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SUSTAINING THE PROFESSIONAL IDENTITY OF BEGINNING TEACHERS IN EARLY MATHEMATICS, SCIENCE AND TECHNOLOGY TEACHING

Name of participant: ____________________________________________________

Name of investigator: Mrs M. Botha

Dear Participant,

The following information is provided for you to decide if you wish to participate in the research study. You should be aware that you are free to decide not to participate or to withdraw from the research study at any time without explanation or prejudice and to withdraw any unprocessed data previously supplied.

The purpose of this study is to understand how you develop your professional teacher identity in the teaching of mathematics, science and technology in the early years.

The data will be collected at three stages: (1) April 2010: (1.1) Design and handing in of a photo collage and a written narrative reflection, (1.2) 45 minute individual semi-structured interview. (2) July – August 2010: 1 day informal observation and participatory reflection on your teaching. (3) September - November 2010: (3.1) Design and handing in of a photo collage and a written narrative reflection of your first year of teaching, (3.2) 45 minute individual semi-structured interview.

You may ask any questions before participation or during the time of participation. Do not hesitate to ask any questions concerning the data collection procedure. You will also be given an opportunity to verify the accuracy of my expressed views and you will have an opportunity to verify the accuracy of the interview transcripts. I will be happy to share my findings with you after the research has been completed.

The information and data collected are confidential and all the information that you provide will be safeguarded. Your identity as a participant will be known only to me. I will refer to you by pseudonym or a code name in any publications arising from the research.

Please sign your consent with full knowledge of the nature and purpose and the procedures that will be followed during the research. A copy of this consent form will be given to you to keep.

1. I consent to participate in the above mentioned research study, I consent that samples may be collected from the following; my photo collages, my narrative reflections and the individual semi-structured interviews. The collection of data will be at three stages during my first year of teaching.

2. I authorise the use of the photo collages, the narrative reflections, informal observation, field notes, observational reflections and individual interviews for data analysis.

Signature: ______________________________     Date: ____________________

Tel or cell number: ____________________________
Appendix B:
Photo collage & written narrative reflection

Designing a photo collage and writing a narrative reflection on the planning and teaching (professional teacher identity) of mathematics, science and technology (MST) in Foundation Phase (FP) and in Early Childhood Phase (ECP) classrooms

Beginning teachers (April 2010/ September 2010)

1. Designing a photo collage

Guiding question(s) to select images or photos and to design the photo collage.

Think about the way you teach MST. Select any images and/or photos that represent the way you plan and teach mathematics, science and technology (MST). Design and create a photo collage. Use the following questions to guide you to design and create the photo collage:

- What do you believe about MST teaching (planning) in the early years?
- How do you plan and teach MST? (Explain how you plan your lessons. Give examples.)
- What do you believe about MST? (Nature of MST, the content and curriculum of MST)
- What did you learn about MST teaching and learning during the BEd programme and internship (practice teaching)? / What did you learn about MST teaching and learning during your first year of teaching?

😊 Please do not use photos where children or the school where you teach can be identified! Use photos or images that explain your practice.

2. Write a narrative reflection to explain your photo collage

Browse through the images/photos and write a narrative reflection about what you believe and do when you plan and teach MST in the FP and/or in ECP classroom. Use the guiding questions in the writing of your narrative reflection:

- What do you believe/know about MST teaching (planning) in the early years?
- How do you plan and teach MST? (Explain how you plan your lessons. Give examples.)
- What do you believe/know about MST? (Nature of MST, content knowledge, pedagogical knowledge and curriculum of MST.)
- What did you learn about MST teaching and learning during the BEd programme and internship (practice teaching)? / What did you learn about MST teaching and learning during your first year of teaching?

Reflection
Examine the images/photos you have selected, and reflect on how these images/photos connect in any way to the questions.
Appendix C:
Individual semi-structured interview schedule

Interview questions/prompts (the questions are guidelines and the researcher will further be guided by the photo collage and narrative reflection)

- How do you teach MST?
- What do you teach in MST?
- Why do you teach MST in this manner?
- Explain some of your experience during the teaching and learning of early mathematics, science and technology (MST)?
- What do you believe/know about MST teaching and learning?
- How do you feel about MST teaching in the early years?
- How would you summarise your MST planning?
- How do you plan MST activities? How would you summarise your MST teaching and learning?
- What influenced your early MST teaching?
- What influenced your MST learning?
- How do/did you respond to the influences?
Appendix D:
Gauteng Department of Education letter of consent

UMnyango WezeMfundo
Department of Education
Lefapha la Thuto
Departement van Onderwys

Enquiries: Nomvula Ubisi (011)3550488

<table>
<thead>
<tr>
<th>Date:</th>
<th>23 June 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Researcher:</td>
<td>Botha Marié</td>
</tr>
<tr>
<td>Address of Researcher:</td>
<td>30 Edenpark, 195 Elizabeth Street, Wonderboom Pretoria 0182</td>
</tr>
<tr>
<td>Telephone Number:</td>
<td>012 5677358</td>
</tr>
<tr>
<td>Fax Number:</td>
<td>012 4205595</td>
</tr>
<tr>
<td>Research Topic:</td>
<td>The sustainability of professional teacher identity in the teaching of mathematics, science and technology in the early years</td>
</tr>
<tr>
<td>Number and type of schools:</td>
<td>Five [5]; Primary and ECD sites</td>
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<td>District/s/HO:</td>
<td>Tshwane North and -South</td>
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Re: Approval in Respect of Request to Conduct Research

This letter serves to indicate that approval is hereby granted to the above-mentioned researcher to proceed with research in respect of the study indicated above. The onus rests with the researcher to negotiate appropriate and relevant time schedules with the school/s and/or offices involved to conduct the research. A separate copy of this letter must be presented to both the School (both Principal and SGB) and the District/Head Office Senior Manager confirming that permission has been granted for the research to be conducted.

Permission has been granted to proceed with the above study subject to the conditions listed below being met, and may be withdrawn should any of these conditions be flouted:

1. The District/Head Office Senior Manager/s concerned must be presented with a copy of this letter that would indicate that the said researcher/s has/have been granted permission from the Gauteng Department of Education to conduct the research study.
2. The District/Head Office Senior Manager/s must be approached separately, and in writing, for permission to involve District/Head Office Officials in the project.
3. A copy of this letter must be forwarded to the school principal and the chairperson of the School Governing Body (SGB) that would indicate that the researcher/s have been granted permission from the Gauteng Department of Education to conduct the research study.

Office of the Chief Director: Information and Knowledge Management
Room 501, 111 Commissioner Street, Johannesburg, 2000 P.O.Box 7710, Johannesburg, 2000
Tel: (011) 355-0809 Fax: (011) 355-0734
4. A letter / document that outlines the purpose of the research and the anticipated outcomes of such research must be made available to the principals, SGBs and District/Head Office Senior Managers of the schools and districts/offices concerned, respectively.

5. The Researcher will make every effort obtain the goodwill and co-operation of all the GDE officials, principals, and chairpersons of the SGBs, teachers and learners involved. Persons who offer their co-operation will not receive additional remuneration from the Department while those that opt not to participate will not be penalised in any way.

6. Research may only be conducted after school hours so that the normal school programme is not interrupted. The Principal (if at a school) and/or Director (if at a district/head office) must be consulted about an appropriate time when the researchers may carry out their research at the sites that they manage.

7. Research may only commence from the second week of February and must be concluded before the beginning of the last quarter of the academic year.

8. Items 6 and 7 will not apply to any research effort being undertaken on behalf of the GDE. Such research will have been commissioned and be paid for by the Gauteng Department of Education.

9. It is the researcher’s responsibility to obtain written parental consent of all learners that are expected to participate in the study.

10. The researcher is responsible for supplying and utilising his/her own research resources, such as stationery, photocopies, transport, faxes and telephones and should not depend on the goodwill of the institutions and/or the offices visited for supplying such resources.

11. The names of the GDE officials, schools, principals, parents, teachers and learners that participate in the study may not appear in the research report without the written consent of each of these individuals and/or organisations.

12. On completion of the study the researcher must supply the Director: Knowledge Management & Research with one Hard Cover bound and one Ring bound copy of the final, approved research report. The researcher would also provide the said manager with an electronic copy of the research abstract/summary and/or annotation.

13. The researcher may be expected to provide short presentations on the purpose, findings and recommendations of his/her research to both GDE officials and the schools concerned.

14. Should the researcher have been involved with research at a school and/or a district/head office level, the Director concerned must also be supplied with a brief summary of the purpose, findings and recommendations of the research study.

The Gauteng Department of Education wishes you well in this important undertaking and looks forward to examining the findings of your research study.

Kind regards

Shadrack Phele MIRMSA
CHIEF EDUCATION SPECIALIST: RESEARCH COORDINATION

The contents of this letter has been read and understood by the researcher.

Signature of Researcher:

Date:
LETTER OF CONSENT FOR RESEARCH
Departmental schools, Private schools and Early Childhood settings

Dear

I am currently busy with my PhD on the title:

SUSTAINING THE PROFESSIONAL IDENTITY OF BEGINNING TEACHERS
IN EARLY MATHEMATICS, SCIENCE AND TECHNOLOGY TEACHING

The main purpose of my study is to determine how 1st year teachers that have completed the Bachelor of Education (B.Ed.) Early Childhood and Foundation Phase Programme sustain, change or adapt their professional teacher identities in the context of teaching and learning of mathematics, science and technology (MST) at foundation phase (Grade R – Grade 3) and early childhood level classes.

The research question is: How do beginning first-year early childhood and Foundation Phase teachers form, sustain or change their professional teacher identity in the teaching of mathematics, science and technology (MST) in the early years and in different school settings?

I would like to involve_________________________ a 1st year teacher, in your schools in my research.

To obtain the necessary data for my studies I need to do classroom observation of teaching activities.

Should you agree, please sign the letter of consent below. I shall collect the letter of informed consent at a convenient time, as I need your approval before I can commence.

Yours truly

_____________________
Ms M Botha
Faculty of Education
Marie.botha2@up.ac.za
Fax number: (012) 420-5595
<table>
<thead>
<tr>
<th>PERMISSION FOR RESEARCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>I, ____________________________, hereby give permission to Marié Botha to do her research with the above mentioned beginning teachers.</td>
</tr>
<tr>
<td>Official: __<strong><strong><strong><strong><strong><strong><strong><strong>Signature____________________Date</strong></strong></strong></strong></strong></strong></strong></strong></td>
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Appendix F:
Parents’ letter of consent

Ms M Botha
Faculty of Education
marie.botha2@up.ac.za
Fax number: (012) 420-5595

PARENTS’ CONSENT

Dear parents

I am currently doing my PhD with the following title:

SUSTAINING THE PROFESSIONAL IDENTITY OF BEGINNING TEACHERS IN EARLY MATHEMATICS, SCIENCE AND TECHNOLOGY TEACHING

The purpose of the study is to understand how teachers in the early childhood and foundation phase develop and sustain their identity in the teaching of mathematics, science and technology. To obtain the necessary data for my studies I need to do classroom observation of teaching activities. Your child’s teacher will explain my presence and role in the classroom and I will also take care that I do not intrude on the teaching and learning of your child.

I would appreciate your consent to allow your child to participate in the classroom activities during the observation of teaching procedures. However, participation is voluntary.

Signature ___________________________ Date ______________

Thank you.

Marié Botha
## Appendix G:
### Open observation schedule

<table>
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<tr>
<th>Observation: actions</th>
<th>Reflective notes</th>
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<tr>
<td>Description of the kind of mathematics, science or technology (MST) activity – Lesson planning</td>
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<td>Description of the pedagogical approach (inquire-based approach, hands on activity, workbooks, discovery learning, exploration, problem solving approach, scaffolding)</td>
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<tr>
<td>Interaction with the children and children’s MST learning</td>
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<tr>
<td>Interpretation and implementation of the curriculum</td>
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<td>Resource and classroom environment</td>
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<tr>
<td>Aspects of classroom practice and management</td>
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- **Observational reflection:** The six teachers wrote an individual reflection on the planning and on the presentation of the observation activity.
# Appendix H: Clearance Certificate

## RESEARCH ETHICS COMMITTEE

<table>
<thead>
<tr>
<th>CLEARANCE CERTIFICATE</th>
<th>CLEARANCE NUMBER:</th>
<th>SM 10/02/03</th>
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</thead>
<tbody>
<tr>
<td>DEGREE AND PROJECT</td>
<td>Sustaining the professional identity of beginner teachers in early mathematics, science and technology teaching</td>
<td></td>
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<tr>
<td>INVESTIGATOR(S)</td>
<td>Marie Botha</td>
<td></td>
</tr>
<tr>
<td>DEPARTMENT</td>
<td>Science, Mathematics and Technology Education</td>
<td></td>
</tr>
<tr>
<td>DATE CONSIDERED</td>
<td>15 March 2012</td>
<td></td>
</tr>
<tr>
<td>DECISION OF THE COMMITTEE</td>
<td>APPROVED</td>
<td></td>
</tr>
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</table>

Please note:
For Masters applications, ethical clearance is valid for 2 years
For PhD applications, ethical clearance is valid for 3 years.

**CHAIRPERSON OF ETHICS COMMITTEE**

Prof L Ebersohn

**DATE**

15 March 2012

**CC**

Jeannie Beukes
G.O.N Onwu

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 I:
Language Editing

Translating. Writing. Editing

Hester van der Walt
HesCom Communication Services
Member: Professional Editors’ Group

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+27 12 379 2005
Fax2mail 086 675 9569

hester@hescom.co.za
hmvanderwalt@telkomsa.net
PO Box 30200
Wonderboompoort 0033
633 Daphne Ave
Mountain View
0082

LANGUAGE EDITING STATEMENT

2012-03-11

Sustaining the professional identity of beginning teachers in early mathematics, science and technology teaching

by M Botha

- Has been edited for language correctness and spelling.
- Has been edited for consistency (repetition, long sentences, logical flow)
- Has been checked for completeness of list of references and cited authors.

No changes have been made to the document’s substance and structure (nature of academic content and argument in the discipline, chapter and section structure and headings, order and balance of content, referencing style and quality).

Hester van der Walt