An evaluation of the implementation of ICT Policy for Education in rural Namibian schools

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DECLARATION

I declare that this thesis is my own unaided work. This thesis is being submitted for the Degree of Doctor of Philosophy in the University of Pretoria, South Africa. It has not been submitted before for any degree or examination to any other university.

Elizabeth Ndeukumwa Ngololo
15th September 2010
DEDICATION

This thesis is dedicated to my daughter,
Tulihaleni Naukongo Mary
I wish to thank the Almighty God for giving me the courage and strength to work on this thesis. This thesis could not have been possible without much contribution from a number of people. I would like to thank the following people:

My promoters, Prof. Sarah Howie and Prof. Emeritus Tjeerd Plomp for your professional guidance throughout this thesis. The journey I travelled was not easy, thanks a lot for believing and encouraging, and allowing me to tap from your expertise in the field. I have gained a lot of knowledge from the discussions I have had with Prof. Emeritus Plomp during his visits to the Centre of Evaluation and Assessment (CEA), University of Pretoria. These discussions were followed by valuable ‘critical comments’ in track changes that would make me take a deep breath each time I received them. These comments served as serious reflections on the study and indeed strengthened the storyline.

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school inspectors in the said educational regions for assisting in the collection of the questionnaires.

My family and friends, for being very supportive and understanding of the very hectic and busy times I had. I can recall some of you complaining about my being away from home. You all contributed to my success.

Special thanks to my parents for a commendable upbringing, sisters and brother for your continuous support throughout my academic life. I thank you for keeping me in your prayers always.

Finally, I would like to thank my daughter for being tolerant and understanding. I had to explain to her every time why “Mummy is going to school, again and again…. “ This thesis should serve as a motivation for her and the generations to come.
ABSTRACT

Many governments across the world have invested a lot of resources in information and communication technology (ICT) development with an aim to enhance teaching and learning using technology in schools. New educational ICT policy issues emerged and new patterns of ICT related practices are observable in education. This initiative has necessitated the development of National ICT Policies that will guide the implementation process in schools. Namibia has adopted the National ICT policy for Education in 2005 and the National ICT Policy Implementation Plan in 2006. Since the adoption no study was done to evaluate the implementation process, especially in rural schools where the teaching has been proven difficult. This study evaluates the implementation of the National ICT Policy for Education in Namibian rural junior secondary schools, especially in science classrooms.

The thesis is a mixed methods study, undertaking survey and case studies. The study was conducted in the three educational regions, namely, Ohangwena; Oshana; and Oshikoto in Northern Namibia were 163 schools were sampled. The purpose of the study was to describe how ICT is being implemented in science classrooms and also explore factors that affect ICT implementation in rural schools.

The study's findings indicate that the rural schools in Namibia are in the initial phase of ICT implementation. ICT use and pedagogical use is low due to lack of professional development courses, pedagogical support and lack of ICT related resources. However, the few schools with high pedagogical use of ICT have shown an entrepreneurial leadership style and vision of the science teachers. The relational analysis suggests three main predictors of ICT implementation in rural schools. These findings were confirmed through case studies of successful schools. In addition, the findings were legitimised by the participants of the ICT use conference.
The Kennisnet model (2009) was adopted and adapted as a conceptual framework for this study. The Howie model (2002) provided the frame within which the structure of input, process and outcome could be identified. The data was consistent with the adapted Kennisnet model (2009) and added five more constructs namely, entrepreneurial leadership, science curriculum goals, entrepreneurial science teachers’ vision, general use of ICT. The general use of ICT and attitudes of the science teachers influences the pedagogical use of ICT as added to the Howie model (2002).

The results of this research suggest ways to improve the pedagogical use of ICT in rural schools; enable policymakers to make informed decision about resource allocation to the rural schools; and on teacher professional development in order to improve the current rural situation regarding ICT use.

**Key words:** Evaluation, Information Communication Technology (ICT), national policy, rural schools, Namibia, developing countries, pedagogical use of ICT, expertise, digital learning materials, infrastructure.
# TABLE OF CONTENTS

DECLARATION............................................................................................................................ I  
DEDICATION............................................................................................................................. II  
ACKNOWLEDGEMENT ........................................................................................................... III  
ABSTRACT ............................................................................................................................... V  
TABLE OF CONTENTS ........................................................................................................ VII  
LIST OF TABLES ................................................................................................................... XII  
LIST OF FIGURES ................................................................................................................ XIV  
LIST OF ACRONYMS ........................................................................................................... XV  

CHAPTER 1 ............................................................................................................................. 1  
INTRODUCTION ..................................................................................................................... 1  
  1.1 Introduction ....................................................................................................................... 1  
  1.2 The research problem and questions ............................................................................... 5  
  1.3 The research aims and objectives .................................................................................... 8  
  1.4 An overview of the research design ................................................................................ 9  
  1.5 Significance of the research ........................................................................................... 15  
  1.6 Overview of the thesis ..................................................................................................... 16  

CHAPTER 2 ........................................................................................................................... 18  
CONTEXT OF THE STUDY ................................................................................................. 18  
  2.1 Introduction ...................................................................................................................... 18  
  2.2 Geographic, political and socio-economic status of Namibia ....................................... 18  
  2.3 The Namibian Education system .................................................................................... 21  
  2.4 Realising Vision 2030 through the Education and Training Sector ............................ 23  
  2.5 Description of the Namibian ICT Policy for Education .............................................. 27  
    2.5.1 Goals and objectives of the National ICT Policy for Education ......................... 28  
    2.5.2 Critical components of ICT framework ............................................................... 29  
  2.6 Conceptualisation of the problem .................................................................................. 39  
  2.7 Importance of the study for the Namibian context ....................................................... 42  
  2.8 Conclusion ....................................................................................................................... 43
CHAPTER 8 ....................................................................................................... 280
CONCLUSIONS AND RECOMMENDATIONS ............................................... 280
8.1 Summary of the research ........................................................................... 280
8.2 Summary of the research findings ............................................................... 282
   8.2.1 Pedagogical use of ICT in science classrooms ........................................... 282
   8.2.2 Factors affecting ICT implementation in rural schools: .......................... 291
8.3 Reflections ................................................................................................ 294
   8.3.1 Methodology .......................................................................................... 294
   8.3.2 Conceptual framework ......................................................................... 297
8.4 Conclusions and Recommendations regarding ICT implementation in rural areas 300
REFERENCES: .............................................................................................. 300
APPENDIX A ................................................................................................. 300
PERMISSION TO CONDUCT RESEARCH .................................................... 300
APPENDIX B ................................................................................................. 302
PERMISSION TO CONDUCT RESEARCH .................................................... 302
APPENDIX C ................................................................................................. 303
ETHICAL CLEARANCE CERTIFICATE ......................................................... 303
APPENDIX D ................................................................................................. 305
LETTER TO PARTICIPANTS .......................................................................... 305
APPENDIX: E QUESTIONNAIRE FOR PRINCIPALS .................................. 306
APPENDIX F: ............................................................................................... 328
QUESTIONNAIRE FOR SCIENCE TEACHERS ............................................. 328
APPENDIX G ............................................................................................... 347
QUESTIONNAIRE FOR TECHNICIANS ....................................................... 348
APPENDIX H ............................................................................................... 363
INTERVIEW SCHEDULE FOR PRINCIPALS ............................................. 363
APPENDIX I ............................................................................................... 365
INTERVIEW SCHEDULE FOR SCIENCE TEACHER .................................... 365
APPENDIX J ............................................................................................... 367
INTERVIEW SCHEDULE FOR ICT TECHNICIAN ....................................... 367
APPENDIX K ............................................................................................... 369
CLASSROOM OBSERVATION SCHEDULE FOR SCIENCE TEACHERS ...... 369
<table>
<thead>
<tr>
<th>Appendix</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>ICT Use Conference Programme</td>
<td>374</td>
</tr>
<tr>
<td>M</td>
<td></td>
<td>375</td>
</tr>
<tr>
<td></td>
<td>Powerpoint Presentation</td>
<td>375</td>
</tr>
<tr>
<td>N</td>
<td>ICT Use Conference</td>
<td>394</td>
</tr>
<tr>
<td>O</td>
<td>Table of Indices</td>
<td>408</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td>414</td>
</tr>
<tr>
<td></td>
<td>Correlations Table</td>
<td>414</td>
</tr>
<tr>
<td></td>
<td>Letter from the Editor</td>
<td>417</td>
</tr>
</tbody>
</table>
LIST OF TABLES

TABLE 2. 1: NAMIBIA PROFILE ......................................................................................................... 20
TABLE 2. 2: THE NAMIBIAN SCHOOL SYSTEM .............................................................................. 22
TABLE 2. 3: SUMMARY OF ALLOCATION OF FUNDS FOR ETSIP FOR 2009/2010 ................. 25
TABLE 2. 4: TOTAL ALLOCATION OF TRAINING ALLOCATION OF TRAINING AND USAGE (2007/2008-2009/10) ........................................................................................................... 26
TABLE 2. 5: TOTAL NUMBER OF TEACHERS TRAINED IN INTERNATIONAL COMPUTERS DRIVERS LICENSE (ICDL) (2007-2009) .............................................................................................................. 27
TABLE 2. 6: PERCENTAGE OF ICT DISTRIBUTION PER REGION .................................................. 36
TABLE 2. 7: BENCHMARK OF ICT IMPLEMENTATION ..................................................................... 37
TABLE 2. 8: A TYPOLOGY OF CURRICULUM REPRESENTATION ADAPTED FOR THE ICT .... 39
TABLE 2. 9: A SUMMARY OF THE RATIONALES STRATEGIC POLICY FOR EDUCATIONAL ICT .............................................................. 40
TABLE 3. 1: KEYWORDS USED IN VARIOUS DATABASES .............................................................. 46
TABLE 3. 2: AN ADAPTED MODEL OF PATTERNS OF USES OF ICT ............................................ 52
TABLE 3. 3: CLASSIFICATION OF DIFFERENT ICT APPLICATIONS & THEIR EDUCATIONAL ICT ......................................................................................................................... 85
(ANDERSON, 2008: 12) ...................................................................................................................... 87
TABLE 4. 1: DATA COLLECTION MATRIX .......................................................................................... 107
TABLE 4. 2: POPULATION AND SAMPLES OF SCHOOLS PER EDUCATIONAL REGION ....... 113
TABLE 4. 3: CONTENTS OF THE PRINCIPALS’ QUESTIONNAIRE .............................................. 115
TABLE 4. 4: CONTENTS OF THE SCIENCE TEACHERS’ QUESTIONNAIRE ............................ 117
TABLE 4. 5: CONTENT OF THE ICT TECHNICIANS; QUESTIONNAIRE ................................... 118
TABLE 4. 6: POPULATION AND SAMPLES FOR CASE STUDIES PER EDUCATIONAL REGION ......................................................................................................................... 125
TABLE 4. 7: POPULATION AND SAMPLES FOR ICT USE CONFERENCE PER EDUCATIONAL REGION ......................................................................................................................... 131
TABLE 4. 8: RELIABILITY ANALYSIS OF QUESTIONNAIRE DATA PER INSTRUMENT .......... 136
TABLE 5. 1: AGE DISTRIBUTION OF SCIENCE TEACHERS (N=137) ..................................... 143
TABLE 5. 2: LEARNERS’ ICT SKILLS OPERATIONS (N=137) .................................................. 146
TABLE 5. 3: AVERAGE ICT CLASS TIME ALLOCATION PER WEEK (N=137) ....................... 147
TABLE 5. 4: DESCRIPTION OF VARIABLES .............................................................................. 149
TABLE 5. 5: CHARACTERISTICS OF SCIENCE TEACHERS ...................................................... 154
TABLE 6. 1: YEARS OF OCCUPATION OF PRINCIPAL POSITION (N=105) ......................... 183
TABLE 6. 2: ACTIVITIES FOR ICT USE BY PRINCIPALS ...................................................... 185
TABLE 6. 3: OTHER POSITION IN SCHOOL HELD BY ICT TECHNICIANS ............................ 188
TABLE 6. 4: DUTIES OF ICT TECHNICIANS (N=70) ............................................................... 188
TABLE 6. 5: PEOPLE IN THE VILLAGES (N=105) ..................................................................... 191
TABLE 6. 6: PERCENTAGE OF LEARNER ABSENTEEISM (N=105) .................................... 191
TABLE 6. 7: MOST IMPORTANT PRINCIPALS’ ACTIVITIES DURING THE PAST FEW YEARS (N=105) ................................................................................................................................. 192
TABLE 6. 8: DESCRIPTION OF INDEPENDENT VARIABLES ..................................................... 193
TABLE 6. 9: EFFORT TOTAL VARIANCE EXPLAINED .................................................................. 200
TABLE 6. 10: EFFORT ROTATED COMPONENT MATRIX ........................................................... 201
TABLE 6. 11: VISION: TOTAL VARIANCE EXPLAINED ............................................................. 202
TABLE 6. 12: VISION: ROTATED COMPONENT MATRIX ........................................................ 203
TABLE 6. 13: LEADERSHIP: TOTAL VARIANCE EXPLAINED .................................................... 204

xii
TABLE 6. 14: LEADERSHIP: ROTATED COMPONENT MATRIX ........................................ 205
TABLE 6. 15: ICT use in School: Total Variance Explained ...................................... 209
TABLE 6. 16: ICT use in School: Rotated Component Matrix .................................. 210
TABLE 6. 17: Digital Learning Material: Total Variance Explained .......................... 211
TABLE 6. 18: Digital Learning Material: Rotated Component Matrix ...................... 212
TABLE 6. 19: Technical Support: Total Variance Explained ..................................... 214
TABLE 6. 20: Technical Support: Rotated Component Matrix .................................. 214
TABLE 6. 21: Digital Learning Material: Total Variance Explained ......................... 215
TABLE 6. 22: Digital Learning Material: Rotated Component Matrix ...................... 216
TABLE 6. 23: Expertise: Total Variance Explained .................................................. 218
TABLE 6. 24: Expertise: Rotated Component Matrix ................................................ 219
TABLE 6. 25: Science Curriculum Goals: Total Variance Explained ....................... 221
TABLE 6. 26: Science Curriculum Goals: Rotated Component Matrix .................... 222
TABLE 6. 27: Correlations of the Principals and the Science Teachers .................... 226
TABLE 6. 28: ANOVA Result .................................................................................. 231
TABLE 6. 29: Characteristics of the School Principals, Science Teachers and ICT Technicians ........................................................................................................ 232
TABLE 6. 30: Response of Principals to the Number of Computers per School .......... 245
TABLE 7. 1: Characteristics of the School Principals, Science Teachers and ICT Technicians ........................................................................................................ 259
TABLE 7. 2: ICT Conference Findings on ICT Infrastructure .................................... 261
TABLE 7. 3: ICT Conference Findings on Digital Learning Materials ....................... 262
TABLE 7. 4: ICT Conference Findings on Expertise .................................................. 263
TABLE 7. 5: ICT Conference Findings on Vision and Leadership ............................. 264
TABLE 7. 6: ICT Conference Findings on Collaboration and Support ...................... 265
TABLE 7. 7: ICT Conference Findings on Professional Development ...................... 266
TABLE 7. 8: Findings on Factors Affecting ICT Implementation .............................. 268
LIST OF FIGURES

FIGURE 1.1: THE RESEARCH MODEL FOR THIS STUDY ............................................. 11
FIGURE 2.1: MAP OF EDUCATIONAL REGIONS IN NAMIBIA .......................... 19
FIGURE 2.2: THE NATIONAL ICT POLICY FOR EDUCATION FRAMEWORK ....... 29
FIGURE 2.3: REGIONAL DISTRIBUTION AS AT 2010 .................................... 35
FIGURE 3.1: AN ADOPTED CONCEPTUAL FRAMEWORK ILLUSTRATING THE RELATIONSHIP BETWEEN KNOWLEDGE-RELATED SKILLS AND KNOWLEDGE-RELATED TASK PROGRESSES, WITH OR WITHOUT ICT ........................................... 87
FIGURE 3.2: AN ADOPTED BASIC ELEMENTS OF THE FOUR-IN-BALANCE MODEL (2009) 92
FIGURE 3.3: THE HOWIE MODEL (2002) ............................................................ 93
FIGURE 3.4: THE ADAPTED HOWIE MODEL (2002) .......................................... 96
FIGURE 3.5: FACTORS AFFECTING ICT IMPLEMENTATION IN RURAL SCHOOLS ........... 98
FIGURE 4.1: RESEARCH DESIGN ........................................................................ 106
FIGURE 5.1: YEARS OF TEACHING EXPERIENCE OF SCIENCE TEACHERS (N=137) .... 141
FIGURE 5.2: SCIENCE TEACHER’S QUALIFICATIONS (N=137) .......................... 142
FIGURE 5.3: GENDER OF SCIENCE TEACHERS (N=134) ................................. 144
FIGURE 5.4: ACCESS TO COMPUTERS AT HOME (N=137) ............................... 145
FIGURE 5.5: COMPUTERS’ CONNECTIVITY TO INTERNET (N=137) ...................... 145
FIGURE 6.1: AGE DISTRIBUTION OF PRINCIPALS (N=105) ............................ 184
FIGURE 6.2: GENDER OF PRINCIPALS (N=105) .............................................. 185
FIGURE 6.3: USE OF PRINCIPAL OWNED COMPUTERS FOR SCHOOL-RELATED ACTIVITIES .............................................................................................................. 186
FIGURE 6.4: PERCENTAGE OF PRINCIPALS’ OWNED PERSONAL COMPUTERS CONNECTED TO THE INTERNET (N=105) ............................................................... 187
FIGURE 7.1: LINK OF FACTORS BY GROUP 1 .................................................... 269
FIGURE 7.2: LINKING OF FACTORS BY GROUP 2 .............................................. 270
## LIST OF ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>AISI</td>
<td>African Information Society Initiative</td>
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<tr>
<td>CECS</td>
<td>Community Education Computer Centre</td>
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<td>EMIS</td>
<td>Education Management Information System</td>
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<td>ETSIP</td>
<td>Education and Training Sector Improvement Programme</td>
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<tr>
<td>GeSCI</td>
<td>Global eSchool and Community Initiative</td>
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<tr>
<td>HIGCSE</td>
<td>Higher International General Certificate for Secondary Education</td>
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<tr>
<td>ICDL</td>
<td>International Computer Drivers License</td>
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<tr>
<td>ICT</td>
<td>Information Communication and Technology</td>
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<tr>
<td>IGCSE</td>
<td>International General Certificate for Secondary Education</td>
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<td>IMTE</td>
<td>Integrated Media in Technology Education</td>
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<td>iNET</td>
<td>Initiative for Namibian Educational Technology</td>
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<tr>
<td>MBESC</td>
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<td>MHETEC</td>
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<td>SADC</td>
<td>Southern African Development Community</td>
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<td>SWAPO</td>
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<td>University of Namibia</td>
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<tr>
<td>UNESCO</td>
<td>United Nations Education and Science Community Organisation</td>
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<td>Acronym</td>
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<td>USAID</td>
<td>United States Agency for International Development</td>
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<td>Vocational Training Centre</td>
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