APPENDIX A

PERMISSION TO CONDUCT RESEARCH

17th November 2008

The Project Manager
Tech //Na
Ministry of Education

Dear Mr. Van Wyk,
Application for permission to conduct research on ICT in the public schools

I hereby apply for permission to conduct research in public schools as part of a PhD study I am conducting at University of Pretoria.

I am conducting a study on the Evaluation of **ICT Policy implementation in Namibian rural junior secondary schools**. The need for the study is coupled with efforts of Vision 2030 to build an information society and knowledge-based economy in Namibia. The focus of the study is on rural areas, drawing its attention to the three educational regions namely: Ohangwena, Oshana and Oshikoto. The Omusati region has been left out because to date no teachers have been trained on ICT.

The study will employ a mixed method approach of which Phase 1 will be a survey after which Phase 2 comprises a case study approach. In Phase 2, science teachers, advisory teachers, curriculum developers and the ICT Project Manager would be interviewed, and observed periodically. The University of Pretoria requires that the participants of this study be protected in terms of keeping their identity anonymous and the information be kept confidential.

The Ministry of Education will benefit from the study in the following ways: 1) ascertain the extent to which the ICT Policy for Education has been implemented successfully; and 2) identify and understand the factors affecting the implementation process; 3) inform policy makers to make informed decisions.

Upon completion of this study, a copy of the report will be made available to the Ministry of Education offices and other government agencies.
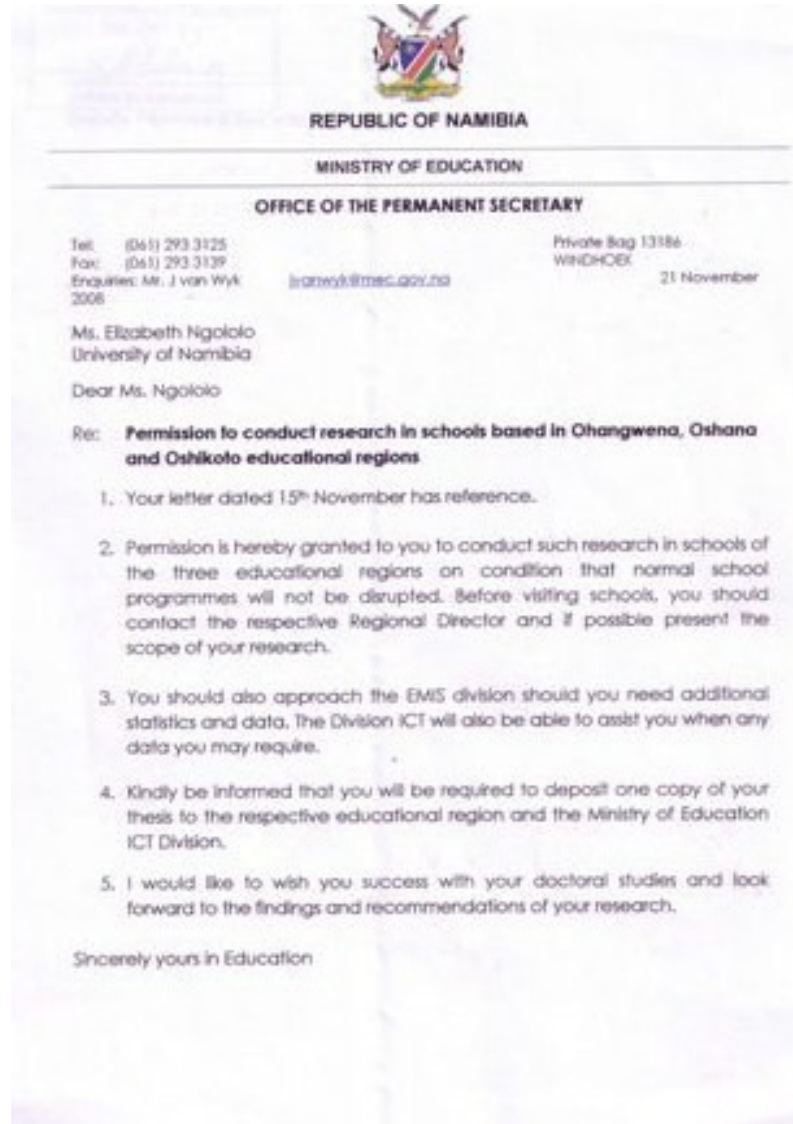
I count on your support.

Yours in Technology Education,

_____

Elizabeth N. Ngololo
Tel: 0811229022

Cc: Mr. L. Kafidi   Director, Oshikoto Region
     Ms. D. Shinyemba   Director, Oshana Region
     Mr. J. Udjombala   Director, Ohangwena Region

APPENDIX B

PERMISSION TO CONDUCT RESEARCH

REPUBLIC OF NAMIBIA

MINISTRY OF EDUCATION

OFFICE OF THE PERMANENT SECRETARY

Tel: (061) 293 3125   Private Bag 13186
Fax: (061) 293 3139   WINDHOEK
Enquiries: Mr. J van Wyk   jvanwyk@mec.gov.na   21 November
2008

Ms. Elizabeth Ngololo
University of Namibia

Dear Ms. Ngololo

Re: **Permission to conduct research in schools based in Ohangwena, Oshana
       and Oshikoto educational regions**

1. Your letter dated 15th November has reference.

2. Permission is hereby granted to you to conduct such research in schools of
   the three educational regions on condition that normal school
   programmes will not be disrupted. Before visiting schools, you should
   contact the respective Regional Director and if possible present the
   scope of your research.

3. You should also approach the EMIS division should you need additional
   statistics and data. The Division ICT will also be able to assist you when any
   data you may require.

4. Kindly be informed that you will be required to deposit one copy of your
   thesis to the respective educational region and the Ministry of Education
   ICT Division.

5. I would like to wish you success with your doctoral studies and look
   forward to the findings and recommendations of your research.

Sincerely yours in Education

APPENDIX C

ETHICAL CLEARANCE CERTIFICATE

UNIVERSITY OF PRETORIA

FACULTY OF EDUCATION

RESEARCH ETHICS COMMITTEE

CLEARANCE CERTIFICATE	**CLEARANCE NUMBER :**	CS09/05/01
DEGREE AND PROJECT	PhD: Computer Integrated Education	
	An evaluation of the implementation of the ICT Policy for Education in rural Namibian schools	
INVESTIGATOR(S)	**Elizabeth Ndeukumwa Ngololo**	
DEPARTMENT	Department of Science Mathematics and Technology Education	
DATE CONSIDERED	15 September 2010	
DECISION OF THE COMMITTEE	APPROVED	

Please note:

For Masters applications, ethical clearance is valid for 2 years

For PhD applications, ethical clearnace is valid for 3 years.

CHAIRPERSON OF ETHICS COMMITTEE   Prof L Ebersohn

DATE   15 September 2010

CC   Prof S Howie

                                                                    Ms Jeannie Beukes

This ethical clearance certificate is issued subject to the following conditions:

1. A signed personal declaration of responsibility

2. If the research question changes significantly so as to alter the nature of the study, a new application for ethical clearance must be submitted

3. It remains the students' responsibility to ensure that all the necessary forms for informed consent are kept for future queries.

Please quote the clearance number in all enquiries.

APPENDIX D

LETTER TO PARTICIPANTS

02 February 2009

Dear Participant

You are invited to participate in a study project aimed at evaluating the implementation of ICT Policy for Education in Namibian rural junior secondary schools. The purpose of this survey is to assess teaching practices and how Information and Communication Technologies (ICT) support these in rural junior secondary schools. The focus of the study is on how teachers organize their teaching and learning, the ICT facilities they have available at school, how they use ICT for teaching and learning, and the obstacles or difficulties they experience in relation to these technologies. This information will give better insight into the current state of pedagogical approaches and of how technologies support them. It will also allow educational practitioners and policy-makers to gain a better understanding of areas needing intervention and additional support. This study is being conducted under the auspices of the Centre for Evaluation and Assessment, University of Pretoria.

I am asking for your help in order to determine the current state of pedagogical approaches to and the use of ICT. Please try to answer each question as accurately as you can.

Your participation in this research project is voluntary and confidential. At no time will the name of any school or individual be identified. While results will be made available by school, you are guaranteed that neither your school nor your name will be identified in any report of the results of the study. Participation in this phase does not obligate you to participate in the follow up individual, however, should you decide to participate in follow-up interviews, your participation remain voluntary and you may withdraw at any time.

When in doubt about any aspect of the questionnaire, or if you would like more information about it or the study, you can reach Elizabeth NdeukumwaNgololo by phone at the following numbers: 0811229022.

If you would like to receive a copy of the results of the research study, please list a postal address where I can send the results: _____

_____

_____

Participant's signature _____   Date: _____

Researcher's signature _____   Date: _____

Yours sincerely,

Elizabeth Ndeukumwa Ngololo

APPENDIX: E QUESTIONNAIRE FOR PRINCIPALS

School Code

Name of the school

This questionnaire comprises the following parts:
Part A: Demographics
Part B: Vision of your school
Part C: Leadership and ICT in your school
Part D: Cooperation and support
Part E: ICT infrastructure
Part F: Use of ICT in your school
Part G: Expertise

Part H: Pedagogical Support for teachers using ICT
Part I   Obstacles

Introduction

The questionnaire is part of a doctoral study project which aims at investigating how and to what extent the Namibian policy on ICT in education has been implemented in rural areas since its establishment in 2005. The questionnaire is designed and administered only for graduation purposes. You and your school have been chosen to participate in this project in assessing teaching practices and how Information and Communication Technologies (ICT) support your school, the obstacles or difficulties you experience in relation to these technologies and how to improve ICT use.

Why is this information important?

This information will give better insight into the current state of pedagogical approaches utilized in schools and how technologies support them. It will also allow educational practitioners and policy-makers to gain a better understanding of areas needing intervention and additional support.

Confidentiality

All information is treated as confidential. At no time will the name of your school or your name be mentioned in the study. The school will receive feedback but no one will know what you have answered, only the overall results will show.

About this Questionnaire

This questionnaire asks for information from schools about education and policy matters related to pedagogical

practices and computers. If you do not have the information to answer particular questions, please consult other persons in the school. When the question is about ICT and/or ICT use, this will be explicitly stated. This questionnaire will take approximately 30 minutes to complete.

The words computers and ICT (Information and Communication Technologies) are used interchangeably in this questionnaire.

Please note that some questions refer to the entire school, while other questions refer to Grade 8 to 10 only.

Please note that some questions asking for educational policies and activities in general, while other questions explicitly focus on the use of ICT.

Guidelines for answering the questions are typed in *italics*. Most questions can be answered by marking the one most appropriate answer.

Please use a writing pen or ballpoint to write your answers.

When you have completed this questionnaire, please return to the Inspectors office by 22nd January 2010.

Further information

When in doubt about any aspect of the questionnaire, or if you would like more information about it or the study, you can reach me by phone at the following numbers: 0811229022.

Thank you very much for your cooperation!

Part A: Demographics

1. **Including this school year, how many years have you been:**

   Please mark only one choice in each row.

		Less than 3 years	3-5 years	6-10 years	11-20 years	21 years or more
A	Principal of any school (including years as principal in this school)	☐	☐	☐	☐	☐
B	Principal of this school...................	☐	☐	☐	☐	☐
C	Working in any professional capacity at this school (including years as teacher, head of department, and principal)	☐	☐	☐	☐	☐

2. **What is your age?**

   ☐ 30 years or less

   ☐ 31-35 years

   ☐ 36–45 years

   ☐ 46-55 years

   ☐ More than 55 years

3. **Please indicate whether you are:**

   ☐ Female

   ☐ Male

4. **What is the total number of boys and girls in the entire school?**

   Please write a whole number. Write 0 (zero), if none.

   | | | | | | Total number of girls | | | | | | Total number of boys

5. **How many people live in the village where your school is located?**

Please mark only one choice.

☐ 3,000 people or fewer

☐ 3,001 to 15,000 people

6. **Approximately what percentage of students are absent from your school on a typical school day?**

Please mark only one choice.

☐ Less than 5%

☐ 5–10%

☐ 11–20%

☐ More than 20%

7. Has your school been involved in any of the following activities during the past few years?

Please mark only one choice in each row.

		0	1
A	Making changes to pedagogical practices	☐	☐
B	Adopting new assessment practices	☐	☐
C	Connecting to the Internet	☐	☐
D	Adapting buildings to suit the school's pedagogical approaches	☐	☐
E	Setting up computers in classrooms	☐	☐
F	Installing computer laboratories	☐	☐
G	Installing electricity	☐	☐
H	Installing running water...	☐	☐
I	Installing flushing toilets...	☐	☐
J	Setting up a science laboratory...	☐	☐
K	Setting up a school library...	☐	☐
L	Setting up a storeroom	☐	☐
M	Acquiring a telephone line..	☐	☐
N	Acquiring a fax machine...	☐	☐
O	Acquiring a photo copier...	☐	☐
P	Acquiring sufficient desks...	☐	☐
Q	Acquiring sufficient chairs...	☐	☐

0=no
1=yes

17

Part B: Vision of your school

This section asks you to answer questions about vision and ICT in your school.

8 . To what extent do you agree or disagree that the school leadership (you and/orother school leaders) encourages the following activities to take place in Grade 8 to 10?

Please mark only one choice in each row.

		0	0	1	1
A	To cover the prescribed curriculum content	☐	☐	☐	☐
B	To improve students' performance on assessments/examinations	☐	☐	☐	☐
C	To individualize student learning experiences in order to address different learning needs	☐	☐	☐	☐
D	To increase learning motivation and make learning more interesting	☐	☐	☐	☐
E	To foster students' ability and readiness to set own learning goals and to plan, monitor and evaluate own progress	☐	☐	☐	☐
F	To foster collaborative and organizational skills when working in teams	☐	☐	☐	☐
G	To provide activities which incorporate real-world examples/settings/applications for student learning	☐	☐	☐	☐
H	To provide opportunities for students to learn from experts and peers from other schools/organizations/countries	☐	☐	☐	☐
I	To foster communication skills in face-to-face and/or on-line situations	☐	☐	☐	☐
J	To prepare students for responsible Internet behavior (e.g., not to commit mail-bombing, such as spam, etc.) and/or to cope with cybercrime (e.g., Internet fraud, illegal access to secure information, etc	☐	☐	☐	☐

Strongly disagree=0

Disagree=0

Strongly agree=1

Agree=1

20

Part C: School leadership and ICT in your school

9. **After the adoption of the national ICT Policy, has the school leadership (you and/or school board) taken any of the following actions during the past few years?**

Please mark only one choice in each row.

		0	1
A	Re-allocating workload to allow for collaborative planning for innovations in the classrooms	☐	☐
B	Re-allocating workload to allow for the provision of technical support for innovations	☐	☐
C	Organizing workshops to demonstrate the use of ICT-supported teaching and learning	☐	☐
D	Meeting with teachers to review their pedagogical approach	☐	☐
E	Monitoring and evaluating the implementation of pedagogical changes	☐	☐
F	Establishing new teacher teams to coordinate the implementation of innovations in teachers' teaching and learning	☐	☐
G	Changing class schedules to facilitate the implementation of innovations	☐	☐
H	Implementing incentive schemes to encourage teachers to integrate ICT in their lessons	☐	☐
I	Encouraging teachers collaborate with external experts to improve their teaching and learning practices	☐	☐
J	Featuring new instructional methods in the school newspaper and/or other media (e.g., the school website)	☐	☐
K	Involving parents in ICT related activities	☐	☐

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No=0

Yes=1

10. During this school year, how often did the school leadership (you and/or school board) undertake each of the following?

Please mark only one choice in each row.

		0	1	1	2
A	Organize activities to develop a common vision of what is meant by quality education	☐	☐	☐	☐
B	Inform teachers about pedagogical changes taking place in the school	☐	☐	☐	☐
C	Inform teachers about educational developments outside the school	☐	☐	☐	☐
D	Consult teachers about desired pedagogical changes	☐	☐	☐	☐
E	Discuss with teachers what they want to achieve through their lessons	☐	☐	☐	☐
F	Motivate teachers to critically assess their own educational practices	☐	☐	☐	☐
G	Encourage teachers to assess their educational practices in the context of your school's goals .	☐	☐	☐	☐
H	Discuss with parents/guardians/caretakers what pedagogical changes are taking place in our school	☐	☐	☐	☐
I	Discuss with students the teaching and learning in our school	☐	☐	☐	☐

Not at all= 0

A few times= 1

Monthly= 1

Weekly=2

27

Part D: Collaboration and support

11. **To what extent do you agree or disagree that the school leadership (you and/or school board) encourages the following activities to take place in Grade 8 to 10?**

Please mark only one choice in each row.

		0	0	1	1
A	Teachers co-teach with their colleagues	☐	☐	☐	☐
B	Teachers collaborate with teachers from other schools..	☐	☐	☐	☐
C	Teachers discuss the problems that they experience at work with their colleagues	☐	☐	☐	☐
D	Teachers collaborate with teachers from other countries	☐	☐	☐	☐

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12. **To what extent do you agree or disagree that the school leadership (you and/or school board) encourages teachers to use each of the following types of assessment at Grade 8 to 10 ?**

Please mark only one choice in each row.

		0	0	1	1
A	Written test/examination	☐	☐	☐	☐
B	Written task/exercise.....................................	☐	☐	☐	☐
C	Individual oral presentation	☐	☐	☐	☐
D	Group presentation (oral/written)....................	☐	☐	☐	☐
E	Project report and/or (multimedia) product	☐	☐	☐	☐
F	Students' peer evaluations	☐	☐	☐	☐
G	Portfolio/learning log	☐	☐	☐	☐
H	Group assessment scores for collaborative tasks	☐	☐	☐	☐

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Strongly disagree=0

Disagree=0

Strongly agree=1

Agree=1

Part E: ICT infrastructure

13. Who at your school has the primary responsibility for making decisions about each of the following?

Please mark only one choice in each row.

		2	2	1	1	0
A	Purchasing ICT equipment	☐	☐	☐	☐	☐
B	Determining which pedagogical approaches will be used	☐	☐	☐	☐	☐
C	Choosing whether ICT is used	☐	☐	☐	☐	☐
D	Using mobiles and/or handheld devices for instructional purposes	☐	☐	☐	☐	☐

Not applicable= 0

Subject department/teacher =1

School leadership/schoolboard=2

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12

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14. Are the following actions taken in your school?

Please mark only one choice in each row.

		0	1
A	Setting up security measures to prevent unauthorized system access or entry	☐	☐
B	Restricting the number of hours students are allowed to use the computer .	☐	☐
C	Allowing students to access school computers outside school hours	☐	☐
D	Allowing students to access computers outside class hours (but during school hours)	☐	☐
E	Honouring of intellectual property rights (e.g., software copyrights)	☐	☐
F	Prohibiting access to adult-only material (e.g., pornography, violence)	☐	☐
G	Restricting the playing of games on school computers	☐	☐
H	Specifying the compulsory computer-related knowledge and skills that students need	☐	☐
I	Giving the local community (parents and/or others) access to school computers and/or the Internet	☐	☐
J	Complementing printed lesson materials with digital resources for teaching and learning	☐	☐

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Part F: Use of ICT in your school

This section asks you to answer questions about pedagogy and ICT in your school.

15. For each of the following, how important is the use of ICT at Grade 8 to 10 in your school?

Please mark only one choice in each row.

		0	1	1	2
A	To prepare students for the world of work	☐	☐	☐	☐
B	To improve students' performance on assessments/examinations	☐	☐	☐	☐
C	To promote active learning strategies	☐	☐	☐	☐
D	To individualize student learning experiences in order to address different learning needs	☐	☐	☐	☐
E	To foster collaborative and organizational skills when working in teams	☐	☐	☐	☐
F	To develop students' independence and responsibility for their own learning	☐	☐	☐	☐
G	To do exercises to practice skills and procedures	☐	☐	☐	☐
H	To increase learning motivation and make learning more interesting	☐	☐	☐	☐
I	To satisfy parents' and the community 's expectations	☐	☐	☐	☐
J	To act as a catalyst in changing the pedagogical approaches of teachers	☐	☐	☐	☐

Not at all=0
A little= 1
Somewhat=1
A lot= 2

30

16. To what extent do you agree or disagree that the school leadership (you and/or other school leaders) encourages teachers at Grade 8 to 10 to use ICT in each of the following activities?

Please mark only one choice in each row.

		0	0	1	1
A	Organize, monitor and support team-building and collaboration among students	☐	☐	☐	☐
B	Organize and/or mediate communication between students and experts/external mentors	☐	☐	☐	☐
C	Facilitate collaboration (within or outside of the school) on student activities	☐	☐	☐	☐
D	Collaborate with parents/guardians/caretakers in supporting/monitoring students' learning and/or in providing counseling	☐	☐	☐	☐
E	Provide students with experiences that show them how certain activities are done in real life or by experts	☐	☐	☐	☐

Strongly disagree=0

Disagree=0

Agree=1

Strongly agree=1

$$\frac{}{5}$$

Part H: Expertise

17. Are teachers at Grade 8 to 10 required or encouraged to acquire knowledge and skills in each of the following?

Please mark only one choice in each row.

		0	1	1
A	Integrating Web-based learning in their instructional practice	☐	☐	☐
B	Using new ways of assessment (portfolios, peer reviews, etc.)	☐	☐	☐
C	Developing real-life assignments for students	☐	☐	☐
D	Using real-life assignments developed by others	☐	☐	☐
E	Using computers for monitoring student progress	☐	☐	☐
F	Organizing forms of team-teaching	☐	☐	☐
G	Collaborating with other teachers via ICT........................	☐	☐	☐
H	Communicating with parents via ICT	☐	☐	☐
I	Being knowledgeable about the pedagogical issues of integrating ICT into teaching and learning.......................	☐	☐	☐
J	Using subject-specific learning software (e.g., tutorials, simulation)	☐	☐	☐

No= 0

Yes encouraged = 1

Yes required = 1

10

18. How much of a priority is it for your school leadership (you and/or other school leaders) to acquire competencies in the following areas?

Please mark only one choice in each row.

		0	1	2	3
A	Developing a common pedagogical vision among teaching staff in the school	☐	☐	☐	☐
B	Managing the innovation of pedagogical practices in the school	☐	☐	☐	☐
C	Explaining to teachers the relevance of encouraging students to be responsible for their own learning process and outcomes	☐	☐	☐	☐
D	Identifying best practices that exist outside the school regarding the integration of ICT in learning...	☐	☐	☐	☐
E	Promoting collaboration between teachers of different subjects	☐	☐	☐	☐
F	Managing the adoption of ICT-supported methods for assessing student progress	☐	☐	☐	☐
G	Organizing cooperation with other schools regarding the development of teaching and learning materials	☐	☐	☐	☐
H	Organizing cooperation with other schools regarding the development of ICT-based teaching and learning...............................	☐	☐	☐	☐
I	Promoting the integration of ICT in the teaching and learning of traditional subjects...	☐	☐	☐	☐
J	Developing a strategic plan for integrating ICT use in teaching and learning	☐	☐	☐	☐

Not considered =0

Low priority=1

Medium priority=2

High priority=3

40

Below are a few questions about your personal background.

19. Altogether, how often do you personally use a computer?

Please mark only one choice.

☐ Never → ***Please proceed to the end of the questionnaire***   *0*

☐ A few times per year   1

☐ Almost monthly   1

☐ Weekly   2

☐ Daily   3

4

20. Do you use your computer for any of the following?

Please mark only one choice in each row.

		0	1
A	Writing documents and letters	☐	☐
B	Budgeting, monitoring or controlling expenses	☐	☐
C	Planning purposes	☐	☐
D	Communicating with teachers	☐	☐
E	Communicating with parents	☐	☐
F	Teaching/instruction	☐	☐
G	Time tabling	☐	☐
H	Searching for information	☐	☐
I	Developing and making presentations	☐	☐
J	Own professional development	☐	☐

No = 0
Yes = 1

10

21. Do you have access to a computer at home?

☐ *0→ Please proceed to the end of the questionnaire.*

☐ *1→ Please continue.*

No = 0
Yes = 1

___
2

22. Do you use this computer for the following activities?

Please mark only one choice in each row.

		0	1
A	School related activities	☐	☐
B	Connecting to the internet	☐	☐

No = 0
Yes = 1

___
2

Part I: Pedagogical Support for teachers using ICT

23. **How frequently does each of the following persons provide pedagogical support to those teachers in Grade 8 to 10 who want to use ICT for their teaching and learning activities?**

Note: Pedagogical support may consist of giving advice and guidance on issues related to teaching and learning, and also technical.

Please mark only one choice in each row.

		0	0	1	1	2
A	Experienced colleagues	☐	☐	☐	☐	☐
B	The school principal	☐	☐	☐	☐	☐
C	The technology coordinator	☐	☐	☐	☐	☐
D	Other staff from the school....................	☐	☐	☐	☐	☐
E	Experts from outside the school	☐	☐	☐	☐	☐

Never=0;Not applicable=0

Few times a year=1;Monthly=1

Weekly=2

_____
15

.

24 ***For each of the following activities, to what extent is pedagogical support available for teachers in Grade 8 to 10 ?***

Note: Pedagogical support may consist of advice and guidance (via persons, manuals, etc.) with regard to the activities mentioned below. Please do not consider support that is only technical.

Please mark only one choice in each row.

		0	1	1	2	0
A	Having students produce outcomes of media production projects (e.g., development of websites)......................	☐	☐	☐	☐	☐
B	Having students work on short projects (2 weeks or shorter)	☐	☐	☐	☐	☐
C	Having students work on extended projects (longer than 2 weeks)	☐	☐	☐	☐	☐
D	Having students collaborate with others by online means, such as online discussion forums	☐	☐	☐	☐	☐
E	Having students conduct open-ended scientific investigations	☐	☐	☐	☐	☐
F	Having students engage in field study activities	☐	☐	☐	☐	☐

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18

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Part J: Obstacles

25. **To what extent is your school's capacity to realize its pedagogical goals hindered by each of the following obstacles?**

Please mark only one choice in each row.

ICT-related obstacles		0	1	1	2	0
A	Insufficient qualified technical personnel to support the use of ICT	☐	☐	☐	☐	☐
B	Insufficient number of computers connected to the Internet........................	☐	☐	☐	☐	☐
C	Insufficient Internet bandwidth or speed..	☐	☐	☐	☐	☐
D	Lack of special ICT equipment for disabled students	☐	☐	☐	☐	☐
E	Insufficient ICT equipment for instruction	☐	☐	☐	☐	☐
F	Computers are out of date......................	☐	☐	☐	☐	☐
G	Not enough digital educational resources for instruction	☐	☐	☐	☐	☐
H	Lack of ICT tools for science laboratory work	☐	☐	☐	☐	☐
I	Teachers' lack of ICT skills......................	☐	☐	☐	☐	☐
J	Insufficient time for teachers to use ICT...	☐	☐	☐	☐	☐

Other obstacles

K	Pressure to score highly on standardized tests	☐	☐	☐	☐	☐
L	Prescribed curricula are too strict	☐	☐	☐	☐	☐
M	Insufficient or inappropriate space to accommodate the school's pedagogical approaches	☐	☐	☐	☐	☐
N	Insufficient budget for non ICT-supplies (e.g., paper, pencils)	☐	☐	☐	☐	☐
O	Using ICT for teaching and/or learning is not a goal of our school	☐	☐	☐	☐	☐

Not at all=0; Not applicable=0
A little= 1; Somewhat=1
A lot= 2

_____
45

This is the end of the questionnaire.
Thank you very much for your cooperation!
Please return this questionnaire to the Inspectors Office by the
02 February 2010.

APPENDIX F:

QUESTIONNAIRE FOR SCIENCE TEACHERS

An evaluation of the implementation of ICT Policy for
Education in Namibian rural junior secondary schools
(PhD study)

Questionnaire for Science Teachers

School Code	Name of the school

This questionnaire comprises the following parts:

		Total score
Part A:	Demographics	
Part B:	Curriculum Goals	
Part C:	Leadership and vision	**277**
Part D:	Digital Learning Material	
Part E:	Knowledge, attitude and skills	
Part F:	ICT infrastructure	
Part G:	Use of ICT	
Part H:	Professional Development	
Part I:	Specific Pedagogical Practice that Uses ICT	

Introduction

The questionnaire is part of a doctoral study project. The study aims at investigating how well the Namibian ICT Policy for Education has been implemented in rural junior secondary school with a focus on the teaching of science. It is designed and administered only for graduation purposes. You and your school have been chosen to participate in this project in assessing teaching practices and how Information and Communication Technologies (ICT) supports your school, the obstacles or difficulties you experience in relation to these technologies and how to improve ICT use.

Why is this information important?

This information will give better insight into the current state of pedagogical approaches applied by science teachers and how technologies support them. It will also allow educational practitioners and policy-makers to gain a better understanding of areas needing intervention and additional support.

Confidentiality

All information is treated as confidential. At no time will the name of your school or your name will be mentioned in the study. The school will receive feedback but no one will know what you have answered; only the overall results will show.

About this Questionnaire

- This questionnaire asks for information from teachers about education and policy matters related to pedagogical practices and computers. When a question is about ICT and/or ICT use, this will be explicitly stated. The questionnaire will take you approximately 30 minutes to complete.

- The words computers and ICT (Information and Communication Technologies) are used interchangeably in this questionnaire.

- Guidelines for answering the questions are typed in *italics*.

- Most questions can be answered by marking the one most appropriate answer. A few questions (16, 17 and 18) require responses to two parts, (a) and (b). Mark one most appropriate answer for each of the two parts in each row.

- When a question refers to the "target class", it refers to a specific class you are teaching in this school year. The class identification procedure is attached (Appendix A).

- Please use a writing pen or ballpoint to write your answers.

- When you have completed this questionnaire, please return to the School Inspector's Office by the 10 February 2010.

Further information

- When in doubt about any aspect of the questionnaire, or if you would like more information about it or the study, you can reach Elizabeth NdeukumwaNgololoby phone at the following numbers (061) 207 2257 or 0811229022.

Thank you very much for your cooperation!

Procedure to identify the 'target class' in a school

Please note that the target population are science teachers and their classes in Grades 8-10. A science teacher may teach science to more than one class, e.g. one class in each of the three grades, or maybe even more than one class in one or more grades. For you to identify the target class for the study, I would like you to follow the procedures below:

Step 1: in how many of the grade 8-10 classes to which you teach science do you use ICT?
1. if the answer is in *none* of the classes, then GO TO step 3
2. if the answer is in just one class => this is the target class in this school
3. if the answer is in more than one class, then GO TO step 2

Step 2: are the classes in which you use ICT in your science teaching all grade 10 classes, or are there also classes in grades 8 and/or 9?
1. if the answer is *only* classes in grade 10, then GO TO step 3
2. if the answer is I use ICT in just one class in either grade 8 or 9 => this is the target class in this school
3. if the answer is that there are more than one class in grade 8 or 9 where ICT is used in science teaching, then GO TO step 3

Step 3: now there are for this teacher a few classes candidate for being selected as the target class, viz
(i)   all grade 8 & 9 classes of the non-ICT using teacher
(ii)   all grade 10 classes of the ICT using teacher who only uses ICT in grade 10 classes
(iii)   all grade 8 & 9 classes in which the science teacher uses ICT in his/her teaching.

Example 1:
Teacher A uses ICT in his/her science lessons in the following classes: one grade 10 class, one grade 9 class and on grade 8 class. According to Step 2: the grade 9 and the grade 8 class are candidate for becoming target class. Teacher A has in a typical week the first science lesson to the grade 8 class on Mondays, 3rd lesson period, and the science lesson to the grade 9 class on Monday, 4th hour => the grade 8 class is the first class to which he/she teaches science in a typical week and this class then will be the target class.

Part A: Demographics

To what age group do you belong?

1.

Below 25	25–29	30–39	40–49	50–59	60 or above
☐	☐	☐	☐	☐	☐

2. **What is your gender?**

Male	Female
☐	☐

3. **What is your highest level of education?**

Please mark only one choice.

Secondary or high school	Post-secondary education (e.g., BETD)	Bachelor's degree	Master's degree or above
☐	☐	☐	☐

4. **Do you have a teaching certificate?**

No	Yes
☐	☐

5. **How many years of experience do you have of teaching?**

Less than 2 years	2–4 years	5– 9 years	10–19 years	20 years or more
☐	☐	☐	☐	☐

6. **How many students are there in the target class?**

☐☐☐☐

7. **What is the gender mix of this class?**

All boys	All girls	Both boys and girls
☐	☐	☐

8. Approximately what percentage of students are absent in the target class on a typical school day?

Less than 5%	5–10%	11–20%	More than 20%
☐	☐	☐	☐

9. How many hours of scheduled class time do you spend with the target class per week?

Please answer these questions with reference to science, the subject (domain) that is focus of this questionnaire.

Less than two hours	2– 4 hrs	5– 6 hrs	7– 8 hrs	More than 8 hrs
☐	☐	☐	☐	☐

10. What proportion of students in your class has competence in the following?

Please mark only one choice in each row.

Operation skills		0	1	2	2	0
A	Word-processing	☐	☐	☐	☐	☐
B	Database software	☐	☐	☐	☐	☐
C	Spreadsheet	☐	☐	☐	☐	☐
D	Presentation software	☐	☐	☐	☐	☐
E	Application of multimedia	☐	☐	☐	☐	☐
F	E-mail	☐	☐	☐	☐	☐
G	Internet	☐	☐	☐	☐	☐
H	Graphic calculator	☐	☐	☐	☐	☐
I	Data-logging tools......................	☐	☐	☐	☐	☐

Nearly none = 0

Some students = 1

Majority of students = 2

Nearly all students = 2

Don't know = 0

27

Part B: Curriculum Goals

11. **In your teaching this school year, how important is it for you to achieve the following goals?**

Please mark only one choice in each row.

		0	1	1	2
A	To prepare students for the world of work	☐	☐	☐	☐
B	To prepare students for upper secondary education and beyond	☐	☐	☐	☐
C	To provide opportunities for students to learn from experts and peers from other schools/countries	☐	☐	☐	☐
D	To provide activities which incorporate real-world examples/settings/applications for student learning	☐	☐	☐	☐
E	To improve students' performance in assessments/examinations	☐	☐	☐	☐
F	To increase learning motivation and make learning more interesting	☐	☐	☐	☐
G	To individualize student learning experiences in order to address different learning needs...........	☐	☐	☐	☐
H	To foster students' ability and readiness to set their own learning goals and to plan, monitor and evaluate their own progress........................	☐	☐	☐	☐
I	To foster students' collaborative and organizational skills for working in teams	☐	☐	☐	☐
J	To foster students' communication skills in face-to-face and/or online situations	☐	☐	☐	☐
K	To satisfy parents' and the community's expectations...	☐	☐	☐	☐
L	To prepare students for competent ICT use	☐	☐	☐	☐
M	To prepare students for responsible Internet behavior (e.g., not to commit mail-bombing, etc.)and/or to cope with cybercrime (e.g., Internet fraud, illegal access to secure information, etc.)	☐	☐	☐	☐

Not at all= 0

A little= 1

Somewhat= 1

Very much = 2

26

Part C: Leadership and vision

12. **To what extent do the following statements about school vision apply to the staff in your school?**

Please mark only one choice in each row.

		0	1	1	2
A	We discuss what we want to achieve through our lessons.	☐	☐	☐	☐
B	Teachers are constantly motivated to critically assess their own educational practices.	☐	☐	☐	☐
C	Teachers are expected to think about the school's vision and strategies with regard to educational practices.	☐	☐	☐	☐

6

13. **To what extent do the following statements about teachers' participation in decision-making apply to you?**

Please mark only one choice in each row.

		0	1	1	2
A	I can influence the development of the school's innovation implementation plans.	☐	☐	☐	☐
B	When implementing innovations, our school considers teachers' opinions and adjusts its action plan as needed.	☐	☐	☐	☐
C	I am able to implement innovations in my classroom according to my own judgment and insights.	☐	☐	☐	☐

6

14. **To what extent do the following statements about professional collaboration among teachers apply to you?**

Please mark only one choice in each row.

		0	1	1	2
A	I co-teach with my colleagues.	☐	☐	☐	☐
B	I discuss the problems that I experience at work with my colleagues.	☐	☐	☐	☐
C	I work with teachers in other schools on collaborative activities.	☐	☐	☐	☐
D	I work with teachers in other countries on collaborative activities.	☐	☐	☐	☐

15. **To what extent do the following statements about support to teachers apply to you?**

> **8**

Please mark only one choice in each row.

		0	1	1	2
A	When necessary, I receive sufficient technical support from my school/region/state (e.g., by having a technician in my classes) to support my teaching.	☐	☐	☐	☐
B	My students can access computers easily outside scheduled class time without my help.	☐	☐	☐	☐
C	The administrative work arising from the use of ICT in my teaching (e.g., booking computer laboratories, changing class schedules) is easy to do in my school. ...	☐	☐	☐	☐

Not at all= 0

A little= 1

Somewhat= 1

A lot= 2

> **6**

Part D: Digital Learning material

16. In your teaching of the target class in this school year,

    (a) How often is the scheduled learning time of the class used for the following activities?

    (b) Has ICT been used when these activities took place?

Please mark only one choice for each of the two parts in each row.

		(a) How often is the scheduled learning time used for the following activities?				(b) ICT used?	
		0	1	2	2	0	1
A	Extended projects (2 weeks or longer) ..	☐	☐	☐	☐	☐	☐
B	Short-task projects	☐	☐	☐	☐	☐	☐
C	Product creation (e.g., making a model or a report)..	☐	☐	☐	☐	☐	☐
D	Self-accessed courses and/or learning activities	☐	☐	☐	☐	☐	☐
E	Scientific investigations (open-ended) ...	☐	☐	☐	☐	☐	☐
F	Field study activities	☐	☐	☐	☐	☐	☐
G	Teacher's lectures	☐	☐	☐	☐	☐	☐
H	Exercises to practice skills and procedures	☐	☐	☐	☐	☐	☐
I	Laboratory experiments with clear instructions and well-defined outcomes .	☐	☐	☐	☐	☐	☐
J	Discovering science principles and concepts	☐	☐	☐	☐	☐	☐
K	Studying natural phenomena through simulations	☐	☐	☐	☐	☐	☐
L	Looking up ideas and information	☐	☐	☐	☐	☐	☐
M	Processing and analyzing data	☐	☐	☐	☐	☐	☐

Never= 0

Sometimes=1

Often= 2

Nearly always = 2

No=0

Yes = 1

39

Part E: Expertise

17. **In your teaching of the target class in this school year:**

(a) How often do you conduct the following?

(b) Do you use ICT for these activities?

Please mark onlyone choice for each of the two parts in each row.

		(a) How often do you conduct the following?					(b) ICT used?	
		0	1	2	2		0	1
A	Present information/demonstrations and/or give class instructions	☐	☐	☐	☐		☐	☐
B	Provide remedial or enrichment instruction to individual students and/or small groups of students	☐	☐	☐	☐		☐	☐
C	Help/advise students in exploratory and inquiry activities	☐	☐	☐	☐		☐	☐
D	Organize, observe or monitor student-led whole-class discussions, demonstrations, presentations	☐	☐	☐	☐		☐	☐
E	Assess students' learning through tests/quizzes	☐	☐	☐	☐		☐	☐
F	Provide feedback to individuals and/or small groups of students	☐	☐	☐	☐		☐	☐
G	Use classroom management to ensure an orderly, attentive classroom	☐	☐	☐	☐		☐	☐
H	Organize, monitor and support team-building and collaboration among students........................	☐	☐	☐	☐		☐	☐
I	Organize and/or mediate communication between students and experts/external mentors	☐	☐	☐	☐		☐	☐
J	Liaise with collaborators (within or outside school) for student collaborative activities	☐	☐	☐	☐		☐	☐
K	Provide counseling to individual students	☐	☐	☐	☐		☐	☐

L   Collaborate with parents/guardians/caretakers in supporting/monitoring students' learning and/or in providing counseling ....   ☐   ☐   ☐   ☐   ☐   ☐

Never = 0

Sometimes = 1

Often = 2

Nearly always = 2

No = 0

Yes = 1

_____	36

18.   **In your teaching of the target class in this school year:**

   (a) Do you use the following methods of assessing student performance?

   (b) Do you use ICT to carry out these assessments?

   Please mark only one choice for each of the two parts in each row.

	(a) Assessment method used?		(b) ICT used?	
A Written test/examination	☐	☐	☐	☐
B Written task/exercise	☐	☐	☐	☐
C Individual oral presentation	☐	☐	☐	☐
D Group presentation (oral/written)	☐	☐	☐	☐
E Project report and/or (multimedia) product.........................	☐	☐	☐	☐
F Students' peer evaluations	☐	☐	☐	☐
G Portfolio..	☐	☐	☐	☐
H Assessment of group performance on collaborative tasks	☐	☐	☐	☐

   No= 0

   Yes = 1

_____ 16

Part F: ICT infrastructure

19. How often did you incorporate the following in your teaching this school year?

Please mark only one choice in each row.

		0	1	2	2
A	Equipment and hands-on materials (e.g., laboratory equipment, musical instruments, art materials, overhead projectors, slide projectors, electronic calculators)	☐	☐	☐	☐
B	Tutorial/exercise software	☐	☐	☐	☐
C	General office suite (e.g., word-processing, database, spreadsheet, presentation software)	☐	☐	☐	☐
D	Multimedia production tools (e.g., media capture and editing equipment, drawing programs, webpage/multimedia production tools)	☐	☐	☐	☐
F	Simulations/modeling software/digital learning games	☐	☐	☐	☐
G	Communication software (e.g.,internet, e-mail, chat, discussion forum)	☐	☐	☐	☐
H	Digital resources (e.g., portal, dictionaries, encyclopedia)	☐	☐	☐	☐
I	Mobile devices (e.g., Personal Digital Assistant (PDA), cell phone)	☐	☐	☐	☐
J	Smart board/interactive whiteboard	☐	☐	☐	☐
K	Learning management system (e.g., web-based learning environments)	☐	☐	☐	☐

Never = 0

Sometimes= 1

Often = 2

Nearly always = 2

20

Part G: Use of ICT

20. To what extent are you confident in accomplishing the following?

This question is also for non-ICT using teachers. Please mark only one choice in each row.

General use of ICT	0	1	1	2
A I can produce a letter using a word-processing program.	☐	☐	☐	☐
B I can e-mail a file (e.g., the notes of a meeting) to a colleague.	☐	☐	☐	☐
C I can take photos and show them on the computer.	☐	☐	☐	☐
D I can file electronic documents in folders and sub-folders on the computer.	☐	☐	☐	☐
E I can use a spreadsheet program for budgeting or student administration.	☐	☐	☐	☐
F I can share knowledge and experiences with others in a discussion forum/user group on the Internet.	☐	☐	☐	☐
G I can produce presentations with simple animation functions.	☐	☐	☐	☐
H I can use the Internet for online purchases and payments.	☐	☐	☐	☐
Pedagogical Use of ICT				
I I can prepare lessons that involve the use of ICT by students.	☐	☐	☐	☐
J I know which teaching/learning situations are suitable for ICT use.	☐	☐	☐	☐
K I can find useful curriculum resources on the Internet.	☐	☐	☐	☐
L I can use ICT for monitoring students' progress and evaluating learning outcomes.	☐	☐	☐	☐
M I can use ICT to give effective presentations/ explanations.	☐	☐	☐	☐
N I can use ICT for collaboration with others.	☐	☐	☐	☐
O I can install educational software on my computer.	☐	☐	☐	☐

16

		0	1	1	2
P	I can use the Internet (e.g., select suitable websites, user groups/discussion forums) to support student learning.	☐	☐	☐	☐

Impact of use

To what extent do you agree that the use of ICT has had the following impacts on you?

Please mark only one choice in each row.

		0	1	1	2
A	My ICT skills have improved.	☐	☐	☐	☐
B	I incorporate new teaching methods.	☐	☐	☐	☐
C	I provide more individualized feedback to students.	☐	☐	☐	☐
D	I incorporate new ways of organizing student learning.	☐	☐	☐	☐
E	I monitor more easily students' learning progress.	☐	☐	☐	☐
F	I access more diverse/higher quality learning resources.	☐	☐	☐	☐
G	I collaborate more with colleagues within my school.	☐	☐	☐	☐
H	I collaborate more with peers and experts outside my school.	☐	☐	☐	☐
I	I complete my administrative tasks more easily. .	☐	☐	☐	☐
J	My workload has increased.	☐	☐	☐	☐
K	There is increased work pressure.	☐	☐	☐	☐
L	I have become less effective as a teacher.	☐	☐	☐	☐

Not at all=0
A little = 1
Somewhat**=** 1
A lot= 2

24

21. Do you have access to a computer at home?

☐ 1→ *Please go to question 23.*

☐ 2→ *Please continue.*

No=0
Yes= 1

1

22. Do you use this computer for the following activities?

Please mark only one choice in each row.

		0	1
A	Teaching related activities	☐	☐
B	Connecting to the internet	☐	☐

No = 0

Yes = 1

1

23. Looking ahead to the coming two years, what priority will you give to the use of ICT in enhancing your teaching practice in the following areas?

Please mark only one choice in each row.

		0	1	2	3
A	To monitor more effectively the progress of my students	☐	☐	☐	☐
B	To provide exercises to students in order to practice skills and procedures	☐	☐	☐	☐
C	To provide better and more interesting lectures/presentations to my students	☐	☐	☐	☐
D	To engage students in multimedia production projects	☐	☐	☐	☐
E	To provide more activities that address the individual differences among my students	☐	☐	☐	☐
F	To involve students in collaborative, short projects (2 weeks or shorter)	☐	☐	☐	☐
G	To involve students in extended collaborative projects (longer than 2 weeks)	☐	☐	☐	☐

H	To involve my students in scientific investigations (involving laboratory work)	☐	☐	☐	☐
I	To provide more opportunities for my students to collaborate with or learn from people outside of their classroom, including peers and external experts	☐	☐	☐	☐
J	To collaborate more with fellow teachers and others within and outside my school	☐	☐	☐	☐
K	To provide more opportunities for my students to collaborate with their classmates	☐	☐	☐	☐
L	To arrange self-accessed activities for my students..	☐	☐	☐	☐

Not at all= 0; Low priority=1, Medium priority= 2, High priority=3

24. Do you experience the following obstacles in using ICT in your teaching?

	36

Please mark only one choice in each row.

		0	1
A	ICT is not considered to be useful in my school.	☐	☐
B	My school does not have the required ICT infrastructure.	☐	☐
C	I do not have the required ICT-related skills.	☐	☐
D	I do not have the necessary ICT-related pedagogical skills.	☐	☐
E	I do not have sufficient confidence to try new approaches alone.	☐	☐
F	My students do not possess the required ICT skills.	☐	☐
G	My students do not have access to the required ICT tools outside of the school premises.	☐	☐
H	I do not have the time necessary to develop and implement the activities.	☐	☐
I	I do not know how to identify which ICT tools will be useful.	☐	☐
J	My school lacks digital learning resources.	☐	☐
K	I do not have the flexibility to make my own decisions when planning lessons with ICT.	☐	☐
L	I do not have access to ICT outside of the school.	☐	☐

No = 0

Yes = 1

12

Part H: Professional Development

25. **Have you participated in any of the following professional development activities? If no, would you wish to attend?**

Please mark only one choice in each row.

		0	0	1
A	Introductory course for Internet use and general applications (e.g., basic word-processing, spreadsheets, databases, etc.)	☐	☐	☐
B	Technical course for operating and maintaining computer	☐	☐	☐
C	Advanced course for applications/standard tools (e.g., advanced word-processing, complex relational databases)	☐	☐	☐
D	Advanced course for Internet use (e.g., creating websites/developing a home page, advanced use of the Internet, video conferencing)	☐	☐	☐
E	Course on pedagogical issues related to integrating ICT into teaching and learning	☐	☐	☐
F	Subject-specific training with learning software for specific content goals (e.g., tutorials, simulation, etc.)	☐	☐	☐
G	Course on multimedia operations (e.g., using digital video and/or audio equipment)	☐	☐	☐

No, I do not wish to attend = 0

No, I would like to attend if available = 1

Yes, I have = 1

_____

7

Part I: Specific Pedagogical Practicethat Uses ICT

26. **Which of the following descriptionis applicable to you?**

Please mark only one choice.

☐ I use ICT once a week or more in the target class.➔ ***Please continue.***

☐ I use ICT extensively in the target class during a limited period during the year (e.g., in a project or a theme)➔ ***Please continue.***

☐ None of the above➔ ***Please go to the end of the questionnaire.***

Once a week= 1

Extensively = 2

None=0

_____
2

27. **Please describe the one most satisfying pedagogical practice (that you applied in the target class) in this school year, in which you and/or your students used ICT extensively.**

Please describe the pedagogicalpractice(e.g., a research project or a multimedia production), the ICT used (e.g., data logging tools, spreadsheets or web search) and its content (e.g., curricular goals; topic) in a maximum of 20 words.

_____

_____

_____

_____

28. **Has the use of ICT in this pedagogical practicedescribed in question 27 contributed to changes in the following aspects of your teaching of the target class:**

Please mark only one choice in each row.

		0	0	1
A	Quality of coaching students	☐	☐	☐
B	Time available to help individual students	☐	☐	☐
C	Time needed to solve technical problems	☐	☐	☐
D	Time needed for preparation	☐	☐	☐
E	Quality of instructions given to students	☐	☐	☐
F	Time needed for classroom management	☐	☐	☐
G	Quality of classroom discussion	☐	☐	☐
H	Collaboration between students	☐	☐	☐
I	Communication with the outside world	☐	☐	☐
J	Availability of new learning content	☐	☐	☐
K	Variety of learning resources/materials	☐	☐	☐
L	Variety of learning activities	☐	☐	☐
M	Adaptation to individual needs of students	☐	☐	☐
N	Amount of effort needed to motivate students	☐	☐	☐
O	Insight into the progress of student performance	☐	☐	☐
P	Self-confidence	☐	☐	☐

Increased = 1

Decreased = 0

Made no difference = 0

16

This is the end of the questionnaire.
Thank you very much for your time and effort!

Kindly return the questionnaire to the School Inspector's Office by the

02 February 2010

APPENDIX G

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

(PhD study)

School code	Name of the school

QUESTIONNAIRE FOR TECHNICIANS

(This questionnaire is to be answered by the person in the school who is responsible for ICT facilities including maintenance and practical use in your school.)

This questionnaire comprises the following parts:

Part A: ICT in your school
Part B: Digital Learning Material
Part C: Leadership and vision
Part D: ICT infrastructure
Part E: Knowledge, attitude and skills
Part F: Professional Development
Part G: Support facilities for ICT
Part H: Obstacles to realize pedagogical goals

Total score
140

Questionnaire for ICT Technician

Introduction

The questionnaire is part of a doctoral study project. The study aims at investigating how well the Namibian ICT Policy for Education has been implemented in rural junior secondary school with a focus on the teaching of science.It is designed and administered only for graduation purposes. You and your school have been chosen to participate in this project in assessing teaching practices and how Information and Communication Technologies (ICT) supports your school, the obstacles or difficulties you experience in relation to these technologies and how to improve ICT use.

Why is this information important?

This information will give better insight into the current state of pedagogical approaches and how technologies support them. It will also allow educational practitioners and policy-makers to gain a better understanding of areas needing intervention and additional support.

Confidentiality

All information is treated as confidential. At no time will the name of your school or your name will be mentioned in the study. The school will receive feedback but no one will know what you have answered; only the overall results will show.

About this Questionnaire

- This questionnaire asks for information from schools about education and policy matters related to pedagogical practices and ICT. **If you are the person answering this questionnaire, it is important that you are someone who knows about the ICT facilities in your school and about practices regarding their use in your school.** If you do not have the information to answer particular questions, then please consult other persons in your school. The questionnaire will take you approximately 30 minutes to complete.

- The words computers and ICT (Information and Communication Technologies) are used interchangeably in this questionnaire.

- Please note that some questions refer to the entire school, other questions refer to Grades 8 to 10 only.

- Guidelines for answering the questions are typed in *italics*. Most questions can be answered by marking the one most appropriate answer. When a question states, "*Please mark all that apply*", you may give more than one answer.

- Please use a writing pen or ballpoint to write your answers.

- When you have completed this questionnaire, please return to the School Inspector's Office by 10th February 2010.

Further information

- When in doubt about any aspect of the questionnaire, or if you would like more information about it or the study, you can reach Elizabeth NdeukumwaNgololo by phone at the following numbers: (061) 207 7111 or 0811229022.

Thank you very much for your cooperation!

Part A: ICT in Your School

1. How many years has your school been using ICT for teaching and/or learning purposes for students in Grades 8 to 10?

Please mark only one choice.

☐	0–2 years	1
☐	3–5 years	2
☐	6–10 years	3
☐	11–15 years	4
☐	More than 15 years	5
☐	Don't know	0

6

2. To what extent do you agree with each of the following statements about the use of ICT in your school?

Please mark only one choice in each row.

		0	0	1	1
A	ICT is considered relevant in our school.	☐	☐	☐	☐
B	Our school has integrated ICT in most of our teaching and learning practices.	☐	☐	☐	☐
C	We have started to use ICT in the teaching and learning of school subjects.	☐	☐	☐	☐
D	We still do not know which ICT applications are useful for our school.	☐	☐	☐	☐
E	Constraints rule out the use of ICT in our school.	☐	☐	☐	☐

Strongly disagree = 0

Disagree = 0

Agree = 0

Strongly agree = 0

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 _____
    5
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3. **Approximately how often during this school year did students in Grade 8 to 10 use ICT for learning in the following subject domains?**

Please mark only one choice in each row.

		0	1	2	2
A	Mathematics	☐	☐	☐	☐
B	Natural Sciences	☐	☐	☐	☐
C	Social Sciences	☐	☐	☐	☐
D	Language of instruction (mother tongue)..........	☐	☐	☐	☐
E	Foreign languages...	☐	☐	☐	☐
F	ICT as separate subject	☐	☐	☐	☐

Never= 0

Sometimes= 1

Often= 2

Nearly always = 2

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 _____
   12
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Part B: Digital Learning Materials

4. **For each of the following technology applications, indicate whether it is available and whether you need it in your school for teaching and/or learning in Grade 8 to 10.**

    Please mark only one choice in each row.

		1	0	0
A	Equipment and hands-on materials (e.g., laboratory equipment, overhead projectors, slide projectors, graphic calculators)	☐	☐	☐
B	General office suite (e.g., word-processing, database, spreadsheet, presentation software).........................	☐	☐	☐
C	Multimedia production tools (e.g., media capture and editing equipment, drawing programs, webpage/multimedia production tools)	☐	☐	☐
D	Simulations/modeling software/digital learning games .	☐	☐	☐
E	Communication software (e.g., e-mail, chat, discussion forum)...	☐	☐	☐
F	Digital resources (e.g., portal, dictionaries, encyclopedia)	☐	☐	☐
G	Mobile devices (e.g., Personal Digital Assistant (PDA), cell phone)	☐	☐	☐
H	Smart board/interactive whiteboard...........................	☐	☐	☐
I	Mail accounts for teachers......................................	☐	☐	☐
J	Mail accounts for students......................................	☐	☐	☐

    Available= 1

    Needed but not available= 0

    Not needed and not available =0

    $$\frac{}{10}$$

Part C: ICT infrastructure

5. In your school, about how many computers (including laptops) are available?

Count terminals (if they have a keyboard and a screen) as computers

Count laptops as computers

Exclude computers which are not in use

Exclude computers which are only used as servers

Exclude graphical calculators and Personal Digital Assistants (PDAs), hand-held computers and smartphones (phone integrated with PDA)

Please write a whole number. Write 0 (zero), if none

	Available in the school altogether?
	Available to students in Grades 8 to 10?
	Available only to teachers?
	Available only to administrative staff?
	Connected to the Internet/World Wide Web?
	Connected to a local area network (LAN)?
	Multimedia computers (equipped with a CD-ROM and/or DVD)?

6. How many of the computers in your school are laptops?

Please write a whole number. Write 0 (zero), if none

| | Laptops |

7. In your school, about how many of the following (school-owned) technologies are available?

A Personal Digital Assistant (PDA) is a palmtop with roughly the same functionalities as a PC.

Please write a whole number. Write 0 (zero), if none.

	PDAs and smartphones (phone integrated with PDA)
	Graphic calculators
	Smartboards (interactive whiteboard system)
	Projectors for presentation of digital materials

8. **In your school, about what percentage of students bring any of the following to school?**

Please mark only one choice in each row.

	1	1	2	2	3
PDAs/smartphones	☐	☐	☐	☐	☐
Graphic calculators	☐	☐	☐	☐	☐
Laptops	☐	☐	☐	☐	☐

Less than 10% =1

10–24% = 1

25–49% = 2

50–75% = 2

More than 75% = 3

9

9. **Where are the computers for teaching and learning in Grade 8 to 10 located?**

Please mark only one choice in each row.

		0	1
A	Most classrooms	☐	☐
B	Some classrooms	☐	☐
C	Computer laboratories	☐	☐
D	Library	☐	☐
E	Other places	☐	☐

No=0

Yes=1

5

10. Who is involved in the maintenance of computers in your school?

Please mark only one choice in each row.

		0	1
A	The school's own staff..	☐	☐
B	Staff from other schools	☐	☐
C	An external company hired by the school	☐	☐
D	An external unit arranged by the ministry...................	☐	☐
E	A Non-Governmental Organisation.............................	☐	☐

No = 0

Yes = 1

_____
5

Part D: Professional Development

11. **Have teachers in your school acquired knowledge and skills in using ICT for teaching and learning in any of the following ways?**

Please mark only one choice in each row.

A Via informal contacts/communication .... ☐ ☐

B Via the ICT coordinator or technical assistant .... ☐ ☐

C Via in-school courses .... ☐ ☐

D Via training from a teacher who has attended a course .... ☐ ☐

E Via the school's working group or committee for ICT in education .... ☐ ☐

F During meetings of the teaching staff where the use of ICT/computers in
education is a regular item for discussion .... ☐ ☐

G Via a regular newsletter (printed or electronic) .... ☐ ☐

H Via courses conducted by an external agency or expert (in the school or on
distance) .... ☐ ☐

I Via observation of and discussion with colleagues .... ☐ ☐

J Via reading professional journals and similar publications .... ☐ ☐

10

No = 0

Yes = 1

12. For each of the following ICT-related courses, please indicate whether it is available to teachers in your school and who provides the course (inside or outside the school).

Please mark all that apply in each row.

		0	1	1
A	Introductory course for Internet use and general applications (basic word-processing, spreadsheet, databases, etc.)	☐	☐	☐
B	Technical course for operating and maintaining computer systems	☐	☐	☐
C	Advanced course for applications/standard tools (e.g., advanced word-processing, complex relational databases)	☐	☐	☐
D	Advanced course for Internet use (e.g., creating websites/developing a home page, advanced use of Internet, video conferencing) .	☐	☐	☐
E	Course on pedagogical issues related to integrating ICT into teaching and learning	☐	☐	☐
F	Subject-specific training with learning software for specific content goals (e.g., tutorials, simulation, etc.)	☐	☐	☐
G	Course on multimedia use (e.g., digital video and/or audio equipment)	☐	☐	☐

Not available= 0

Available provider is school-based =1

Available provider is an external organization = 1

7

Part E: Support Facilities for ICT

13. **Do you hold any of the following positions at your school?**

Please mark only one choice in each row.

		0	1
A	Principal	☐	☐
B	Head of department	☐	☐
C	School secretary	☐	☐
D	Teacher	☐	☐

No = 0
Yes = 1

4

14. **Which of the following duties do you have?**

Please mark only one choice in each row.

		0	1
A	I teach ICT courses to students.	☐	☐
B	I teach ICT courses to teachers and other school staff.	☐	☐
C	I teach Science.	☐	☐
D	I teach other subjects.	☐	☐
E	I formally serve as ICT coordinator.	☐	☐
F	I informally serve as ICT coordinator.	☐	☐

6

No = 0
Yes = 1

15. Approximately how much time in minutes, on average per week, do the following persons spend on providing ICT support to teachers and students at your school?

Note: "Support" includes any services (formal or informal, technical or pedagogical) that help teachers and students use ICT.

Please write a whole number. Write 0 (zero) if none.

☐☐☐	Yourself
☐☐☐	ICT staff (not including yourself)
☐☐☐	Other administrators and staff (e.g., secretary)
☐☐☐	Teachers
☐☐☐	Students from own school who are assigned to provide this service
☐☐☐	Volunteers from outside the school (e.g., parents)
☐☐☐	Personnel from external companies (e.g., non-governmental organization)
☐☐☐	Others

16. To what extent is technical support available in your school if teachers want to use ICT for the following activities?

Please mark only one choice in each row.

		0	1	1	0
A	Assigning extended projects (2 weeks or longer)	☐	☐	☐	☐
B	Assigning short-task projects	☐	☐	☐	☐
C	Assigning production projects (e.g. making models or reports)	☐	☐	☐	☐
D	Involving students in self-accessed courses and/or learning activities	☐	☐	☐	☐
E	Involving students in scientific investigations (open-ended)	☐	☐	☐	☐
F	Undertaking field study activities	☐	☐	☐	☐
G	Undertaking teacher's lectures	☐	☐	☐	☐
H	Applying exercises to practice skills and procedures ..	☐	☐	☐	☐
I	Involving students in laboratory experiments with clear instructions and well-defined outcomes............	☐	☐	☐	☐
J	Involving students in discovering scientific principles and concepts	☐	☐	☐	☐
K	Involving students in studying natural phenomena through simulations	☐	☐	☐	☐
L	Involving student to look up for ideas and information	☐	☐	☐	☐
M	Involving students in processing and analyzing data	☐	☐	☐	☐

No support= 0
Some support= 1
Extensive support= 1
Not applicable = 0

13

Part F: Obstacles to realize pedagogical goals

17. **To what extent is your school's capacity affected by each of the following obstacles?**

Please mark only one choice in each row.

		0	1	1	2	0
A	Insufficient qualified technical personnel to support the use of ICT	☐	☐	☐	☐	☐
B	Insufficient number of computers connected to the Internet	☐	☐	☐	☐	☐
C	Insufficient Internet bandwidth or speed	☐	☐	☐	☐	☐
D	Lack of special ICT equipment for disabled students	☐	☐	☐	☐	☐
E	Insufficient ICT equipment for instruction ...	☐	☐	☐	☐	☐
F	Computers are out of date	☐	☐	☐	☐	☐
G	Not enough digital educational resources for instruction	☐	☐	☐	☐	☐
H	Lack of ICT tools for science laboratory work	☐	☐	☐	☐	☐
I	Teachers' lack of ICT skills	☐	☐	☐	☐	☐
J	Insufficient time for teachers to use ICT	☐	☐	☐	☐	☐

Other obstacles

		0	1	1	2	0
K	Pressure to score highly on standardized tests	☐	☐	☐	☐	☐
L	Prescribed curricula are too strict	☐	☐	☐	☐	☐
M	Insufficient or inappropriate space to accommodate the school's pedagogical approaches	☐	☐	☐	☐	☐
N	Insufficient budget for non ICT-supplies (e.g., paper, pencils)	☐	☐	☐	☐	☐
O	Using ICT for teaching and learning is not a goal of our school	☐	☐	☐	☐	☐

_____
45

18. **Do you have access to a computer at home?**

☐ 0→ *Please proceed to the end of the questionnaire.*

☐ 1 → *Please continue.*

No = 0

Yes = 1

1

19. Do you use this computer for the following activities?

Please mark only one choice in each row.

		0	1
A	School related activities	☐	☐
B	Connecting to the internet	☐	☐

No = 0

Yes = 1

2

This is the end of the questionnaire.
Thank you very much for your cooperation!

Kindly return the questionnaire to the School Inspector's Office by the
02 February 2010

APPENDIX H

INTERVIEW SCHEDULE FOR PRINCIPALS

This interview was designed as part of a doctoral study project. The interview will be conducted only for academic purposes. Your school was chosen to participate in this project to provide information about how ICT is implemented in your school and how to improve the situation. The interview will be conducted in an informal manner and in an conducive environment and will only last about 40 minutes. The information gathered will be treated confidential and the identity of the interviewee will be kept anonymous.

Construct	Questions
Biographical information	What is your name? For how long have you been a principal at this school?
Curriculum Goals	How do you apply ICT to the curriculum? What is your role in applying ICT to the curriculum?
Leadership and vision	What is the vision of your school with regard to ICT implementation? How does the school leadership facilitate the ICT implementation process? How involved is the school leadership? Does the school leadership suggest or prescribe to you the type of ICT for use in a classroom?
Digital Learning Material	Do you have any educational software available at your school? What type? Do you think the educational software is relevant to your school context? Have teachers been trained in using this software?
Expertise	Have you been trained in ICT? What specific training did you receive? If not, how did you gain the skills? What strategies should be used to train more teachers? How do teachers embrace ICT?
ICT infrastructure	How many computers do you have in your school and how are they acquired? Who is responsible for maintenance of ICT at your school and how is it done? What should be done to connect ICT to the internet?
Use of ICT	What do you use ICT for? What should be done to increase participation by teachers and students? What specific problems do you encounter? And what could be the solutions to these problems?

Collaboration and support	Do you have collaboration between teachers in your school? Do you allow community members to use your facilities? Who facilitates that and what are the benefits thereof? Who decide on issues of collaboration? How do you describe the technical support system at your school? How do you describe the pedagogical support system at your school?

APPENDIX I

INTERVIEW SCHEDULE FOR SCIENCE TEACHER

This interview was designed as part of a doctoral study project. The interview will be conducted only for academic purposes. Your school was chosen to participate in this project to provide information about how ICT is implemented in your school and how to improve the situation. The interview will be conducted in an informal manner and in an conducive environment and will only last about 60 minutes. The information gathered will be treated confidential and the identity of the interviewee will be kept anonymous.

Construct	Questions
Biographical information	What is your name? For how long have you been teaching at this school? What subject are you teaching?
Curriculum Goals	How do you apply ICT to the curriculum? What is your role in applying ICT to the curriculum? Do you think your teaching practice has changed? In what way?
Leadership and vision	What is the vision of your school with regard to ICT implementation? How does the school leadership facilitate the ICT implementation process? How involved is the school leadership? Does the school leadership suggest or prescribe to you the type of ICT for use in your classroom? What can other schools learn from your school management with regard to ICT implementation?
Digital Learning Material	Do you have any educational software available at your school? What type? Do you think the educational software is relevant to the context in which you teach? Have you been trained in using the software or can you adapt it to suit your particular needs? Which software do you prefer to use most? Why?
Knowledge, attitude and skills	Have you been trained in ICT? What specific training did you receive? If not, how did you gain the skills? What strategies should be used to train more teachers? Do you think the introduction of computers had an impact on the way you teach?
ICT infrastructure	How many computers do you have in your school and how are they acquired? Who is responsible for maintenance of ICT at your school and how is it done? What should be done to connect ICT to the internet?
Use of ICT	How do use ICT? In class and for preparation? What type of ICT do you use? What motivates you to use ICT? What should be done to increase participation by teachers and

	students? What specific problems do you encounter? And what could be the solutions to these problems?
Collaboration and support	Do you allow community members to use your facilities? Who facilitates that and what are the benefits thereof? Are you involved in this decision making? How do you describe the technical support system at your school? How do you describe the pedagogical support system at your school?

APPENDIX J

INTERVIEW SCHEDULE FOR ICT TECHNICIAN

This interview was designed as part of a doctoral study project. The interview will be conducted only for academic purposes. Your school was chosen to participate in this project to provide information about how ICT is implemented in your school and how to improve the situation. The interview will be conducted in an informal manner and in an conducive environment and will only last about 40 minutes. The information gathered will be treated confidential and the identity of the interviewee will be kept anonymous.

Construct	Questions
Biographical information	What is your name? For how long have you been working at this school? Are you also teaching? What subject are you teaching?
Curriculum Goals	How does the teacher apply ICT to the curriculum? What is your role in applying ICT to the curriculum? Do you think the teacher's teaching practice and preparation for the class has changed for the better? Do you think teachers practices have changed?
Leadership and vision	What is the vision of your school with regard to ICT implementation? How does the school leadership facilitate the ICT implementation process? How involved is the school leadership? Does the school leadership suggest or prescribe to you the type of ICT for use in a classroom? What can other schools learn from your school management with regard to ICT implementation?
Digital Learning Material	Do you have any educational software available at your school? What type? Have you been trained in using the software? What software do teachers like to use more?
Knowledge, attitude and skills	Have you been trained in ICT? What specific training did you receive? If not, how did you gain the skills? What strategies should be used to train more teachers? Do you think the introduction of computers had an impact on how teacher teach?
ICT infrastructure	How many computers do you have in your school and how are they acquired? How do you maintain the infrastructure? What should be done to connect ICT to the internet?
Use of ICT	How often do teachers use ICT? How do teachers use ICT in the lesson and also for class preparation?

	What should be done to increase participation by science teachers and students?
	What type of participation in ICT you think would be relevant and for what areas?
	What specific problems do you encounter? And what could be the solutions to these problems?
Collaboration and support	Do you allow community members to use your facilities? Who facilitates that and what are the benefits thereof?
	Who decide on issues of collaboration?
	What strategies do you use to support teachers with technical problems at your school?

APPENDIX K

CLASSROOM OBSERVATION SCHEDULE FOR SCIENCE TEACHERS

Background information	
Code of school	
Date	
Grade	
Subject	
Topic	
Name of teacher	
Number of lesson	
Minutes	

Construct	Activities			Comments
Physical space	Where are the computers located?			
		Yes	**No**	
	Most classrooms			
	Some classrooms			
	Computer laboratories			
	Library			
	Other places			
Digital Learning Material	**What digital learning material is available in the classroom?**			
	Extended projects (2 weeks or longer)			
	Short-task projects			
	Product creation (e.g., making a model or a report)			
	Self-accessed courses and/or learning activities			
	Scientific investigations (open-ended)			
	Field study activities			
	Teacher's lectures			
	Exercises to practice skills and procedures			
	Laboratory experiments with clear instructions and well-defined outcomes			
	Discovering science principles and concepts			
	Studying natural phenomena through simulations			
	Looking up ideas and information			
	Processing and analyzing data			

Construct	Activities			Comments
Knowledge, attitude and skills	Is the teacher demonstrating the following abilities?			
		Yes	No	
	Present information/demonstrations and/or give class instructions			
	Provide remedial or enrichment instruction to individual students and/or small groups of students			
	Help/advise students in exploratory and inquiry activities			
	Organize, observe or monitor student-led whole-class discussions, demonstrations, presentations			
	Assess students' learning through tests/quizzes			
	Provide feedback to individuals and/or small groups of students			
	Use classroom management to ensure an orderly, attentive classroom			
	Organize, monitor and support team-building and collaboration among students			
	Organize and/or mediate communication between students and experts/external mentors			
	Liaise with collaborators (within or outside school) for student collaborative activities			
	Provide counseling to individual students			

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Construct	Activities			Comments
ICT infrastructure	What ICT equipment is available in the classroom?			
		Yes	No	
	Equipment and hands-on materials (e.g., laboratory equipment, musical instruments, art materials, overhead projectors, slide projectors, electronic calculators)			
	Tutorial/exercise software			
	General office suite (e.g., word-processing, database, spreadsheet, presentation software)			
	Multimedia production tools (e.g., media capture and editing equipment, drawing programs, webpage/multimedia production tools)			
	Simulations/modeling software/digital learning games			
	Communication software (e.g., internet, e-mail, chat, discussion forum)			
	Digital resources (e.g., portal, dictionaries, encyclopedia)			
	Mobile devices (e.g., Personal Digital Assistant (PDA), cell phone)			
	Smart board/interactive whiteboard			
	Learning management system (e.g., web-based learning environments)			

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Construct	Activities			Comments
Use of ICT	What pedagogical ICT practices are being demonstrated in and outside of the classroom?			
		Yes	No	
	Lesson preparation that involves the use of ICT by students.			
	Knowing which teaching/learning situations are suitable for ICT use.			
	Finding useful curriculum resources on the Internet.			
	Using ICT for monitoring students' progress and evaluating learning outcomes.			
	Using ICT to give effective presentations/ explanations.			
	Using ICT for collaboration with others.			
	Installing educational software on computer.			
	Using the Internet (e.g., select suitable websites, user groups/discussion forums) to support student learning.			

APPENDIX L: ICT USE CONFERENCE PROGRAMME

An investigation into the use of ICT in Namibian rural junior secondary schools

ICT use conference Programme
University of Namibia
Oshakati Campus
Oshakati
02 July 2010

Time	Agenda	Presenter
1	Welcoming remarks	Elizabeth N. Ngololo
2	Introduction of participants	Individual participants
3	Presentation of the study	Elizabeth N. Ngololo
4	**Exercise 1**	Individual participants
5	Collection of data on Exercise 1	Elizabeth N. Ngololo
6	Repeat of Exercise 1	Subgroups (principals, teachers, ICT technicians)
Break		
7	Presentation of results for Exercise 1	National ICT Coordinator
8	Presentation of preliminary findings from the main study	Elizabeth N. Ngololo
9	Conclusion on findings for Research question 2	Elizabeth N. Ngololo
10	**Exercise 2**	Individual participants
11	Discussions on main factors and how they are linked to each other	Subgroups
12	Presentation of results for Exercise 2	Director: Ohangwena Region
13	Presentation of preliminary findings from the main study	Elizabeth N. Ngololo
14	Conclusion on findings for Research question 3	Elizabeth N. Ngololo
15	Suggestions for improvement of national ICT Policy implementation	All participants

APPENDIX M

POWERPOINT PRESENTATION

An investigation into the use of ICT in Namibian rural junior secondary schools

Presenter: Elizabeth N. Ngololo
University of Pretoria
(Polytechnic of Namibia)
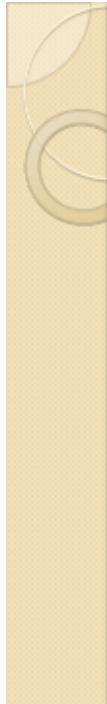
Presentation layout

- Introduction
- Aims of the study
- Research questions
- Research methods
- Curriculum conference aims
- Context
- Conceptual framework
- Exercise 1
- Preliminary findings
- Exercise 2
- Suggestions for improvement
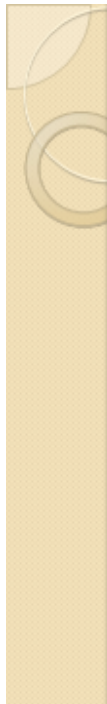
Introduction

- Governments around the world are recognizing the critical importance of education to economic development and to the high quality of life of all citizens.
- Governments and schools face decisions about whether and how to integrate ICT into teaching and learning. Choices are complex, technically demanding, and the effects are not always known (Anderson & Plomp, 2009).
- Teachers are expected to integrate ICT in the curriculum.
- There is currently little understanding of the way in which ICT is used in schools and classroom around the world. (Ainley, Enger, Searle, 2008; Anderson & Plomp, 2009; Boateng, 2007)).

The aim of the study

The aims of the study are to:

- To evaluate the implementation of the ICT Policy for Education in rural schools.
- To explore how science teachers integrate ICT in science classrooms in Namibian rural schools.
- To identify factors that affect ICT implementation in Namibian rural schools.
- To contribute to the knowledge about the implementation of ICT in rural schools in developing countries.

Research questions

How and to what extent is the intended ICT Policy implemented in the junior secondary schools in Namibian rural areas?

- How is ICT implemented in Namibian rural secondary schools?
- What factors affect ICT implementation in these schools?
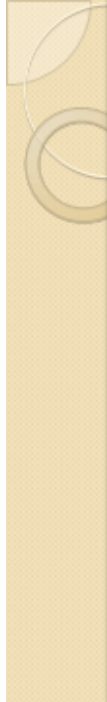
Research methods

1. **Survey** to gather data that will allow description of the rural situation, and to identify standard against which to compare.
2. **Case studies** to portray what is like to teach using ICT in a real life context.
3. **Curriculum conference** to legitimate the findings
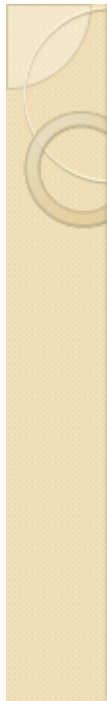
Curriculum conference aims

*   To legitimate the preliminary findings from the survey; case studies; and
*   To generate ideas and suggestions on how to tackle the problems and issues that have been identified in this study.

Context of the study

- The Namibian government has invested 39.171 million in the ICT programme.
- To date, no evaluation has been done to investigate how ICT is being implemented in rural schools.
- Effective strategies to improve the implementation process is needed, if Namibia is to become a technologically literate nation by 2030 (MoE, 2006).

Summary of Allocation of Funds for ETSIP for 2009 / 2010

Summary of Allocation of Funds for ETSIP for 2009 /2010					
Sub-Programme	Percentage Of ETSIP	Amount from GRN	Amount from DP's	Total Allocation	Adjusted Programme Cost
		Millions	Millions	Millions	
General Education	61	61	54	115	415
VET	10	10	9	19	118.773
Tertiary Education	4	4	4	8	5.786
Knowledge	1	1	1	2	2.594
IALL	5	5	4	9	37.208
ICT's	14	14	13	27	39.171

Conceptual framework

Fig 1. The Conceptual Framework
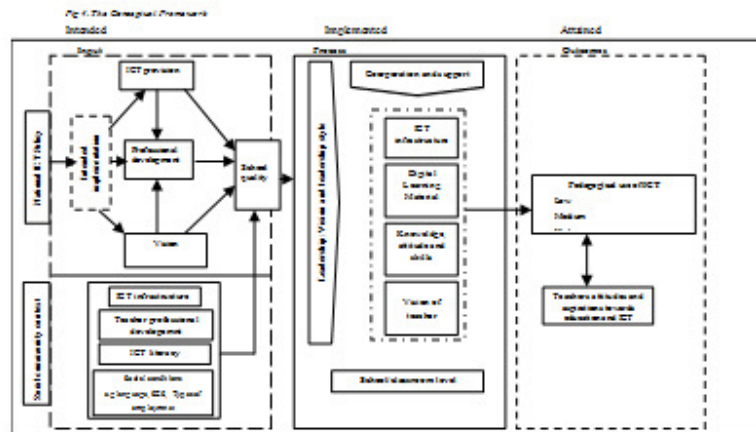
ICT infrastructure

- Every school is provided with 20 computers irrespective of the number of students per school.
- 1 computer at a desk, 1 chair for 40 students.
- Some schools bought about 6-7 computers used for administrative work.

  'When it comes to the ones that we bought ourselves, we are maintaining them. And the ones that were donated by School-net, when they break...[we] take to their branch in Ondangwa for their technician to repair them. ... We consult the people from where we bought them. We take them to those people and they repair them when they have breakage and they install a software if there is a need to install and then we pay for the service ' (Principal B, 13 April, 2010).

- Rules are developed to maintain the computers.

ICT infrastructure...cont'd

- The technician is '*overloaded because he is the only one in the whole region. You call him and he is always telling you that he is at another school. It is difficult to see him*' (Principal C, 15 April, 2010).
- 2/3 schools have Internet. School B has a 3g (internet device) which the school is paying for. School C has Internet from the Government project and pays for N$ 500.00
- In Chile for example, the government also provided all schools with software and now in a process of trying to look into a strategy to involve schools into maintaining and renovating software (Hinostroza, Hepp, Cox, 2009).

Digital learning materials

- Encarta and MS package are available at all participating schools.
- School B and C bought extra software, e.g the one used to timetable and for producing report cards. In addition, School C has Equation 3.0
- Relevance- '*They are very much relevant and they make teachers work easier, more especially when it comes to compiling their schedules, teachers do not need to scratch their heads and used a lot of their energy. They seems to enter the marks on the computer, the computer do everything for them... and when it comes to writing report cards, the time you enter the marks on the computer is the time when the computer is writing down the report on the card.*' (Principal B, 13 April, 2010).
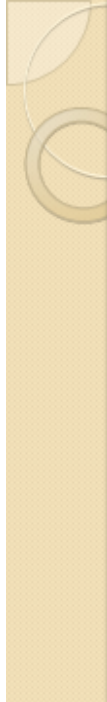
Professional development

- A few teachers have indicated that they have been trained in ICDL.
- At the time of data collection, training in ICDL was being rolled out to a number of schools.
- Knowledge in ICT use and technical use is acquired informally.
- No training has been offered in the pre-installed software in the computers.
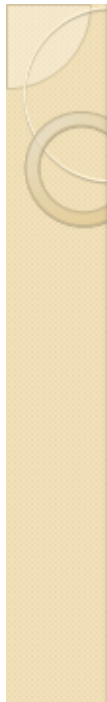
Digital learning materials...cont'd

- Only a few number of schools considered buying additional digital learning materials to support innovative teaching ideas.
- Microsoft Word was the mostly used by the teachers and learners.
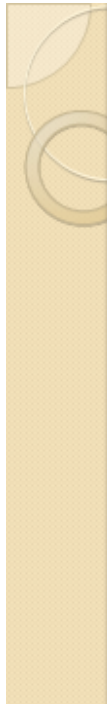
Knowledge, attitude and skills

- Some ICT technicians and teachers expressed knowledge in technical and software use.
- Very little or no training was done for principals and science teachers. For example:

I had some elementary training some years back, 2004 but it was not intensive. I really wanted to do Excel and PowerPoint but unfortunately it was just limited to Microsoft Word and document writing ... I would really like to be trained.... it was just Microsoft Word, on how to write letters and design and how to open and create folders. I really wanted to be trained in Powerpoint. These days when you go to a conference and you are asked to present, one uses PowerPoint' (Principal A, 12 April 2010).

"I acquired this knowledge through my brother who is an ICT technician. He has been working with computers and most times he was teaching at some institutions and he also tried to attend classes. I did not get any formal training in ICT and therefore no formal qualification in it.' (Technician A, 13 April 2010).
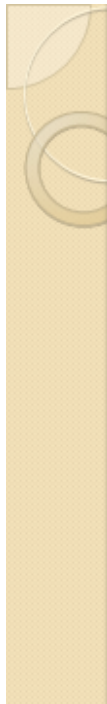
Knowledge, attitude and skills…cont'd

- Concept of ICT integration in Namibia seems very unclear (Iipinge, 2010; Matengu, 2006).
- Some teachers possess skills in MS Word, Excel, PowerPoint, Internet, operations of Encarta, Equation 3.0; Timetable software and Report card development software.
- Strategy for increased use- *'most of them are eager to learn. It is only that they don't have time but if that ICDL thing they have to come cause they are going to get something at the end and everybody want them to be trained...Yes and they will be a laptop to be awarded to a person to complete all the modules.'* (Technician B, 13 April 2010).
- Some teachers demonstrated confidence in using ICT, and mastery of subject content.

Vision

- Schools have a common vision towards ICT for everyone at school to be ICT literate.
- Elements of the vision outs emphasis on skills acquisition and encourage learners in rural schools to access ICT.
- School board/leadership is responsible for ICT implementation.
- The decision to use ICT rests with the teachers.
- Role of school leadership is in line with the vision of the schools- *'I think they make sure that the instructor or computer studies and they make sure that computers are there and functioning so that sometimes internet is working because I understand that it is paid for so they make sure they have these things…. I think that their intention to have ICT working well in the school.'* (Science teacher B, 13 April 2010).

Support

Pedagogical support
- No pedagogical support given to teachers because of lack of knowledge in ICT by senior teachers.
- No teacher's forum developed for pedagogical support.

Technical support
- Only one ICT technician hired for one educational region.
- Limited support offered voluntarily by ICT technicians.
- ICT technician are acting voluntarily.
- Technicians lack troubleshooting skills.
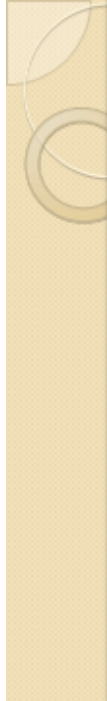
Exercise 1 - Baseline survey

- You are kindly asked to rate your school in terms of implementing the following variables:
  - ICT infrastructure
  - Digital learning materials
  - Knowledge, attitude and skills
  - Vision & leadership
  - Collaboration and support
- Kindly refer to the sheet provided to you:
  1. Individually
  2. In groups: principals, teachers, ICT technicians
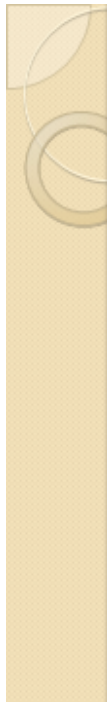
Preliminary findings
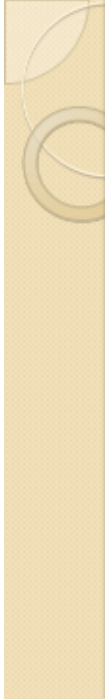
Preliminary findings-Baseline survey

At national level:
- ICT infrastructure
- Maintenance
- Professional development

At school level:
- Vision and leadership
- Curriculum goals
- Collaboration and support
- Digital learning materials
- Knowledge, attitude and skills
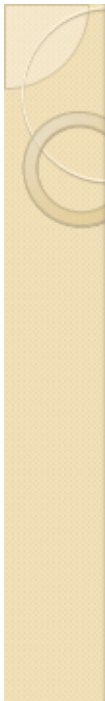
ICT infrastructure

- The extent to which ICT infrastructure is made available by government is low.
- According to all respondents, there is insufficient number of computers in schools.
- A total of 20 computers are being supplied to schools to be shared by 2 learners per computer. Also, learners were observed sharing a chair in twos during lessons that use ICT.
- Some schools have bought additional computers.
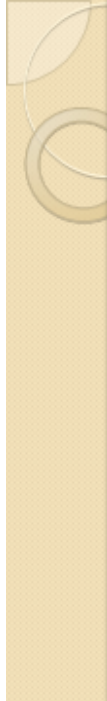
Maintenance

- ICT maintenance is poorly managed.
- There is no designated position for ICT technician in the schools.
- Teachers take it upon themselves to act as ICT technicians.
- These technicians have little knowledge about trouble shooting.
- Technical support is provided during free time.
- The Regional ICT technician does not respond on time.
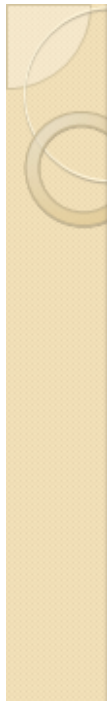
Professional development

- Professional development implementation stands at the medium level.
- The teachers have not been trained to use pre-installed software.
- The teachers integrate ICT the way they understand it.
- Generally, the idea of using ICT is appreciated by a few.
- Many teachers may be victims of teachers educational programmes that did not use ICT integration or taught how to integrate ICT in teaching.
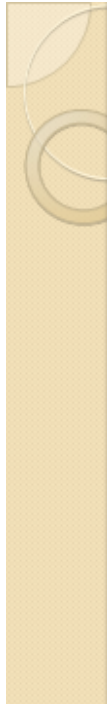
Vision and leadership

- The extent of implementation of the vision statement of the National ICT Policy is very low.
- The focus of leadership with regard to ICT is to prepare teachers and learners for the 21st century although the strategy to do so is not clear.
- The school leadership takes decisions and inform the school board with minimum involvement of parents.
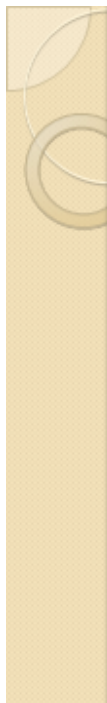
Curriculum goals

- The extent to which the curriculum goals statements are supported by ICT, is medium.
- Teachers expressed disappointment that the science curriculum is not explicit about ICT use.
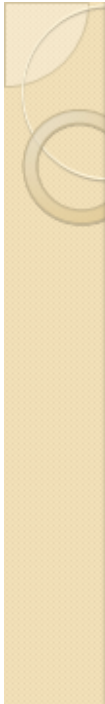
Collaboration and support

- According to the principals, collaboration and support in general is vey high.
- Teachers communities are not developed within and between schools.
- Local communities are not allowed to use the ICT laboratories in the schools, although the schools could generate money from such activities to buy toner and also have their computers repaired by outside technicians.
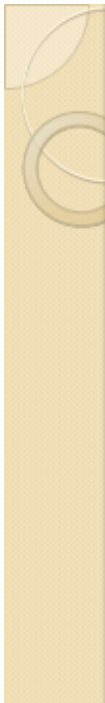
Pedagogical support

- Pedagogical support in schools is very low.
- Teachers receive very little pedagogical support from their seniors in schools.
- Many experienced teachers do not know how to integrate ICT in their lesson and therefore they are not in a better position to offer such services.

Technical support

- Technical support in schools is also very low.
- The hardware, software, and networking services are performed during deployment of computers to schools.
- The daily technical support needed not available on regular basis, due to lack of the ICT technician at school and if it were provided at regional level, it would take very long.

Digital Learning Materials

- Digital learning materials level of implementation is very low.
- The teachers are not trained to use the pre-installed software.
- Not much investment goes into acquiring the digital learning materials.
- Access to acquiring digital learning materials is limited. The government has signed an agreement with Microsoft to be supplying computers to schools, thereby limiting the use of free software that is available through Linux.
- The teachers use digital learning materials occasionally. The digital learning materials have a weak link with the school's overall educational approach and its use.
- Some schools have bought additional software to enhance effectiveness of their work.
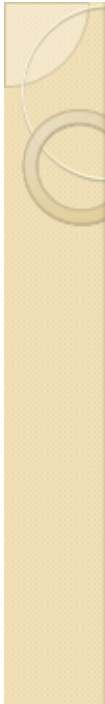
Knowledge, attitude and skills

- The extent of implementation of knowledge, attitude and skills in rural schools is medium.
- Principals, teachers and ICT technicians acquired knowledge on ICT in an informal forum.
- Repairs of computers is done on a gut feeling by ICT technicians.
- ICDL training was about to start. Training on how to integrate ICT into the science lessons is not evident.
- Introduction of computers made teachers' life easy as they are able to complete the tasks in a reasonable time.
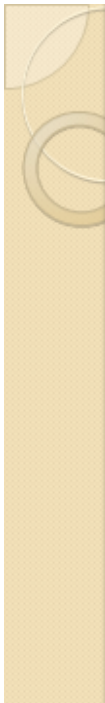
Exercise 2-Case studies

Individual activity:
- Rate the factors that affect ICT implementation on a 4 point scale.

Group activity:
- Show the link between the factors.

Kindly refer to the additional sheet provided to you.

Factors affecting ICT implementation

Independent variables	
Factors	Level of significance
Vision and leadership	Not significant
Collaboration and support	Not significant
ICT infrastructure	significant
Digital learning material	significant
Knowledge, attitude and skills	significant
Professional development	significant
Curriculum goals	Not significant
Obstacles	Not significant

Dependent variables
- Pedagogical use of ICT

Linkage of factors

→ Positive correlation
- - → Negative correlation
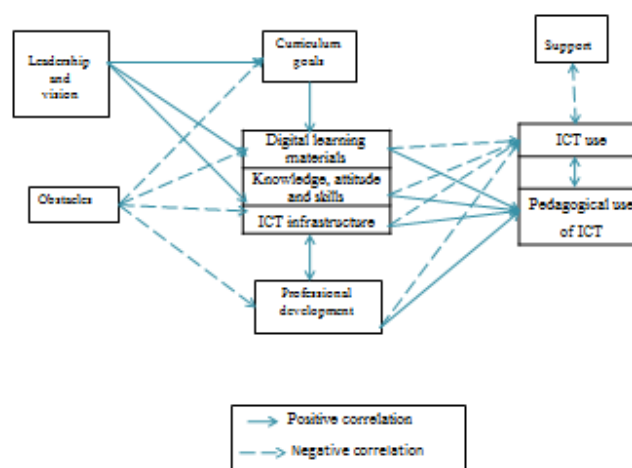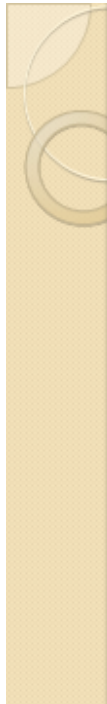
Suggestions for improvement

Variables	Suggestion
ICT infrastructure	
Digital learning materials	
Knowledge, attitude and skills	
Vision & leadership	
Collaboration and support	

APPENDIX N: ICT USE CONFERENCE

An evaluation of the implementation of ICT Policy for
Education in rural Namibian junior secondary schools
(PhD study)

ICT USE CONFERENCE QUESTIONNAIRE

School code	Name of the school

Position held at school

Introduction

The questionnaire is part of a doctoral study project which aims at investigating how and to what extent the Namibian policy on ICT in education has been implemented in rural areas since its establishment in 2005. The questionnaire is designed and will be administered only for graduation purposes. You and your school have been chosen to participate in this curriculum conference in assessing the preliminary results of this study on how Information and Communication Technologies (ICT) support your school, the obstacles or difficulties you experience in relation to these technologies and how to improve ICT use.

Why is this information important?

This information will give better insight into the current state of pedagogical approaches utilized in schools and how technologies support them. It will also allow educational practitioners and policy-makers to gain a better understanding of areas needing intervention and additional support.

Confidentiality

All information is treated as confidential. At no time will the name of your school or your name be mentioned in the study. The school will receive feedback but no one will know what you have answered only the overall results will show.

Exercise 1

1.1 To what extent do you agree with each of the following statements about ICT in your school?

Constructs	Variables	Strongly agree	Agree	Disagree	Strongly disagree
ICT infrastructure	**Statements**				
	There is sufficient number of computers available.				
	Computers at our schools are well maintained.				
	My school has invested a substantial amount of money in buying ICT tools.				

Digital learning materials	Statement	Very sufficient	Rather sufficient	Somewhat sufficient	Not sufficient at all
	Our school has invested in buying software for teaching				
	Statement	Very relevant	Rather relevant	Somewhat relevant	Not relevant at all
	The digital materials we have at our school are relevant for teaching science.				
	Statement	Very much	Rather well	somewhat	Not at all
	I possess skills that will enable me to use the digital learning material available at my school.				

Knowledge, attitude and skills	Statements	All relevant	Most relevant	Some relevant	Hardly any relevant
	I have relevant knowledge of ICT for use in teaching.				
	My ICT skills are relevant to assist or teach colleagues in their use of ICT.				
	Statement	**Very much agree**	**Rather agree**	**Somewhat agree**	**Disagree**
	Science teachers at my school possess the right attitude to use ICT.				

Vision & leadership	Statements	Strongly agree	Agree	Disagree	Strongly disagree
	The vision statement of our school articulates the general use of ICT very well.				
	The vision statement of our school articulates the use of ICT in teaching science very well.				
	Statement	Very much active	Rather active	Somewhat active	Not at all active
	Our school leadership is very active in all ICT related matters.				
	Statement	Very much encouraging	Rather encouraging	Somewhat encouraging	Not at all encouraging
	Our school's leadership is encouraging teachers to use ICT.				

Collaboration	Statements	Strongly agree	Agree	Disagree	Strongly disagree
	Our school collaborates very well with other schools on ICT related matters.				
	I collaborate very well with other teachers in my circuit on ICT related matters.				
	I belong to a very well established teachers' online forum.				
Support	**Statements**	**Very much**	**A little**	**Somewhat**	**Not at all**
	I receive/render the necessary technical support on time.				
	I receive/render the necessary pedagogical support on time.				

Professional development	Statements	Strongly agree	Agree	Disagree	Strongly disagree
	I have been very well trained in the use of ICT.				
	I have been very well trained in integrating ICT in my teaching.				
	The training I received was relevant for teaching science.				

Exercise 2

Please indicate the degree of importance of factors which have a greater influence on ICT use and pedagogical use of ICT.

Factors	Very important	Rather important	Somewhat important	Not important	Suggestions	
Vision and leadership						
Collaboration						
Pedagogical Support						
Technical support						
ICT infrastructure						
Professional development						
Digital learning materials						
Knowledge, attitude and skills						
Pedagogical use of ICT						
ICT use in general						
Other factors, please specify						

Exercise 1

Constructs	Variables	Strongly agree	Agree	Disagree	Strongly disagree
ICT infrastructure	**Statements**				
	There is sufficient number of computers available.				
	Computers at our schools are well maintained.				
	My school				

Digital learning materials	Statement	Very sufficient	Rather sufficient	Somewhat sufficient	Not sufficient at all
	Our school has invested into buying software for teaching				
	Statements	**Very relevant**	**Rather relevant**	**Somewhat relevant**	**Not relevant at all**
	The digital materials we have at our school are relevant for teaching science.				
	I possess skills that will enable me to use the digital learning material available at my school.				

1.1 To what extent do you agree with each of the following statements about ICT in your school?

Knowledge, attitude and skills	Statements	Very relevant	Rather relevant	Somewhat relevant	Not relevant at all
	I have relevant knowledge in ICT				
	I have relevant skills in ICT to teach/assist colleagues.				
	Science teachers at my school possess the right attitude to use ICT.				

Vision & leadership	Statements	Strongly agree	Agree	Disagree	Strongly disagree
	Our school has a vision statement with regard to ICT.				
	Our school leadership is very active in all ICT related matters.				
	Statements	**Very encouraging**	**Rather encouraging**	**Somewhat encouraging**	**Not at all encouraging**
	Our school's vision encourages the use of ICT in class.				
	Our school leadership is encouraging teachers to use ICT.				

Collaboration	Statements	Strongly agree	Agree	Disagree	Strongly disagree
	Our school collaborate with other schools on ICT related matters				
	I collaborate with other teachers in my circuit on ICT related matters				
	I belong to a teachers' online forum.				
Support	**Statements**	**Very much**	**A little**	**Somewhat**	**Not at all**
	I receive/render necessary technical support on time.				
	I receive/render the necessary pedagogical support on time.				

Professional development	Statements	Strongly agree	Agree	Disagree	Strongly disagree
	I have been trained in ICT.				
	I have been trained in ICT integration.				
	The training I received was relevant for teaching science.				

Exercise 2

2.1 Please indicate the degree of importance of factors which have a greater influence on ICT use and pedagogical use of ICT.

Factors	Very important	Rather important	Somewhat important	Not important
Vision and leadership				
Collaboration				
Pedagogical Support				
Technical support				
ICT infrastructure				
Professional development				
Digital learning materials				
Knowledge, attitude and skills				
Pedagogical use of ICT				
ICT use in general				
Other factors, please specify				

2.2 Based on the degree of importance of factors above, please illustrate how each factor is linked to another.

Any other comment

_____

_____

_____

APPENDIX O: TABLE OF INDICES

Table of Indices/indicators at classroom and school level*)

Construct	Data source	Description	Computation	Reliability (Cronbach alpha)
ICT use	Principals	General use of ICT for administrative purposes.	A sum of scores was computed across 10 items based on on yes=1, no=0 (See Appendix A: Principal Questionnaire, items 19, 20, 21 and 22.	0.856
Pedagogical use of ICT	Science teachers	ICT use for teaching science.	A sum of scores was computed across 33 items based on yes=1, no=0 (See Appendix B: Science Teachers Questionnaire, items 16, 17 and 18).	0.887
Leadership	Science teachers	Developing an overall view of how to use ICT, channelling school development and inspiring goals.	A sum of scores was computed across 3 items based on Likert scale: not at all=0, a few times= 1, monthly=1, often=2) indices (See Appendix B: Science Teachers Questionnaire, item 13).	0.613
	Principals		A sum of scores was computed across 20 items based on yes=1, no=0 and another sum of scores 9 based on indices not at all=0, a few times= 1, monthly=1, often=2. (See Appendix A: Principal Questionnaire, items 9 and 10).	0.872
vision	Science teachers	The focus of ICT implementation in the education system, particularly with ICT use in enhancing science education.	A sum of scores was computed across 3 items based on indices not at all=0, a little= 1, somewhat=1, a lot=2) (See Appendix B: Science Teachers Questionnaire, item 12).	0.786
	Principals		A sum of scores was computed across 10 items based on indices Strongly agree=1, agree=1, disagree=0 strongly disagree=0. (See Appendix A: Principal Questionnaire, items 8)	0.090

Construct	Data source	Description	Computation	Reliability (Cronbach alpha)
Science curriculum goals on ICT	Science teachers		A sum of scores was computed across 13 items based on Likert scale: not at all=0, a little= 1, somewhat=1, very much=2) indices(See Appendix B: Science Teachers Questionnaire, item 11).	0.877
Collaboration	Principals	collaboration between teachers in the same school sharing knowledge in a team and the ability to consult teachers from other schools.	A sum of scores was computed across 4 items for the first set of questions based on strongly agree=1, agree=1, disagree=0 strongly disagree=0. (See Appendix A: Principal Questionnaire, items 11)	0.441
	Science teachers		A sum of scores was computed across 4 items based on indices not at all=0, a little= 1, somewhat=1, a lot=2) (See Appendix B: Science Teachers Questionnaire, item 14). .	0.625
Support on assessment	Principals	Supporting teachers with the use of ICT, i.e, pedagogical support and or supporting teachers technically.	A sum of scores was computed across 8 items for the first set of questions based on strongly agree=1, agree=1, disagree=0 strongly disagree=0. (See Appendix A: Principal Questionnaire, items 12)	0.784
Pedagogical support	Principals	Availability and frequency of providing pedagogical support.	A sum of scores was computed across 11items based on Never=0; Not applicable=0, Few times a year=1; Monthly=1, Weekly=2; 6 items based on Not at all=0, a little=1, somewhat=1, a lot=2.(See Appendix A: Principal Questionnaire, items 23 and 24)	0.901

Construct	Data source	Description	Computation	Reliability (Cronbach alpha)
Technical support	ICT technicians	Technical support given to science teachers when necessary to support teaching. Students also be able to access computers	A sum of scores was computed across 23 items based on yes=1, no=0; and 6 items based on yes=1, no=0. (See Appendix C: ICT technician Questionnaire, items 16)	0.847
	Science teachers		A sum of scores was computed across 3 items based on indices not at all=0, a little= 1, somewhat=1, a lot=2) (See Appendix B: Science Teachers Questionnaire, item 15).	0.756
Professional development	Science teachers	Teacher training programme with regard to ICT skills and ICT integration in the science subjects.	A sum of scores was computed across 7 items based on no, I do not wish to attend=0, No, I would like to attend if available=1, Yes, I have=1. (See Appendix B: Science Teachers Questionnaire, item 25).	0.685
	ICT technicians		A sum of scores was computed across 17 items based on yes=1, no=0; 7 items based on not available=0, available, provider is school based=1, and available provider is an external organization=1. (See Appendix C: ICT technician Questionnaire, items 11 and 12).	0.905

410

Construct	Data source	Description	Computation	Reliability (Cronbach alpha)
Digital learning materials	Science teachers	All digital learning educational content whether formal or informal. This includes educational computer programmes.	A sum of scores was computed across 13 items based on never=0, sometimes=1, often=2, nearly always=2. (See Appendix B: Science Teachers Questionnaire, item 16).	0.922
	ICT technicians		A sum of scores was computed across 10 items based on available=1, needed but not available=0, not needed and not available=0. (See Appendix C: ICT technician Questionnaire, items 4)	0.738
Expertise (ICT related)	Science teachers	Teachers need to have sufficient knowledge and skills in order to utilise ICT to achieve educational objectives.	A sum of scores was computed across 12 items based on never=0, sometimes=1, often=2, nearly always=2, no=0, yes=1. (See Appendix B: Science Teachers Questionnaire, item 17 and 18).	0.898
	Principals		A sum of scores was computed across 20 items based on No= 0, Yes encouraged = 1, Yes required = 1; 10 items based on not considered=0, low priority=1; medium priority=2; and high priority=3; 4 items based on never=0, a few times per year=1, almost monthly=1, weekly=2, daily=3; 10 items based on no=0, yes=1; 1 items based on yes=1, no=0; and 2 items based on yes=1, no=0. (See Appendix A: Principal Questionnaire, items 17, 18,19,20)	0.904

Construct	Data source	Description	Computation	Reliability (Cronbach alpha)
Confidence in ICT use[ii]	Science teachers	Skills beyond basic ICT skills to operate a computer.	A sum of scores was computed across 8 items based on not at all=0, a little= 1, somewhat=1, a lot=2) (See Appendix B: Science Teachers Questionnaire, item 20 A-H).	Not enough variance
Confidence in Pedagogical use of ICT	Science teachers	Pedagogical ICT skills are also necessary to help structure and organise learning processes.	A sum of scores was computed across 8 items based on not at all=0, a little= 1, somewhat=1, a lot=2) (See Appendix B: Science Teachers Questionnaire, item 20 I-P).	0.890
ICT infrastructure	Principals	Availability and quality of computers, networks, and Internet connections.	A sum of scores was computed across 14 items based on not applicable= 0, subject department/teacher =1; school leadership=2; and 10 items based on yes=1 and no=0. (See Appendix A: Principal Questionnaire, items 13 and 14)	0.868
	Science teachers		A sum of scores was computed across 10 items based on never=0, sometimes=1, often=2, nearly always= 2. (See Appendix B: Science Teachers Questionnaire, item 19).	0.846
	Technicians		A sum of scores was computed across 13 items based on less than 10% =1, 10-24% = 2, 25-49% = 2, 50-75% = 2, more than 75% = 3. (See Appendix C: ICT technician Questionnaire, items 8, 9 and 10).	0.746

Construct	Data source	Description	Computation	Reliability (Cronbach alpha)
Obstacles	ICT technicians	Obstacles experienced during the process of ICT implementation such as ICT not considered in school, lack of time to develop and implement activities.	A sum of scores was computed across 15 items based on Not at all=0; 0, Very little= 1; Somewhat=1, to a great extent= 1; Not applicable=0. (See Appendix C: ICT technician Questionnaire, items 17).	0.925
	Principals		A sum of scores was computed across 12 items based on Not at all=0; Not applicable=0, A little= 1; Somewhat=1, A little= 1; Somewhat=1. (See Appendix A: Principal Questionnaire, items 25)	0.861
	Science teachers		A sum of scores was computed across 12 items based on Yes=1; No=0 (See Appendix B: Science Teachers Questionnaire, item 24).	0.938

*) Legend:
- Unless mentioned otherwise, all indicators are calculated as the arithmetic mean of constituting items
- Interpretation of indicator level: *low* if mean ≤ 33.3%; *medium* if mean between 33.3% and 66.6%; *high* if mean ≥66.6%.

APPENDIX P

CORRELATIONS TABLE

	Curriculum_goals	Effort_P	Vision_P	Vision_S	Leadership_P	Leadearhip_S	Collaboration_S	Collaboration_P	Support_S	Support_P	DLM_S	Attitude_S	Expertise_S	Expertise_P	ICT_Infrastructure_S	ICT_Infrastructure_P
Curriculum_goals	1	-0.099	0.471	0.313	0.425	-0.148	0.263	-0.09	0.05	-0.005	-0.015	0.111	0.164	-0.037	0.001	-0.114
Effort_P	-0.099	1	0.012	0.067	0.021	0.244	-0.216	0.109	0.025	0.114	0.099	0.037	0.004	0.254	-0.018	0.529
Vision_P	0.471	0.012	1	0.074	0.467	-0.08	0.324	-0.112	-0.023	-0.01	0.172	0.167	0.036	-0.04	-0.043	0.03
Vision_S	0.313	0.067	0.074	1	0.233	-0.006	0.04	0.119	0.04	0.198	-0.03	-0.05	-0.024	0.187	0.038	0.105
Leadership_P	0.425	0.021	0.467	0.233	1	0.044	0.26	-0.115	0.22	0.041	0.096	0.07	0.077	-0.002	-0.002	0.14
Leadearhip_S	-0.148	0.244	-0.08	-0.006	0.044	1	-0.339	0.105	-0.014	0.127	-0.094	-0.095	-0.049	0.295	-0.048	0.334
Collaboration_S	0.263	-0.216	0.324	0.04	0.26	-0.339	1	-0.067	-0.036	-0.084	0.042	-0.079	0.095	-0.165	-0.099	-0.215
Collaboration_P	-0.09	0.109	-0.112	0.119	-0.115	0.105	-0.067	1	0.078	0.457	-0.004	-0.005	0.173	0.193	-0.009	0.072
Support_S	0.05	0.025	-0.023	0.04	0.22	-0.014	-0.036	0.078	1	0.227	-0.022	0.083	0.199	0.07	0.337	-0.018
Support_P	-0.005	0.114	-0.01	0.198	0.041	0.127	-0.084	0.457	0.227	1	0.033	0.125	0.079	0.05	-0.01	-0.017
DLM_S	-0.015	0.099	0.172	-0.03	0.096	-0.094	0.042	-0.004	-0.022	0.033	1	0.697	0.331	0.156	0.269	0.163

	Curriculum_goals	Effort_P	Vision_P	Vision_S	Leadership_P	Leaderhip_S	Collaboration_S	Collaboration_P	Support_S	Support_P	DLM_S	Attitude_S	Expertise_S	Expertise_P	ICT_Infrastructure_S	ICT_Infrastructure_P
Attitude_S	0.111	0.037	0.167	-0.05	0.07	-0.095	-0.079	-0.005	0.083	0.125	0.697	1	0.516	-0.06	0.388	0.165
Expertise_S	0.164	0.004	0.036	-0.024	0.077	-0.049	0.095	0.173	0.199	0.079	0.331	0.516	1	0.072	0.442	0.008
Expertise_P	-0.037	0.254	-0.04	0.187	-0.002	0.295	-0.165	0.193	0.07	0.05	0.156	-0.06	0.072	1	0.098	0.272
ICT_Infrastructure_S	0.001	-0.018	-0.043	0.038	-0.002	-0.048	-0.099	-0.009	0.337	-0.01	0.269	0.388	0.442	0.098	1	0.096
ICT_Infrastructure_P	-0.114	0.529	0.03	0.105	0.14	0.334	-0.215	0.072	-0.018	-0.017	0.163	0.165	0.008	0.272	0.096	1
ICT_use_P	-0.169	0.476	-0.092	0.093	-0.057	0.238	-0.172	0.109	-0.013	0.072	0.063	0.023	-0.001	0.461	0.081	0.432
Pedagogical_use_S	0.045	0.163	-0.166	0.01	-0.09	0.219	-0.325	0.107	0.279	0.187	0.109	0.306	0.388	0.059	0.424	0.067

APPENIDX P: LETTER FROM THE EDITOR

Acknowledgment of Language Editing

I have edited the following thesis to academic standards of English:

An evaluation of the implementation of ICT Policy for Education

in Namibian rural schools

By Elizabeth Ngololo

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