

Appendix D: Protocol for teachers to participate

**CONSENT TO PARTICIPATE IN A RESEARCH STUDY
TO BE FILLED BY THE PARTICIPANTS (Teacher)**

I _____ a teacher at
_____ in the Lejweleputswa District agrees to participate in
the following research project.

*The effectiveness of Computer Applications Technology as a vehicle to promote
21st-century skills in learners of the Lejweleputswa district.*

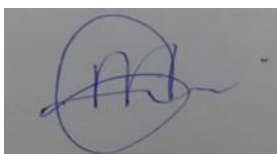
- 6. I have read and understood the information about the research.
- 7. I understand my role/participation in this research.
- 8. I understand that I can stop participating in this research project at any given moment.
- 9. I voluntarily agree to participate in the study.
- 10. I acknowledge that the information I provide will be used for the purpose of the study.

Signature

Date

Researcher's Name: Makhasane Winnie Madikgetho

Signature



Appendix E: Protocol learners to participate

**CONSENT TO PARTICIPATE IN A RESEARCH STUDY
TO BE FILLED BY THE PARTICIPANTS (Learners)**

I _____ a learner at
_____ in the Lejweleputswa District agrees to participate in
the following research project.

*The effectiveness of Computer Applications Technology as a vehicle to promote
21st-century skills in learners of the Lejweleputswa district.*

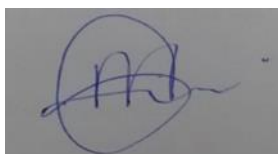
- 11. I have read and understood the information about the research.
- 12. I understand my role/participation in this research.
- 13. I understand that I can stop participating in this research project at any given moment.
- 14. I voluntarily agree to participate in the study.
- 15. I acknowledge that the information I provide will be used for the purpose of the study.

Signature

Date

Researcher's Name: Makhasane Winnie Madikgetho

Signature



Appendix F: Research ethics approval



RESEARCH ETHICS APPROVAL

Date: 12 February 2020

This is to confirm that ethical clearance has been provided by the Faculty Research and Innovation Committee [01/06/16] in view of the CUT Research Ethics and Integrity Framework, 2016 with reference number [D. FRIC 15/19/04] to:

Applicant's Name and student number	Makhasane, W.M 213088894
Supervisor's Name for Student Project	Dr L Schlebusch
Level of Qualification for Student's Project	M.Ed
Title of research project	<i>The effectiveness of Computer Application Technology as a vehicle to promote 21st century skills in learners in the Lejweleputswa district.</i>

All conditions as set out below have to be met as set out in your LS 262 a form.

As this research focuses primarily on human beings you will be ethically responsible for:

- protecting the rights and welfare of the participants;
- gaining the trust and co-operation of all the participants with the assurance that the information collected will be kept confidential;
- informing the participants from the outset that their participation will be voluntary, and that the data collected will be conducted with the consent of the Free State Department of Education, the principal(s) of the sample school(s), the teachers, and the learners;
- adhere to the principles of rigorous data collection, analysis and interpretation consistent with the design of the study;
- keeping a data trail for possible auditing purposes and safe-keeping of raw data for a period of three years after publication of the results/findings;
- respecting the confidentiality of the data.

We wish you success with your research project.

Regards



Prof JW Badenhorst
(Chairperson representative: Research with humans)

(On behalf of the Faculty of Humanities Ethics Committee)

Appendix G: Approval to conduct research in the Lejweleputswa District

Enquiries: KK Motshumi
Ref: Notification of research: WM Makhasane
Tel: 051 404 9221 / 079 503 4943
Email: K. Motshumi@fseducation.gov.za



District Director:
Lejweleputswa District

Dear Ms Zonke

NOTIFICATION TO CONDUCT RESEARCH PROJECT IN YOUR DISTRICT BY WM MAKHASANE

The above mentioned candidate was granted permission to conduct research in your district as follows:

1. **Topic:** The effectiveness of Computer Application Technology as a vehicle to promote 21st century skills in learners in the Lejweleputswa district

List of schools involved: Kheleng, Lebogang, Lekgarietse, Lenakeng, Leseding, Marematlou, Mophathe, Phehello, Taiwe and Thotagauta Secondary Schools in the Lejweleputswa district.

Target Population: 35 FET Phase learners and 10 FET Phase teachers teaching Computer Application Technology.

1. **Period:** From the date of signature of this letter until 30 September 2020. Please note the department does not allow any research to be conducted during the fourth term (quarter) of the academic year nor during normal school hours. The researcher is expected to request permission from the school principals to conduct research at schools.
2. **Research benefits:** The study will attempt to look into how other schools have successfully met the initial standard set for the subject, this will help other schools struggling to meet the same standard
3. Logistical procedures were met, in particular ethical considerations for conducting research in the Free State Department of Education.
4. Strategic Planning, Policy and Research Directorate will make the necessary arrangements for the researchers to present the findings and recommendations to the relevant officials in the district.

Yours sincerely


DR JEM SEKOKANYANE
CHIEF FINANCIAL OFFICER

DATE: 26/05/2020

Appendix H: Approval to conduct research in the Free State Department of Education

Enquiries: KK Motshumi
Ref: Research Permission: WM Makhasane
Tel. 051 404 9283 / 9221 / 079 503 4943 Email: K.Motshumi@feducation.gov.za



4990 Zwakala Section
Wesselsbron
Monyakeng
9680

Dear Ms Makhasane

APPROVAL TO CONDUCT RESEARCH IN THE FREE STATE DEPARTMENT OF EDUCATION

This letter serves as an acknowledgement of receipt of your request to conduct research in the Free State Department of Education.

1. **Topic:** The effectiveness of Computer Application Technology as a vehicle to promote 21st century skills in learners in the Lejweleputswa district

List of schools involved: Kheleng, Lebogang, Lekgarietse, Lenakeng, Leseding, Marematlou, Mophathe, Phehello, Taiwe and Thotagauta Secondary Schools in the Lejweleputswa district.

2. **Target Population:** 35 FET Phase learners and 10 FET Phase teachers teaching Computer Application Technology.
3. **Period of research:** From date of signature of this letter until 30 September 2020. Please note that the department does not allow any research to be conducted during the fourth term (quarter) of the academic year. Should you fall behind your schedule by three months to complete your research project in the approved period, you will need to apply for an extension. The researcher is expected to request permission from the school principals to conduct research at schools.
4. The approval is subject to the following conditions:
 - 4.1 The collection of data should not interfere with the normal tuition time or teaching process.
 - 4.2 A bound copy of the research document or a CD, should be submitted to the Free State Department of Education, Room 319, 3rd Floor, Old CNA Building, Charlotte Maxeke Street, Bloemfontein.
 - 4.3 You will be expected, on completion of your research study to make a presentation to the relevant stakeholders in the Department.
 - 4.4 The ethics documents must be adhered to in the discourse of your study in our department.
5. Please note that costs relating to all the conditions mentioned above are your own responsibility.

Yours sincerely


DR JEM SEKOLANYANE
CHIEF FINANCIAL OFFICER

DATE: 20/05/2020

RESEARCH APPLICATION WM MAKHASANE PERMISSION 18 05 2020 LEJWELEPUTSWA DISTRICT
Strategic Planning, Policy & Research Directorate
Private Bag X20565, Bloemfontein, 9300 - Room 318, Old CNA Building, 3rd Floor, Charlotte Maxeke Street, Bloemfontein
Tel: (051) 404 9283 / 9221 Fax: (086) 6678 678

www.fdoe.fs.gov.za

Appendix I: Learners' questionnaire questions



*THE EFFECTIVENESS OF COMPUTER APPLICATIONS TECHNOLOGY AS A VEHICLE
TO PROMOTE 21ST CENTURY SKILLS TO LEARNERS OF THE LEJWELEPUTSWA
DISTRICT.*

QUESTIONNAIRE FOR LEARNERS

Surname and initials	
Age	
Grade	
Name of the school	

1. Why did you choose CAT as a subject? Select all that apply

I am interested in the subject	
I want to pursue a career in IT/ Computer Science	
I like the teacher	
My parents forced me to	
My friends took the subject	
Other, please specify.....	

2. Do you enjoy CAT?

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
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2.1 Please motivate your answer to Question 2

3. What do you enjoy most about CAT?

4. What do you find challenging about CAT?

5. Has CAT improved your 21st century skills:

Creativity skills: The use of imagination or original ideas to create something; inventiveness.		
My own creativity skills have improved since taking CAT	yes	no

My creativity skills are better than my peers who don't have CAT	yes	no
Critical thinking skills: The ability to analyse information and form reasoned judgement.		
My own critical thinking skills have improved since taking CAT	yes	no
My critical thinking skills are better than my peers who don't have CAT	yes	no
Communication skills The process of sending and receiving messages through verbal or non-verbal means, this includes speech, oral communication, writing, signals, behaviour, and graphical presentation.		
My own communication skills have improved since taking CAT	yes	no
My communication skills are better than my peers who don't have CAT	yes	no
Collaboration skills A joint effort of multiple individuals who are able to communicate views and contribute to the accomplishment of the task.		
My own collaboration skills have improved since taking CAT	yes	no
My collaboration skills are better than my peers who don't have CAT	yes	no
Technological skills The abilities and knowledge needed to interact with computer-based technologies and perform technical tasks.		
My own technological skills have improved since taking CAT	yes	no
My technical skills are better than my peers who don't have CAT	yes	no

6. Do you think having CAT improves your chances of going to university?

Yes		No	
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6.1 Please motivate your answer to Question 6

7. Would you recommend CAT to your peers?

Yes		No	
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7.1 Please motivate your answer to Question 7

8. Does your school have a computer laboratory?

Yes		No	
-----	--	----	--

8.1a If yes to question 8, does your computer laboratory have the following equipment:



Working computers	yes	no
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Necessary software	yes	no
Internet access	yes	no
Data projector	yes	no
Other equipment, please specify		

8.1b Do you have additional access to the computer lab to do assignments/ revision?

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
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If no, when and how do you do your assignments/ revision?

9.2 If your school does not have a computer laboratory, how are you taught CAT?

10 How would you compare your learning experience in CAT compared to other subjects?
Select only one

CAT's learning experience is better than other subjects	<input type="checkbox"/>
CAT's learning experience is the same as other subjects	<input type="checkbox"/>
CAT's learning experience is worse than other subjects	<input type="checkbox"/>

10.1 Please motivate your selection for question 10

Appendix J: Teacher's questionnaire questions



*THE EFFECTIVENESS OF COMPUTER APPLICATIONS TECHNOLOGY AS A VEHICLE
TO PROMOTE 21ST CENTURY SKILLS TO LEARNERS OF THE LEJWELEPUTSWA
DISTRICT.*

QUESTIONNAIRE FOR TEACHERS

Surname and initials	
Qualification	
Years of experience as a CAT teacher	
Name of your school	

1. Have you received any training/ mentorship in how to teach CAT?

Yes		No	
-----	--	----	--

2. Does your school have a computer laboratory?

Yes		No	
-----	--	----	--

2.1a If yes to question 2, does your computer laboratory have the following equipment:

Working computers	yes	no
Necessary software	yes	no
Internet access	yes	no
Data projector	yes	no
Other equipment, please specify		

2.1b Do learners have additional access to the computer lab to do assignments/ revision?

Yes		No	
-----	--	----	--

If no, when and how are they expected to do assignments/ revision?

2.2 If your school does not have a computer laboratory, how do you teach CAT?

3. Would you advise a learner to take CAT as a subject?

Yes		No	
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3.1 Please motivate your answer to question 3

4. Does CAT improve learners 21st century skills:

Creativity skills		
The use of imagination or original ideas to create something; inventiveness.		
CAT learners' creativity skills have improved	yes	no
CAT learners' creativity skills are better than their peers who do not have CAT	yes	no
Critical thinking skills		
The ability to analyse information and form reasoned judgement.		
CAT learners' critical thinking skills have improved	yes	no
CAT learners' critical thinking are better than their peers who do not have CAT	yes	no
Communication skills		
The process of sending and receiving messages through verbal or non-verbal means, this includes speech, oral communication, writing, signals, behaviour, and graphical presentation.		
CAT learners' communication skills have improved	yes	no
CAT learners' communication skills are better than their peers who do not have CAT	yes	no
Collaboration skills		
A joint effort of multiple individuals who are able to communicate views and contribute to the accomplishment of the task.		
CAT learners' collaboration skills have improved	yes	no
CAT learners' collaboration skills are better than their peers who do not have CAT	yes	no
Technological skills		
The abilities and knowledge needed to interact with computer-based technologies and perform technical tasks.		
My own technological skills have improved since taking CAT	yes	no
My technological skills are better than my peers who don't have CAT	yes	no

5. What do learners enjoy most about CAT?

6. What do learners most often struggle with in CAT?

7. What learning barriers are you faced in the CAT classroom?

8. Do you think CAT is also used to teach learners 21st century skills? Please motivate your answer

Appendix K: Principal's interview questions



THE EFFECTIVENESS OF COMPUTER APPLICATIONS TECHNOLOGY AS A VEHICLE TO PROMOTE 21ST CENTURY SKILLS TO LEARNERS OF THE LEJWELEPUTSWA DISCTRICT.

NOTE: These questions will be directed to the principals of schools that still offers CAT and that no longer offers CAT as one of their subjects.

QUESTIONS FOR THE PRINCIPALS' (INTERVIEW)

Surname and initials	
Years of experience as a principal in this school	
Name of the school	

1. When CAT was introduced and implemented in schools, your school become one of the schools that were able to offer the subject to the learners. Kindly differentiate the state in which your school was then and the state in which your school is now, in terms of its readiness to offer the subject to the learners.
2. For how long did your school offer the subject under your supervision?
3. What were the main challenges associated with offering this subject?
4. Did you notice the difference between the learners who were offered the subject and those whom this subject was not offered to? Please motivate.
5. Were the classrooms and/or the computer laboratory fully resourced for quality administration of this subject?
 - I. If yes, where are those resources now?
 - II. If no, which resources were lacking?

6. Which specific aspects lead your school to completely stop offering this subject?
7. What do you think you could have done differently to ensure that your school continues offering this subject?
8. How do you feel when you see that other schools are still able to offer this subject regardless of the challenges, they face with offering this subject while your school could not continue?
9. What procedure was taken by the school and the department of education when this subject was terminated?
10. What advice would you like to give to the schools that still continuing with offering this subject?
11. Would you confidently say that without this subject in your school your learners will be able to fit in and adjust just fine in this digital world like those learners who were offered this subject in their schools? Please motivate your answer.

Appendix L: Editorial letter

Marielle Tappan
Simmetrie & Kegel Street
Meyerspark, Pretoria
Tel 072 474 1158
Email mteditorialinfo@gmail.com



Date of Edit: 20 June 2025

Edit: W.M Makhasane

THE EFFECTIVENESS OF COMPUTER APPLICATIONS TECHNOLOGY AS A VEHICLE TO PROMOTE 21ST CENTURY SKILLS TO THE LEARNERS OF THE LEJWELEPUTSWA DISTRICT

To whom it may concern,

I, Marielle Tappan, trading under the name MT Editorial, hereby confirm that I am a language editor.

I have extensive experience in the field of language and publishing and received my Bachelor of Information Science in Publishing from the University of Pretoria. I am also a registered member of the Southern African Freelancers' Association.

I hereby declare that the editing done for any client is done with the utmost diligence and the full appreciation of the English language and all of its intricacies, as was done for edited sections of this document. My involvement was restricted to the main body of text's language use, spelling, consistency and completeness, alongside general formatting of the document's layout. I did not restructure any content that would influence the academic outcome in any way. I cannot take responsibility for any changes made by the client once the paper was returned after the above-mentioned 'Date of Edit'.

If there are any other queries, please do not hesitate to contact me.

Kindest Regards,

Marielle Tappan
Owner, MT Editorial
Chairperson, SAFREA Gauteng North
Full member: SAF03058
(BIS) Publishing

Marielle Tappan