<th>INITIAL APPLICATION APPROVAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>To reply please quote: HE07/199</td>
</tr>
<tr>
<td>Further Enquiries Phone: 4221 4457</td>
</tr>
</tbody>
</table>

31 July 2007

Ms Julia Chere-Masopha
3 Mades Place
Macarthur ACT 2504

Dear Ms Chere-Masopha,

Thank you for your letter of 19 July 2007 responding to the HREC conditional approval letter dated 2 July 2007. I am pleased to advise that the conditions have been met.

<table>
<thead>
<tr>
<th>Ethics Number:</th>
<th>HE07/199</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Title:</td>
<td>An Investigation of the Role of Secondary Teachers’ Professional Identity in the Integration of Educational Technology within Classrooms</td>
</tr>
<tr>
<td>Name of Researchers:</td>
<td>Ms Julia Chere-Masopha</td>
</tr>
<tr>
<td>Approval Date:</td>
<td>21 June 2007</td>
</tr>
<tr>
<td>Expiry Date:</td>
<td>30 June 2008</td>
</tr>
</tbody>
</table>

The University of Wollongong/SSEIAHS Health and Medical HREC is constituted and functions in accordance with the NHMRC National Statement on the Ethical Conduct in Research Involving Humans. The HREC has reviewed the research proposal for compliance with the National Statement and approval of this project is conditional upon your continuing compliance with this document. As evidence of continuing compliance, the Human Research Ethics Committee requires that researchers immediately report:

- proposed changes to the protocol including changes to investigators involved
- serious or unexpected adverse effects on participants
- unforeseen events that might affect continued ethical acceptability of the project.

You are also required to complete monitoring reports annually and at the end of your project. These reports are sent out approximately 6 weeks prior to the date your ethics approval expires. The reports must be completed, signed by the appropriate Head of School, and returned to the Research Services Office prior to the expiry date.

Yours Sincerely,

A/Professor Garry Hoban
Chairperson, Human Research Ethics Committee

Cc: Dr Sue Bennett, Education
APPENDIX III: Questionnaire

Introduction

The survey is about teacher professional identity and use of technology in the secondary schools in Lesotho. We are surveying all student teachers in the Faculty of Education at NUL who hold a Diploma in Education Secondary or Secondary Teacher’s Certificate from LCE/NTTC. Particularly, we investigate their views and experiences of teaching with technology. Your responses to this questionnaire and the responses of other students may be useful for the policy makers and innovators who may need to understand how teachers work with technology in the classroom in Lesotho. Participation in this study is voluntary and confidential. The questionnaire should take 45-60 minutes to complete. All the information that you and other student teachers will provide for this survey is strictly confidential and will be used only in this study.

Section 1 - Personal characteristics

This section of the question collects information about your personal, educational and professional details. Please tick the appropriate option or write your answer in the space provided.

1.2.1. About you

1. Age: _______

2. Gender: ☐ Male ☐ Female

3. Current year of study: ☐ 1 ☐ 2 ☐ 3 ☐ 4

   i. About your educational background

1. Years of primary education: From _______________ To _______________

2. Years of secondary education: From _______________ To _______________

3. Type(s) of schools attended (primary and secondary):
ii. About your teaching background

1. Years at college training to be a teacher: From ____________ To ____________

2. Subject specialisations at college:
   - Specialisation 1: ______________________________________________________
   - Specialisation 2: ______________________________________________________

3. Years of teaching in secondary school(s): From ____________ To ____________

4. Type of secondary school(s) you taught at:
   - Government  ☐ Catholic  ☐ LEC
   - Community  ☐ Private
   - Other _______________________________________________________________

5. Location(s) of secondary school(s) taught at:
   - Urban  ☐ Peri-urban  ☐ Rural

iii. About your computer skills and use

1. How would you rate your confidence with computers?:
   (Low) 1  2  3  4  5 (High)

2. How would you describe your computer skills?:
   - Very little or no computer skills
   - Beginner
   - Intermediate
3. Have you ever taken a computer course?:

☐ Yes   ☐ No

Section 2: Technology in everyday life

This section asks you about how you use technology in your everyday life and your impressions of how other people in your community use technology in everyday life. Please tick the appropriate box to indicate your response.

2.1. Current technology conditions

2.1.1. Conditions in your personal life

1. Please indicate your current level of access to different types of technology in your everyday life.

<table>
<thead>
<tr>
<th>Access exclusively (for my own use)</th>
<th>Access any time (I need it but share with others)</th>
<th>Limited or inconvenient access</th>
<th>No access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop or laptop computer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic organiser (e.g. PDA, Palm, Pocket PC)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dedicated MP3 player (e.g. iPod)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Internet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dedicated digital camera (still and/or video camera)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cell phone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone (landline)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV/VCR/DVD</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2. How important is technology in your everyday life for the following?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicate (email, Cell phone, SMS, instant messaging e.g. to contact family, friends)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access information (e.g. looking something up on the Internet)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Store or record information (e.g. addresses, correspondence, financial, photos)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Publishing information (e.g. your own Webpage, blog etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sharing files (e.g. photos, music)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreation (games, music, video etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other personal/domestic (e.g. travel bookings, banking, buy on Internet, pay bills etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. How confident are you at doing the following with technology in your everyday life?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using Office application (word processing, spreadsheets, PowerPoint etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storing and retrieving information (documents, music, video, photos etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using the Internet to access information</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using email</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Producing multimedia files (i.e. files that contain music, video, photos)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Publishing on the Internet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Designing Webpages</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working with databases</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. **How important are the following for successful use of technology in your everyday life?**

<table>
<thead>
<tr>
<th></th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skills, techniques and specialist knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural-born talent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taste, judgement or a developed ‘feel’ for it</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.1.2. **Conditions in your community**

How easy is it for other members of your community/society to access the following technology resources in everyday life?

<table>
<thead>
<tr>
<th></th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop or laptop computer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic organiser (e.g. PDA, Palm, Pocket PC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dedicated MP3 player (e.g. iPod)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dedicated digital camera (still and/or video camera)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cell phone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone (landline)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV/VCR/DVD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How common is it for other members of your community to do the following with information and communication technology resources in everyday life?

<table>
<thead>
<tr>
<th></th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicate (email, Cell phone, instant messaging etc. to contact family, friends)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 2.2. Conditions in the past

*Think back to how technology was used in the everyday life before you became a teacher.*

1. How familiar were you with the following technology resources before you become a teacher?

<table>
<thead>
<tr>
<th>Technology Resource</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop or laptop computer</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Electronic organiser (e.g. PDA, Palm, Pocket PC)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Dedicated MP3 player (e.g. iPod)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Internet</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
(2) At which stage of your education did the following technology resources become important in your life?

<table>
<thead>
<tr>
<th>Technology Resource</th>
<th>Before Schooling</th>
<th>Primary and/or Secondary</th>
<th>Teacher Training</th>
<th>Not at All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop or laptop computer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic organiser (e.g. PDA, Palm, Pocket PC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dedicated MP3 player (e.g. iPod)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet access</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dedicated digital camera (still and/or video camera)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cell phone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone (landline)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV/VCR/DVD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(3) How well could you use the following technology resources before you became a teacher?

<table>
<thead>
<tr>
<th>Technology Resource</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop or laptop computer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic organiser (e.g. PDA, Palm, Pocket PC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dedicated MP3 player (e.g. iPod)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(4) How well could you do the following before you became a teacher?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using Office application (word processing, spreadsheets, PowerPoint etc.)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Storing and retrieving information (documents, music, video, photos, etc.)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Using the Internet to access information</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Using email</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Producing multimedia files (i.e. files that contain music, video, photos)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Publishing on the Internet</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Designing Webpages</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Working with databases</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Evaluating the usefulness of software</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

(1) In your view, how important was technology in your life when you were at the following stages of education?

<table>
<thead>
<tr>
<th>Stage of Education</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher training (College)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Secondary education</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Primary education</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
Before going to school

Section 3: Technology in education

The survey about teacher professional identity and use of technology in the secondary schools in Lesotho

- Your views about technology in teaching and learning in the present
This section asks you about your experiences of, and views about technology in education.

Please tick the appropriate box to indicate your response.

3.1.1. Technology personal

(1) How easy was it for you to access the following technology resources for your teaching tasks when you were teaching?

<table>
<thead>
<tr>
<th>Technology Resource</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop or laptop computer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic organiser (e.g. PDA, Palm, Pocket PC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dedicated MP3 player (e.g. iPod)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dedicated digital camera (still and/or video camera)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cell phone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone (landline)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhead projectors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Film projectors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV/VCR/DVD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(2) How often did you use technology for the following when you were teaching?

<table>
<thead>
<tr>
<th>Technology Activity</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use technology in teaching activities (e.g. presenting information to students)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Use technology to plan for teaching activities
(search for information, prepare classroom materials)

Use technology to process and store students’ information (e.g. marks, students’ details)

Have students use the technology in learning activities (e.g. learning subject matter, creating presentations or documents)

(3) How easy was it for your students to access the following technology resources for their learning tasks when you were teaching?

<table>
<thead>
<tr>
<th>Technology Resource</th>
<th>Very</th>
<th>Somewhat</th>
<th>Not at all</th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop or laptop computer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic organiser (e.g. PDA, Palm, Pocket PC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dedicated MP3 player (e.g. iPod)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dedicated digital camera (still and/or video camera)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cell phone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone (landline)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overhead projectors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Film projectors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV/VCR/DVD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(1) How important was it for your students to do the following with technology when you were teaching?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>learn and apply subject knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>search, assess and process information (e.g. on the Internet)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
share and publish information (e.g. presentations, webpage, blog) □ □ □ □ □
communicate (e.g. e-mail, SMS, Cell phone) □ □ □ □ □
design and develop products/objects (e.g. webpage, models, simulations, files that contain video, text and sound) □ □ □ □ □

### 3.1.2 Existing views in your school and in the community about technology in teaching and learning

(1) How often did other teachers in the school(s) you have taught integrate or use technology for the following?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher’s classroom activities (e.g. presenting information)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning and preparing for teaching and learning activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>classroom materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processing and storing students’ information (e.g. marks, students’ details)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students’ learning activities (e.g. learning subject matter, creating presentations or documents)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(2) In your view how did other teachers in the school(s) you have taught value technology for their students?

<table>
<thead>
<tr>
<th>Technology</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning or applying their subject knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use to search, assess and process information (e.g. on the Internet)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use to share and publish information (e.g. presentations, webpage, blog)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| presentations, webpage, blog)  
| Use to communicate (e.g. e-mail, SMS, Cell phone)         | ☐ ☐ ☐ ☐ ☐ ☐  
| Use to design and develop products/objects (e.g. webpage, models, simulations, files that contain video, text and sound) | ☐ ☐ ☐ ☐ ☐ ☐  

(3) In your view how much did the policy in the school(s) reflect the following beliefs about the use of technology?

<table>
<thead>
<tr>
<th>Belief</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers should use technology in the classroom.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Students should use technology in the classroom.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Both teachers and students should use technology in the classroom.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>It is up to individual teachers how they use technology in the classroom.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>It is up to individual teachers whether to or not use technology in the classroom.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

(4) In your opinion how much do the following statements reflect beliefs about technology and education in your community?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>All students should be computer literate.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Students should acquire technological skills that will make them employable.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Students should acquire technological skills that will allow them to perform their societal roles and responsibilities in the modern society.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Technology should be used in education to</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
modernise education.

Technology should be used to make education easily accessible.

3.2 Technology in teaching and learning in the past, before you became a teacher

(1) Which of the following technology resources did you have access to for your learning activities when you were a student at any stage of your education?

<table>
<thead>
<tr>
<th>Technology Resource</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop or laptop computer</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Electronic organiser (e.g. PDA, Palm, Pocket PC)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Dedicated MP3 player (e.g. iPod)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Internet</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Dedicated digital camera (still and/or video camera)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Cell phone</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Telephone (landline)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Overhead projectors</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Film projectors</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Radio</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>TV/ VCR/DVD</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

(2) How easy was it for you to access the following technology resources for your learning activities when you were a student at any stage of your education?

<table>
<thead>
<tr>
<th>Technology Resource</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop or laptop computer</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Electronic organiser (e.g. PDA, Palm, Pocket PC)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Dedicated MP3 player (e.g. iPod)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Internet</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
Dedicated digital camera (still and/or video camera) | ☐ | ☐ | ☐ | ☐ | ☐
Cell phone | ☐ | ☐ | ☐ | ☐ | ☐
Telephone (landline) | ☐ | ☐ | ☐ | ☐ | ☐
Overhead projectors | ☐ | ☐ | ☐ | ☐ | ☐
Film projectors | ☐ | ☐ | ☐ | ☐ | ☐
Radio | ☐ | ☐ | ☐ | ☐ | ☐
TV/VCR/DVD | ☐ | ☐ | ☐ | ☐ | ☐

(3) How important was it for you in your learning activities to do the following with technology when you were a student at any stage of your education?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use to learn and apply your subject knowledge</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Use to search, assess and process information</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Use to share and publish information (presentations, webpage, blog, etc.)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Use to communicate (e-mail, SMS, Cell phone)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Use to design and develop products/objects requested of them (e.g. webpage, models, simulations, files that contain video, text and sound)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

(4) In your view, how important was educational technology in your learning when you were at the following stages of education?

<table>
<thead>
<tr>
<th>Stage of Education</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher training</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Secondary education</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Primary education</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Before going to school</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
**Section 4: Conditions in teaching and learning**

*This section is about how experiences shaped your views about teaching and learning.*

4.1. Current conditions in teaching and learning

4.1.1. Your personal views as a teacher

(1) How well do the following statements reflect your views about what teaching is?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching is a highly structured activity that states achievable goals, activities and outcomes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching is an activity that uses methods and strategies that simplify information for students to retain and reproduce when required.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching is about assigning tasks and guiding students to search for and use information to create their own interpretations of the world around them.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching is about judging students’ knowledge and skill needs and providing opportunities for students to acquire relevant knowledge and skills.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(2) How well do the following statements reflect what is important for you as a teacher?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is important to me for manage my class well.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is important to me to know the subject material I am teaching well.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is important for me that my students achieve high test scores.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is important for me to complete the syllabus and recommended textbooks well before exams.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is important for me to provide students with the</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
knowledge and skills for them to participate in wider society.

It is important for me to have a good relationship with my students.

It is important for me to help my students develop as people.

(3) How well do the following statements describe your typical lesson when you are teaching?

<table>
<thead>
<tr>
<th></th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>I present information and my students receive it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I manage and control my students’ talking and behaviour in the classroom.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I encourage interactivity between my students and with me as their teacher.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I engage my students in a variety of activities that require them to develop, create and analyse information.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(4) How well do the following statements reflect your views about successful teaching?

<table>
<thead>
<tr>
<th></th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful teaching is when students are able to recall all the facts covered during the lessons.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Successful teaching is when students are able to search, interpret and use information to create their own knowledge.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Successful teaching is when students are able to apply knowledge outside the classroom.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Successful teaching is when what I have taught students becomes useful in their personal lives and in the community.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(5) How well do the following statements apply to what has influenced the way you have taught?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have been influenced by my personal views about what teaching should be.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I have been influenced by the level of skill and knowledge I have in implementing classroom tasks.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I have been influenced by the type of students I have had.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I have been influenced by the availability and accessibility of resources.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I have been influenced by school policy on teaching.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I have been influenced by the community’s views about teaching.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I have been influenced by how other teachers teach.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

4.1.2 Existing views in the schools and in the community

(1) In the school(s) you have taught in, what were the administrations’ views about good teaching?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good teaching is about managing classes well.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Good teaching is about knowing the subject matter well.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Good teaching is about students achieving high test scores.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Good teaching is about completing the syllabus and recommended textbooks well before exams.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Good teaching is about providing students with the knowledge and skills they need to participate in wider society.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Good teaching is about having good relationships with students.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
Good teaching is about helping students develop as people.

(2) In the school(s) in which you have taught what were the students’ views about a good teacher?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>A good teacher manages a class well.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher knows the subject matter well.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Students of a good teacher achieve high test scores.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher completes a syllabus and recommended textbooks well before exams.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher provides students with the knowledge and skills they need to participate in wider society.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher has good relationships with students.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher helps students develop as people.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

(3) How well do these statements apply to the views of your community/society about a good teacher?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>A good teacher manages a class well.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher knows the subject matter well.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Students of a good teacher achieve high test scores.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher completes a syllabus and recommended textbooks well before exams.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher provides students with the knowledge and skills they need to participate in wider society.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher has good relationships with students.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
A good teacher helps students develop as people.  

<table>
<thead>
<tr>
<th>Statements</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>My teacher training prepared me well for the schools in which I have taught.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My teacher training prepared me well to teach in the way I think teaching should be done.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My teacher training provided me with a good understanding of school and national policies on education.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My teacher training provided me with a good understanding of students’ socio-economic background.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My teacher training provided me with a good understanding of how to access and use resources in the classroom.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My teacher training provided me with a good understanding of the socio-cultural context of the schools.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My teacher training provided me with a good understanding of the school and national economic context.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How well do the following statements apply to the views that you had about learning before your teacher training (i.e. when you were a student)?

<table>
<thead>
<tr>
<th>Statements</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning was about listening to the teacher and doing what the teacher wanted.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning was about being able to acquire, retain, and reproduce information that the teacher had presented during lessons.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Learning was about being assigned tasks and guided to search and use information to create my own interpretations of the world.

Learning was about acquiring knowledge and skills that would be useful to me in the community and for employment.

How well do the following statements apply to your previous experience of a typical lesson when you were a student in primary and secondary school?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>The teacher presented information and students received it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The teacher managed and controlled students’ talking and behaviour in the classroom.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The teacher encouraged interactivity between students and with the teacher.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The teacher engaged students in a variety of activities that required them to develop, create and analyse information.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How well do the following statements reflect the views that you had about successful learning when you were a student in primary and secondary school?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful learning was about being able to recall all the facts covered during teaching.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Successful learning was about being able to search, interpret and use information to create my own knowledge.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Successful learning was about being able to apply what I had learned outside the classroom.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Successful learning was about being able to use I had</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
How well do the following statements reflect the characteristics that you thought made a good teacher when you were a student in primary and secondary school?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>A good teacher was a teacher who managed classes well.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher was a teacher who knew the subject matter well.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher was a teacher in whose subject I achieved high test scores.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher was a teacher who completed the syllabus and recommended textbooks well before exams.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher was a teacher whose teaching I found relevant to my life.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher was a teacher who I had good relationship with.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher was a teacher who helped me to develop as person.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

How well do the following statements reflect the views in your community when you were at primary and secondary school(s) about the characteristics of a good teacher?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very</th>
<th>Quite</th>
<th>Somewhat</th>
<th>Not at all</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>A good teacher was a teacher who managed classes well.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher was a teacher who knew the subject matter well.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher was a teacher whose students achieved high test scores.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A good teacher was a teacher who completed the syllabus and recommended textbooks well before exams.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
A good teacher was a teacher whose teaching was relevant to students’ lives.

A good teacher was a teacher who had good relationships with students.

A good teacher was a teacher who helped students to develop as people.
APPENDIX IV: Semi-structured interview protocol1- background information and everyday use of technology

1.1 Introduction
In this interview you will be asked about your views and experiences about teaching, learning and technology. Your responses to this interview will assist the policy makers and innovators in Lesotho to understand teachers’ needs in the classroom. Participation in this study is voluntary and confidential, and the interview should only take 30 - 40 minutes to complete.

Would you feel comfortable with me recording our conversation so that I can concentrate on what you are saying rather than taking notes? (*N.B: If yes, star recording*)

1.2 Part 1:  Background information
First of all I would like to collect some background information from you, just as I did in the survey. As you know those were anonymous so I can’t separate your responses from the others. (Fill in data below as the participant answers.)

1.2.1. About you
1. Age: ________
2. Gender: ☐ Male  ☐ Female
3. Current year of study: ☐ 1  ☐ 2  ☐ 3  ☐ 4

iv. About your educational background
1. Years of primary education: From __________ To __________________
2. Years of secondary education: From __________ To __________________
3. Type(s) of schools attended (primary and secondary):
v. About your teaching background

1. Years at college training to be a teacher: From __________________ To __________________

2. Subject specialisations at college:

   Specialisation 1  __________________________________________________________

   Specialisation 2  __________________________________________________________

3. Years of teaching in secondary school(s): From __________________ To _________________

4. Type of secondary school(s) you taught at:

   ☐ Government  ☐ Catholic  ☐ LEC

   ☐ Community  ☐ Private  ☐ Other ___________________________________________

5. Location(s) of secondary school(s) taught at:

   ☐ Urban  ☐ Peri-urban  ☐ Rural

vi. About your computer skills and use

1. How would you rate your confidence with computers?:

   (Low) 1  2  3  4  5 (High)

2. How would you describe your computer skills?:

   ☐ Very little or no computer skills

   ☐ Beginner

   ☐ Intermediate

   ☐ Advanced
3. Have you ever taken a computer course?:

☐ Yes  ☐ No

Part 2: Views about technology conditions in the everyday life

In the rest of this interview I’m interested in finding out about the role and importance of technology in your everyday life (outside of work and study) and in your community.

1.3.1 Your current use and views

The first series of questions is about your current use of and views about ICTs.

(1) Please tell me about how you use ICT in your everyday life, outside your work and studies.

(2) In your view, do you need ICT in your everyday life?

(Prompt):

• Why you need it? or
• Why don’t you need ICT in your everyday life?

(3) How would you like to use ICT for your everyday needs?

(Prompt):

a) What are things would you like to do with ICT but you can’t?
b) What prevents you?
c) What would you like to happen so that you can use ICT the way you would like to?

(4) Please tell me how ICT is used in your community/society.

(Prompt):

a) Do people rely on technology in their daily lives?
b) Which types of technology do they rely on mostly?

(5) In your view, how does your community/society value the use of ICT?

(Prompt):

c) Do they see technology as an integral part of daily life? How?
d) What are their aspirations about technology and future generations?

(6) How would you like to see ICT used in your community? (Prompt for why)
(7) In your view, what do you think should happen so that the community/society uses ICT the way you think it should be used?

1.3.2 Your use and views before you became a teacher

Now I would like you to look back on your life to before you became a teacher, and tell me about the role played by technology in your everyday life.

a) Tell me about the stage in your life when technology became important in your life.

(Prompt):

e) When did you start valuing technology in your personal life? (Prompt with different types of technology and life stage)

f) How you were you using it?

g) Why did it become so important in your everyday life at this stage?

(2) At this stage how was technology being used in your community?

(3) How was technology valued in the society or community in which you lived?

(4) How easily was technology accessible to all the members of the community/society?

Thanks for answering my questions today. (Finish by confirming arrangements for the next interview)
APPENDIX V: Semi-structured interview protocol 2 - Technology in teaching and learning

In this interview I am interested in finding out about how you have been using technology as a teacher and how you used technology as a learner in the past. I would also like to hear your views about the role of technology in the classroom.

2.1 Current conditions

My first series of questions is about your current use of and views about educational technology.

a) Tell me about how have been you using technology in the classroom in your teaching?

(2) In your view, do you think it is necessary to integrate technology in the classroom activities?

(Prompt):
Please explain why it is necessary or why not.

(3) How would you like to use technology in the classroom?

(Prompt):

a) What are the things that you would like to do with technology but you can’t in the classroom?

b) What has prevented you to use technology in the classroom in the way you wanted to?

c) What would you like to happen so that you can use technology in the way you would like to in the classroom?

i. What knowledge and skills should you have?

ii. Which resources and infrastructure should be available to you?

iii. How possible do think these requirements could be met?

(4) Tell me generally about how technology was used in the schools you have taught at.

(Prompt):

What were the usual practices?
(5) In your view, how did the school(s) in which you have taught value the use of technology in the classroom?

(Prompt):
What were the school(s) policies on the use of technology in the classroom?

(6) In your view, what do you think should happen in school(s) so that technology is used in the way you think it should be?

(Prompt):
a) What should be the policy?
b) What knowledge and skills should teachers have?
c) What resources and infrastructure should be available to teachers?
d) How feasible do you think it is for these requirements to be met?

2.2 Views in the past when you were as a student

I'd also like to hear how technology was integrated in the classroom when you were a student.

(1) Tell me about how technology was used in the classroom when you were a student?

(Prompt):

(1) How did your teachers use technology in the classroom?
(2) As a student, how did you use technology in the classroom?
b) In your view, when you were a student, did you think it was necessary for technology to be integrated in your learning activities?

(Prompt):
Why?

(3) As a learner how did you want to use technology in the classroom?

(Prompt):
a) Were there things that you wanted to or thought was necessary do with technology in the classroom but could not?
b) What prevented you from using technology in the classroom in the way you wanted to?
c) What would you like to have happened so that you could have used technology in the classroom in the way you would have liked?
i. What knowledge and skills should you have had?

ii. What resources and infrastructure should have been available to you?

iii. How feasible do you think it would have been for these requirements to have been met?
APPENDIX VI: Semi-structured interview protocol 3-Views and experiences about teaching and learning

In this interview I’m interested to learn about your personal views about teaching, how you have been teaching and how you have experienced teaching as a student.

3.2. Views about teaching and learning

3.2.1 Current views

(1) Tell me about how you teach.

(Prompt):
- How would you describe your typical lesson?
- What methods and strategies do you use?

(2) What is your personal interpretation of teaching?

(Prompt):
What are the roles and responsibilities of a teacher?

(3) Describe how you view yourself as a teacher.

(4) What is important to you as a teacher? Prompt: Why?

(5) In your view, how do you believe students should be taught?

(Prompt):
(1) Please explain why?
(2) How well do you think your teaching matches that? Why?

(6) How would you like to teach?

(Prompt):

a) What are the things that you would like to do but you can’t in the classroom?
b) What prevents you to teach in the way you want to?
c) What would you like to happen so that you can do these things in the classroom?

(8) What knowledge and skills should you have?
(9) Which resources and infrastructure should be available to you?
(10) How possible do you think these requirements could be met?
(7) In your view, has teacher-training prepared you for the teaching conditions in the school(s)?

(Prompt):
How do you think you should have been prepared?

• Skills and knowledge
• Use of resources

(8) Tell me how other teachers have taught in the schools you have taught.

(9) In your view, how did the school(s) in which you have taught view teaching and learning?

(Prompt):
What were the school(s) policies on teaching?

(10) In your view, what do you think should happen in school(s) so that teaching is done in the way you think it should be?

(Prompt):
1 What should be the policy?
2 What knowledge and skills should teachers have?
3 What resources and infrastructure should be available to teachers?
4 How feasible do think it is for these requirements could be met?

(11) What does your community/society expect from a teacher?

(12) How would you describe the views of your community/society about a good teacher?

(13) In the school(s) in which you have taught what were students’ views about a good teacher?

3.2 Views before you became a teacher

Now I’d like to ask you about your views and learning experiences in the past when you were a student in primary and secondary education.

(1) How would you describe a typical classroom when you were a student?

(Prompt):

(8) Resources available
(9) Teacher’s activities
(10) Student activities

(2) What were your views about learning when you were as student?

(Prompt): How did you want to be taught? Why?
(3) What was important to you in the classroom as a student?

(Prompt):
What did you expect from a teacher?

(7) How would you say the way you were taught met your needs as a student?

(8) What did you consider as a successful learning when were a student?

(9) Have you views about successful learning changed since then?

(Prompt):
How have they changed?

(10) Describe a type of a teacher you considered to be a good teacher when you were a student

(Prompt):
  a. during primary education?
  b. during secondary education?

(11) Have your views about a good teacher changed since then?

(Prompt):
  a. How have they changed?
  b. Why have they changed?

(12) When you were a student in primary and secondary school(s) what type of a teacher was respected in a society/community?

Thanks for answering my questions today. (Finish by announcing the end of the participation in the interviews, ask the participant for further comments and concerns about the way the interviews were contacted. also reassure the participant about the confidentiality of the information and that it will be used only for the study as explained at the beginning)
BIBLIOGRAPHY

professional teacher identity


Bennett, S. (2002). *Learning about design in context: An investigation of learners' interpretations and use of real-life cases within a constructivist learning environment created to support authentic design activities.* PhD thesis, University of Wollongong, Faculty of Education.


http://siteresources.worldbank.org/LESOTHOEXTN/Resources/Lesotho_CAS.doc


Zhao, Y. (2003). What teachers need to know about technology: Framing the question. In Y. Zhao (Ed.), *What teachers should know about technology? Perspectives and practices* (pp. 1 - 14). USA: Information Age Publishing.