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Construction of identities in a land of turmoil

Konstruktion av identiteter i ett land av oro

Fredrika Bydén

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Examiner: Malin Ideland
Supervisor: Anna Chronaki
Preface

This Minor Field Study (MFS) was financed with a scholarship from the Swedish International Development Cooperation Agency (SIDA). The purpose of this programme is to provide students the possibility of acquiring education in developing countries and development issues. My hope is that this study is going to benefit not only myself in my future profession as a teacher but also interested colleagues at the teacher education in Uganda, where the study took place.

The study is also an examination thesis on the Teacher Education program at Malmö University, Sweden. Thus, the study has been conducted upon the goals and guidelines of the course Advanced Level Degree Project in the Major Subject at Malmö University.

The idea of exploring pupils mathematical identities and the narratives that shape them by their participation in discursive practices is an idea fundamentally shaped in discussions held at Malmö University with lecturer Anna Jobér. The dialogues held between us have guided the course of my profession, and for that I am grateful.

I would like to thank Makerere University in Kampala for working with me and especially the Department of Education that has assisted me throughout the project, helping me with practicalities, and putting me in contact with professionals within the area of research. Further, I want to thank the headmaster of Buganda Road Primary School. I would also like to give a special thank you to Mr. Bulima Noah for welcoming me to his class, and always being of help. The study would not have been possible without him.

Lastly, I thank my supervisor professor Anna Chronaki, University of Malmö, for believing in my project, giving me valuable feedback and having patience with unstable internet connection and consistent changes of plans. Your professionalism and work ethic has been an inspiration.

Fredrika Bydén
Abstract

The aim of this study has been to explore how Ugandan pupils narrate themselves as learners within the mathematical classroom discourse and classroom but also as part of the school culture in the context of Uganda.

Mathematical understanding and performance has been considered largely by policy makers and the wider public of critical concern to empower learners as future citizens, and for the advancement of local communities (United Nations, 2017). However, mathematical understanding encompasses more than the context of the mathematical classroom, thus, in this paper, an attempt is made to examine the narratives that motivates and shapes the pupils in their mathematical endeavors. Starting from a socio-political position, regards to the cultural, political and social context is taken. Hence, knowledge acquisition is seen as the product of discourses and the circumstances in which it is cultivated.

The study was confined to a single classroom, with four pupils and the class teacher. Through micro-ethnographic methods, the study aimed to examine how these pupils positions themselves within the mathematical classroom, as pupils of today as well as adults of tomorrow. Methods for collecting data included semi-structured interviews, participatory observations and visual documentation through photography. The theoretical concepts applied in the process of analysis were: actual and designated identity (Sfard & Prusack, 2005a), and use value and exchange value (Black et.al., 2010).

The pupils’ narratives show four main themes for basis of narratives: fear of corporal punishment, religious motivation, mathematical understanding, and the possibility of rewards for excelling. These four themes are acting interrelated, and exist in varying degrees within the pupils. The analysis of pupils’ narratives show that no single component is responsible for molding the pupils’ mathematical identities, but rather, that the cultural and social influences in their every-day-lives play paramount roles in shaping their narratives.

Keywords: Socio-political aspects of education, mathematics education, mathematical identities, ethnographic studies in mathematics education
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1. Introduction

Uganda, located in the heart of Africa, is a country of a short, but turbulent, history. Through British rule, the colonial era has left its mark in every corner, shaping the country’s culture and altering its society as a whole. The country has in the last century seen momentous changes, for better and for worse. Through missionaries, the country has seen the spread of mass education, incorporating its Christian beliefs in a former traditional state (O’Connor, 2016). English, now the lingua franca of Uganda, has switched from the language of the suppressor to the language of liberation. Succeeding colonial times, the country has experienced decades of turmoil, through the rule of violent tyrants and corruption. Internal displacement, civil conflicts and human rights abuses has halted the country’s economic and social development. Today, the country is characterized by its large population of children, 48% being between the ages of 0-14 (Uganda Bureau of Statistics, 2018). As the country is entering the 21st century, in an ever-increasing global world, preparing the next generation for tomorrow's challenges, the issue of education is of critical concern. Through quality education, lifelong learning opportunities can be provided, thus generating possibilities of shaping a more prosperous society (United Nations, 2017). The Ugandan government has since the 90’s invoked educational policies aimed at improving enrollment and completion for higher education. In addition, the country has progressed its implementation of child rights through the Convention on the Rights of the Child and United Nations Sustainable Developments Goals (Henry, Chellangat & Bujaasi, 2015; United Nations, 2017). However, obstacles remain. Recent studies shows that despite the steady increase of budget and inputs of learning in school, learning outcomes have remained essentially stagnant and students consistently perform poorly (Uwezo, 2016).

In Uganda, as in most countries, mathematics is one of the compulsory core subjects in primary and lower secondary levels of education (Kiwanuka et. al., 2015). As mathematical understanding is an eminent component in order to empower learners to become self-reliant and active members of society, establishing quality mathematical education is of critical concern (Kaahwa, 2011). Kahwaa (2011) attributed Ugandan students’ low test scores in Mathematics to the culturally different learning environment students’ experience, explicitly the discontinuity in the socio-emotional socialization they receive at home and at school. The contradicting environmental characteristics account for conflicting expectations of students’ behaviour, hence,
their constructions of identities (Sfard & Prusak, 2005a). On a micro-level, namely within the confinement of classroom discourse, identity has been acknowledged as an important component that mold learning and influence its effectiveness (Sfard & Prusak 2005b; Bishop 2012). For pupils to develop powerful and productive mathematical identities, it is fundamental to possess a belief that mathematics is understandable and that with effort, individuals are capable of “cracking the code” (Bishop, 2012). Further, classroom motivation, according to Lightbown and Spada (2013), is connected to the teachers’ competence to create interesting and relevant content for the pupils to associate to their interests outside of school. Bishop (2012) supports these correlations and define student’s mathematical identities as the link to their willingness to continue studying mathematics. Thus, in order for Uganda to continue the implementation of the CRC and encourage enrolment for secondary education, as well as develop competent mathematical agents, it is of great value to explore these interrelationships.

In this paper, an aim is made to examine how Ugandan pupils identify themselves within the Mathematical classroom and the educational narrative that shape them, as pupils of today and citizens of tomorrow.

Starting, the purpose of the study and the research questions that guides it will be presented in chapter 2. The third chapter, theoretical stepping stone, presents the theoretical framework on which the study rests upon. Starting with earlier research within the field, the chapter moves on to presenting the theoretical concept that guides the study. Chapter 4 is aimed at presenting the cultural and educational context in which the study has taken place.

Chapter 5 addresses methodology. The micro-ethnographic methods that have been implemented in the study are explained, and participants are presented. Course of implementation of methods follows, and the chapter ends with ethical considerations for the study.

The results and analysis will be presented in chapter 6. Starting with the school and classroom setting, background information and scenery is explained. Following, language usage within the school is discussed. The teacher’s role and his educational approach is analysed, with a portrayal of the pupils succeeding. Subsequently, the pupil’s positioning within the mathematical classroom is discussed, as pupils today as well as their futuristics ambitions in a larger context.
Utterances and quotes from interviews will act as illustrations and clarifications of context and meaning.

From the analysis of data, conclusion and discussion will end the paper in chapter 7. Four themes constituting motivation and basis for narratives will be presented and discussed in relation to earlier research within the field. Lastly, limitations of the study and suggestions for future research are discussed.
2. Purpose and research question

The aim of the study is to direct a focus on Ugandan pupils’ perception of Mathematics: how they identify themselves within the Mathematical classroom and the educational narrative that shape them. Further, I intend to examine the correlation between pupils’ *actual* and *designated identity*, and how they value mathematics as a subject, as *use value* or *exchange value*.

The study is confined to a single mathematics classroom, thus a micro-level perspective on identities is taken (Bishop, 2012). The micro-level factors that are the basis of the intended study are as follows; identities and personal goals, beliefs about mathematics abilities and motivation to learn, and self-narratives (Martin, 2000; Bishop 2012).

With these factors acting as a foundation, the main question to explore have come to be formulated to:

- How do pupils identify themselves within the Mathematical classroom and the educational narrative that shape them, as students in the present as well as future individuals?
3. Theoretical stepping stones

In this chapter, the theoretical framework on which the study rests upon is presented. Starting with earlier research within the field, the chapter moves on to defining theoretical concepts that have been used in the study. Ending, the chapter addresses the relevance for the Ugandan context.

3.1 Earlier research within the field

With the sociocultural and political turn in mathematics education, a growing number of researchers have identified cultural and social influences as important considerations for mathematics education (Gutiérrez, 2013; Lerman, 2000; Martin, 2000; Sfard & Prusak, 2005b; Tsatsaroni, Evans & Morgan, 2007;). A fundamental point of departure in the works of sociopolitical researchers is the examination of perspectives in which an individual acts in social practice, unlike previous research which focused rather on the isolated individual's knowledge learning. Earlier didactic theories certainly included the influence of the social aspect of learning, but rather as a complement to the individual's motivation in learning (Lerman, 2000). Lerman (2000) extended the concept of social to involve social individuals in interactions, and Gutiérrez (2013) further explained in her research how the sociopolitical field of research came to develop a view of knowledge, power and identity as interwoven and originated from social contexts. In this study, identity is the main foci point of research. Originating from Skovsmose (2016), identities are seen as constructions that can be constructed in radically different ways for different groups of people. Because individuals participate in different social groups and contexts over time, identities are to be considered dynamic, multidimensional and sometimes even contradictory. The self is therefore a collection of interconnected identities that are constituted by practice so that in any practice an individual is placed by race, class, ethnicity, sexuality, gender, religion, language, etc. Thus, what has happened in a person's past is not disconnected from the present or the future (Gutiérrez, 2013). Further, in this study, a sociopolitical view on knowledge
acquisition will be used, allowing a view of the individual not as the source of discourses, but as a product of discourses (Ibid.).

3.2 Discourses as a tool for constructing identity

In this study, discourses are defined as all forms of spoken interactions, formal and informal speech and all types of texts (Gutiérrez, 2013; Svensson, 2014). These discourses, some conscious by the participants, and some not, operates on different levels. Some discourses are directly related to mathematics teaching in the classroom, while others act on a macro-level, not necessarily explicitly connected to the mathematics teaching in the classroom. While these levels are more or less explicit, they all functions as influences of the mathematical classroom and its inhabitants. Further, originating from social constructivism, the assumption that the self is a discursive and a social subject, transforming and evolving in social practices, is made in this study (Svensson, 2014). An example of this is how a pupil talks and interacts within the mathematical classroom, in order to be perceived as a competent mathematical agent, and how the same pupil talks, acts and interacts in a different context to be perceived as a member of a group of friends (Ibid.).

3.2.1 Defining identity within the mathematical classroom

On a micro-level, namely within the confinement of classroom discourse, identity has been acknowledged as an important component that mold learning and influence its effectiveness (Sfard & Prusak 2005b; Bishop 2012). For pupils to develop powerful and productive mathematical identities it is fundamental to possess a belief that mathematics is understandable, not arbitrary, that with diligent effort, mathematics can be learned and used and that individuals are capable of cracking the code (Bishop, 2012). Boaler, Wiliam & Zevenbergen (2000) and Sfard & Prusak (2005a) further correlates student’s perceived identities with academic achievements and advocate that identities has a tendency to act as self-fulfilling prophecies. Thus, pupils who develop a sense of identity that resonates with the mathematics discourse are
more likely to continue their studies in mathematics than their classmates who do not develop this sense of identity. Hence, students’ mathematical identities are likely to play a critical role in determining whether the process of learning will result with what is regarded as a success or what counts as a failure in mathematics (Ibid.).

In this study, identities are seen as discursive counterparts of one’s lived experiences, and as such, individuals are seen as having identities emerging within and associating to the social context they currently hold in the mathematical classroom. Sfard & Prusak (2005a) conceptualise identity as a set of significant, endorsable stories about a person. These stories, albeit individually told, are the products of a socially collective storytelling. Through time, specific experiences occur within specific discourses, shaping the narrative of each person. Thus, a person has a unique trajectory through the discursive space. The narratives about a person can be seen as bicameral; the present, factual position a person holds, called the actual identity, and the designated identity, that is composed of narratives presenting expectations that have the potential to become a part of one’s actual identity (Sfard & Prusak, 2005a). A persons designated identity give direction to one’s actions and motivation to the present, actual identity, thus, the two act in consistently correctional positions, interrelated and shaping each other.

3.2.2 The value of mathematics as a basis of narratives

In a study exploring pupils identities within the mathematical classroom, Black et. al. (2010) presents two concepts for describing motives for learning mathematics: use value and exchange value. The authors argue that mathematics as a use value offers a meaningful involvement in the mathematics subject, encompassing a desire for understanding the subject related to subjects outside of the mathematical classroom. In contrast, perceiving mathematics as exchange value, mathematics is not considered possessing the same value or use outside the educational context. For instance, pupils who have an exchange value motivates his or her studies with the need to get a certain grade for, for example, entering secondary school. On the contrary, a pupil who have use value as their motivation emphasises performance in the here and now against the use value in the future, where they can use mathematical understanding in practice. Thus, these concepts are related to pupils motivation for learning mathematics, and the choices they make in order to
learn mathematics. In this study, the two concepts are used to identify motives for mathematical motivation and narrative. As the authors suggests, the two concepts can be used interrelated with each other, to differing extent, affecting the pupils motivation continuously. In addition, perceiving mathematics as an *exchange value* may have positive effects on one pupils learning, and vice versa, thus, being independently effective (Ibid.).

### 3.3 Mathematics in Uganda

In Uganda, as in most countries worldwide, mathematics is one of the compulsory core subjects in primary and lower secondary levels of education (Kiwanuka et. al., 2015). The subject status as a compulsory course is intended to improve mathematical literacy and meant to advance the country’s economic and societal development. As such, advancing mathematical understanding is of critical concern to empower learners and allow them a fair chance to take an active part in an ever-increasing global world-market. Kahwaa (2011) attributed Ugandan students’ low test-scores in mathematics to the culturally different learning environment students’ experience, explicitly the discontinuity in the socio-emotional socialization they receive at home and at school. At home, intimacy, diffuseness, and particularization in interpersonal relationships, as well as a degree of dependency, are valued. However, at school, impersonality, universal standards and independence are valued. These contradicting environmental characteristics account for conflicting expectations of students’ behaviour, hence, possibly hindering their academic endeavors (Ibid.).
4. Cultural context

This chapter aims to present the cultural context in which the study took place. Starting, a summary of Uganda's educational history since independence is presented, and implications for today's educational landscape is explained. Following, the school culture is presented. Ending, the current curriculum, with a focus on mathematics, is briefly reviewed.

4.1 Educational history

Through British colonial rule, the spread of mass education took its place in Uganda in the early 20th century. However, between independence and the 1990’s, enrollment and completion of primary school has seen a slow development. A liberalization of the education sector in the 1990’s elicited an increase in private schools, inducing segregation (Businge, 2019). With deficient regulations to ensure quality and ensure fair play, schools came to be categorized according to economic status, and enrollment for higher education in many areas stalled. To combat the growing inequality attributed to the privatization, in 1997, the Ugandan government introduced the Universal Primary Education (UPE) program. The program was aimed at improving enrollment and completion in primary schools, by supporting families with school tuition. Initially, the program intended to support four children per family. However, due to the complex structures of Ugandan families, commonly consisting of more than four children, the new policy was soon rewritten to include each child of a family. With the new policy implemented, schools experienced a massive influx of pupils. Following the launch of UPE in 1997, enrollment increased from just over two million pupils to the current eight (Ibid.).

Nevertheless, the UPE did not solve the issues related to infrastructure and poor economic resources (Businge, 2019). In the wake of UPE, and the expanding of the school sector, poor quality education followed. Additional consequences attributed to the steep increase of enrollment in primary school included disproportionate large classes, and breaking the pupil-teacher ratio of 1:40. Classes expanded to include between 70-150 pupils, and over-age studying
became common throughout the country (Ibid.). The Uwezo report (2016) shows that, despite the steady increase of budget and inputs of learning in school, learning outcomes have remained essentially stagnant and students consistently perform poorly.

4.2 School culture

As in many postcolonial countries, an Anglo-saxon worldview of learning is prevalent throughout Uganda (Pinxton, 2016). Learning is seen as a process inside the head of the learner, with the teacher manipulating the stimuli which are fed into the so-called black box, the brains, of the learner and check on the impact of the processing of data at the other end, where the teacher looks at the responses. Additionally, not only does the teacher guide pupils’ in their academic endeavor, the teachers also have to correct, direct and instruct improper behavior. The teacher is being viewed by society as the protector and conservator of social norms, and aims to socialize students to be desired members of society (Ibid.). Thus, the responsibility of the teacher stretches from academic cultivation and inquisition, to behavior, and even hygiene (O’Connor, 2016). Even as many pupils come from poor backgrounds, with little or no access to water and electricity, keeping a clean look for school is considered important. Shirts should be tucked in, hands are to be kept clean and hairstyles are cut to be easily maintained. In other words, the school focuses primarily enculturating pupils by teaching them skills and behaviors that they will need in order to excel within the society (Ibid.).

4.3 Mathematics in the Curriculum

Through its colonial inheritance, the Ugandan curriculum carries with it British characteristics (Namukasaa, Quinnb & Kaahwa, 2010). Since 1962, when the autonomous Uganda was established, curricula material originating from Britain, and to some extent from the USA, were adapted to the Ugandan curricula. Due to political and economic turmoil throughout the years, limitation of reforms and research have left the country with a school
curriculum that more or less reflects modern mathematics combined with traditional mathematics of the 1970’s (Ibid.).

The current curriculum for Primary school aims to create a progression of abstraction, with learners moving from a thematic to subject-based learning (National Curriculum Development Centre, 2018). Along with this progression, a gradual transition of language use is made, from the use of local language to that of English as the core medium of instruction.

The Mathematics Curriculum for Primary school emphasizes the integration of other subjects, urging the teacher to seek opportunities to draw mathematical experience out of a wide range of pupils’ activities (National Curriculum Development Centre, 2009). The overall aim of teaching Mathematics is to develop in learners a positive attitude towards Mathematics and awareness of its applications. In terms of implementation, the curriculum advocates the use of friendly, child-centered methods that enables learners to meet the demands of life (Ibid.).
5. Methodology

The following chapter describes the methodology for this research study. First, methods of collecting data is presented. In the next sections, participant selection and the participating pupils and teachers are presented. Subsequently, instruments for collecting data and visual documentation are discussed. Course of implementation aims at explaining the procedure of collecting the data through the selected methods. The chapter ends with the ethical considerations that have guided the study.

5.1 Methods for collecting data

The study is confined to micro-ethnographic methods, as advocated by Bryman (2018). Micro-ethnographic methodology is characterized by considerations to the local and situated environment of participants, in interactional engagements constituting societal and historical experience (Garcez, 2017). The methodology was chosen in aims to describe how interaction is socially and culturally organized in particular situational settings, where key episodes of consequences for people’s lives chances may be taking place in the course of everyday routine.

The method of semi-participation has been used, implemented through semi-structured interviews, casual conversations and observation. These ethnographic methods are characterized by the attempt to reach an understanding of the participants' experiences and perspectives in the context they reside within, further allowing participants to give expansive and unforeseen answers, and individually define their narrative (Garcez, 2017).

In preparing the interviews, topics were arranged in a hypothetical chronological order that also would build upon each other, explained in detail in 5.4 Implementation of study. This was done in order for the research to be in focus, despite the freedom in the interviewees answers. The class teacher was interviewed on two separate occasions (see Appendix A and B). The interviews with pupils were divided into two parts (see Appendix C and D).
5.2 Participant selection

Through Dr. Peter Ssenkusu, professor at Makerere University, correspondence was set up with Buganda Road Primary School in 2018. The study’s project plan was forwarded to the headmaster, along with requirements for participants. The class teacher, henceforth referred to as Mr. B, was chosen by the headmaster. Mr. B teaches pupils in the age eligible for the study, as expressed in the project plan.

In setting the criteria for the participating pupils, considerations to three factors were taken: language efficiency, age and gender. Albeit English being the official language in Uganda, the majority speak it as a second language, and to ensure that communication was carried out explicitly, language efficiency was essential. Regarding age, the study aims to explore the experiences and notions of Primary education pupils, thus, consideration to age is vital. Due to the class being mixed-age, the chosen participants were between 9-11 years old. To increase the heterogeneous of the study, participants of both sexes were included. All participating pupils were chosen beforehand by Mr. B. In conducting the study however, it was evident that pupils were chosen according to their grade, and not set criteria. All participating pupils were in the higher performance standard. At first this seemed to hinder a heterogeneous selection of participants, but as the interviews took place, it was no longer to be considered an obstacles as the participating pupils expressed widely different narratives. In addition, their spoken English were adequate for participating, which was an essential consideration.

All respondents were informed beforehand that participation was voluntary, and that they were not obliged to answer questions that might make them feel uncomfortable and are free to end their involvement at any time. All participants were made aware of their anonymity and that any data collected would only be used within this project.

5.2.1 Participating pupils

Martha is a happy and courteous girl. She comes from a relatively affluent family, her parents are cardiologists and works at a local hospital. She has an older sister, who goes to secondary school.
Martha attends the girl scouts, but not very often. She is a class prefect, carrying a high status in class. In class, she listens attentively and often raises her hand to answer questions, sometimes to correct her classmates when they are acting disorderly. She likes to sing in church, and in school plays she often carries the main role. Martha sits in the front of the class.

Anna is a skinny and attentive girl. She lives in Kansanga, a middle-class neighbourhood in eastern Kampala, with her mom and three brothers. Her father works as a teacher in China. She is very interested in church, and likes to talk about God. In class, Anna is active and competes with the other pupils for the teachers attention. She sits in the left side of the classroom, close to the chalkboard, often biting her pen while listening to the teacher.

Adam is a small boy who likes soccer. He lives with his mom and dad, a younger sister and an older brother. The family lives in Kalerwe, a residential slum in central Kampala. He dreams of going to Barcelona to see his favorite player Messi play. In class, Adam is rarely heard. He is placed in the center of the classroom.

Edward is a skinny boy, with lots of bruises and cuts on his knees and arms. He is shy and talks in a low voice. He avoids eye contact, but lights up when he talks about soccer. Edwards father works as an Uber driver, and his mom passed away when he was little. He now lives with his father and his stepmother in central Kampala. He has an older brother who attends BRPS as well. Edwards sits in the center of the classroom.

5.2.2 Participating teacher

The teacher of the class, Mr.B, is a tall, slender man in his mid 50’s. Mr. B grew up in a village in Iganga district, a rural area in the Eastern Region. His mother tongue is Luganda, but he speaks English fluently. Mr. B choice of becoming a teacher in mathematics originates from succeeding in mathematics at a young age, and winning a contest in his youth. The contest brought with it opportunities to study at Makerere University, the largest university in Uganda. He has been practicing his profession for more than 30 years, and has a master’s degree in education management from Makerere University.
5.3 Instruments for collecting data

To ensure that specific phrases and sayings were not lost, the interviews were recorded using a digital voice recorder, and complemented by notes (Bryman, 1997). This procedure allowed re-examination of the data collected, but also a focus on the participant and what was being said during the interview. The data was later transcribed using tape analysing (Dörnyei, 2007). In transcribing data, tape analysing focuses on specifics rather than transcribing the whole interview. This method allows the researcher to be time efficient and a focus on the parts that featured the research questions can be remained.

Field notes have been recorded continuously, functioning as descriptive complements to recordings and observations (Kullberg, 2004). To ensure structured documentation, categorization of settings have been carried out according to Kullberg’s (2004) 9 categories: room (the physical space), actors (the participants of the study and their background), activity (the relating actions that actors perform), objects (the physical objects that are present), actions (actions made by the actors), events (the set of related activities that the actors are performing), time (events that occur over time), goals (the goals that the actors aim to achieve), and feelings (the feelings that are enacted and lived).

5.4 Visual documentation

With assurance from the headmaster and headteacher, no permit for photographing the school environment or pupils were necessary. Members of staff were informed beforehand of the methods of collecting data that were going to be used. Ethical considerations have been made in order to ensure the safety of pupils, and permission to take photos have been given orally.

5.5 Course of implementation
The study took place in Kampala, Uganda, during the course of 3 months. The first two months were reserved to collect data, and the remaining month for teacher practice. The study rests on the project plan, submitted to Minor Field Study at Malmö University in May 2018.

The first week was reserved for observation and the initial interview with the class teacher. The first interview with Mr. B is partly to be considered as a mean to create a relationship, and to offer insight to the theme of the study, and partly as a source of collecting data. As Mr. B had read the project plan, he was acquainted with the aim and purpose of the study, but the interviews offered a chance to discuss the study further. As the interview guide functions as guidelines, the actual interviews were carried out as part interview, with clarifications and supplementary questions, and part discussion.

Following, two weeks were set aside for observation within Mr. B’s classroom. Classes in mathematics were observed, and field notes were kept continually. At the end of week 3, the first interviews with pupils were carried out. As with Mr. B, the first interviews with pupils were intended to create a basic understanding for each participant background, and encouraged pupils to talk about themselves, their family life, and school in general. Further, the questions in the first interview were aimed to explore the pupils actual identity, thus focusing on who they see themselves to be in the present.

Further observations were made within the mathematical classroom the next two weeks, with casual conversations held with pupils in between classes. The class did an exam in mathematics, and the following week the second interviews with pupils were held. Initially, the interview focused on the exam and aimed to explore how pupils had prepared for the exam, and how they felt afterwards. Moving on, the interview aimed to explore the concept of identity in relation to ethnicity, religion, and school. The mid-part of the second interview directs a focus on Mathematics, and aims to explore the pupils feelings, attitudes and perception of Mathematics as a subject in school. The last part of the interview aimed to bring to light how pupils narrated their designated identity, who they wish to become in their future and which means they intend to take to get there. Both interviews with pupils lasted between 20-45 minutes.

The second interview with Mr. B was done shortly after the pupils second, and last, interview. This interview was designed to further explore the context in which Mr. B teaches, as well as the norms in which he resides. The interview explored subjects such as the curriculum, religion, family values and mathematics. In addition, conversations regarding the participating pupils
results on the exam were held. As with pupils, the interviews held with Mr. B lasted between 20-45 minutes. Both interviews with Mr. B was meant to function as a basis of creating the context for the school and classroom in which the study takes place. Additionally, the data collected from the interviews conducted with Mr. B was also used to understand the pupils actual identity. As Mr. B is the teacher in mathematics, his perception and notion of mathematics may influence the pupils mathematical identities.

The remaining 6 weeks were reserved for organizing data while teaching in Mr. B’s classroom. Field notes were classified according to date, creating a descriptive timeline. While transcribing the pupils interviews, attention to which tense in which the pupils spoke was taken. This was done in order to differentiate their actual and designated identity. Further, key words were identified in transcribing the data. Recurring thoughts or ideas of oneself and others were highlighted, and put in files for said participant. This was done in order to create a profile of each participant, divided into their actual and designated identity. In analysing data, four main themes were identified as underlying motivation for the pupils mathematical identity, divided into use value and change value. These themes are presented and discussed in chapter 7.

5.6 Ethical considerations

The choice to position myself, as a Swedish-speaking, middle class, white woman who grew up in a racially mixed, but predominantly white community, requires acknowledgment of the inevitable “clash of cultures” that encompasses the study. As an inquirer, a conscious approach of what biases, contradictions, and paradoxes I bring to the field of research is fundamental, thus, the process of reflexivity is of great concern (Lincoln & Guba, 2017). A set of multi-level guiding questions, developed by Andersson & le Roux (2017) have been functioning as a framework of ethical attitude. Drawing on the sociopolitical turn in mathematics education, the relations of researcher-participant is in this study examined in terms of power and positioning (Andersson & le Roux, 2017). Power is defined as situational, relational, and in constant transformation, and not as an entity, in permanent possession of a person or practice (Gutiérrez, 2013). Positioning points to the distribution of power within discourses. Using these terms enables an inclusion of the social, cultural, language, and political contexts, while possibly
exposing taken-for-granted stereotypes. Thus, in this study, the circulation of power between participants and inquirer is reflexive and developed throughout the study. In relation to the headmaster and Mr. B, I am an apprentice, dependent on their expertise of the educational system, but also their willingness to share this information (Bauchspies, 2004). In relation to pupils, my position is multifaceted and changes due to the context in which we interact. I am not a teacher of the school, therefore I cannot execute the same power and implement the same consequences. However, I am in a position of authority, working in collaboration with the class teacher and joining staff in their daily routines. In addition, my appearance, representing the culture of the West, may alter the ways in which I am perceived, therefore, influence the information I have access to, and to what extent.

In the process of writing and analyzing, the positioning and power relations has once again shifted. The differences in cultural, linguistic, and social experiences between researcher-participant have the potential to further stigmatizations of certain pupil groups. Consequently, the aim is not to write on behalf of the participants, but to reach an understanding of the complex ways in which they work with the available positionings in their contexts. This self-identification serves as a constant reminder of the asymmetries in the relations of researcher and participant.
6. Results and Analysis

In this chapter, the results of the study will be presented and discussed. Starting, the setting of the study will be presented. Following, an analysis of the teacher and his approach to learning and curriculum is presented. The role of pupils within the mathematical classroom is following, and their relationship to mathematics and implications for learning are given. The way in which the pupils value mathematics in relation to their earlier statements is following. And lastly, the pupils’ actual and designated identities are discussed, in relation to the value of mathematics. Throughout this chapter, quotes and utterances will act as amplifiers of context and reason.

6.1 The school context

The study took place at Buganda Road Primary School (BRPS) in Kampala, Uganda. The school holds pupils from kindergarten through primary 1-7, and consists of 2400 pupils and 57 members of staff. BRPS has been operating since 1933, founded by Indian Norman Godhino. In 1964, with the expulsion of Asians during Amins’ rule, the school was donated to the community. Today, the school is government-aided by the Kampala Capital City Authority (KCCA). The school is co-currently run by the School Management Committee, consisting of representatives of parents, KCCA, teachers and others associated with the school. BRPS includes four main buildings, holding a library, headmasters office, administration and the nurse’s office. A computer room is located in the headmasters building, with some 20 computers to accommodate 2400 pupils. Kindergarten is located on the southeast part of the schoolyard. Held up by a tin roof, the canteen area is located south of the kindergarten. Several wooden huts are located throughout the schoolyard, occupied by vendors selling sweet drinks and snacks.

6.1.1 The classroom context

The study is limited to one classroom, located on the north side of the yard, in the end of an open hallway. The classroom is of rectangular shape, approximately 60 m². 30 wooden benches fill the
room, placed vertically along the walls, and horizontally in the mid space of the classroom. Each bench holds 2-4 pupils, depending on the pupils’ size. Seating is arranged according to performances and willingness to participate in class activities, and the pupil’s ability to maintain the social norms of the class.

Three, large windows cover the south side, facing the backyard. The windows are open during school hours, offering sunlight and a fresh breeze in a room of over 100 people. The classroom’s building is made of concrete, with wooden floors. The floors are worn, with cracks and splinters sticking up. Class prefects are responsible for the daily sweeping of the floors, carried out with broom sticks.

The class teacher's desk is placed in the far back corner, next to a window. This positioning of the desk restricted the teachers overall view of the classroom, constricting the control of the pupils. A plastic chair is placed next to the desk, available for visitors. Further, the classroom’s interior is sparse. A thermometer and four soft boards, describing mathematical rules and operations, decorates the room.

The female-male ratio of the class differed throughout the study, due to increased enrollment in the terms first weeks. The class consisted of no less than 76 pupils, and 108 at the most, significantly higher than the region's average ratio of 68:1 (Uwezo, 2016).

BRPS is classified as a secular school, welcoming pupils of all religions. Nevertheless, Christianity is most prevalent across the school, with few Muslims or Hindus. Religious elements are often incorporated in education, and teachers often draws on Biblical examples in order to discipline, direct and encourage pupils.

In order to get parents involved in their children's academic life, the school has a number of programs. These involve competitions with other schools, but also within the school itself. Within mathematics, pupils who excelled in their class may receive a bursary. According to Mr. B, this is a strong motivation for parents to assist their children with their homework, but the bursary also shows the potential of their child.

6.2 The class teacher, Mr. B
Throughout his classes, Mr. B interacts with the pupils in a playful manner. He teaches his classes in English, on occasion clarifying context in the local language, Luganda. He is in constant communication with the class, replying to their questions and remarks in a lighthearted fashion. However, Mr. B’s style of communication is in some parts ambivalent, as one mistake can be met with differing responses. Forgetting your book at home might be met with a nod in one class, but might lead to harsh consequences in the next. A pupil may be called up in front of the blackboard to give his or her excuse in front of the class, to have it evaluated by the teacher as valid or invalid, with consequences according to classification. Nevertheless, a moment of harsh berating follows jokes and laughter, with Mr. B making the same pupil smile, thus, reducing the feelings of shame and exposure.

To facilitate the pupils in their mathematical endeavor, and empower them towards constructing positive mathematical identities, Mr. B emphasizes listening as an important skill. Mr. B explains: *In the learners i would say, one, listening - the listening. When learners listen... When you are having a disciplined class definitely these learners cause this positive learning cause there will be communication. You are delivering, and as you deliver you expect good feedback. And from this feedback you will be able to learn, to know, that this is what is required. So beforehand there must be learning, the listening skills must be there to catch up with communication.*

6.2.1 Mr. B’s view of the curriculum

Teaching in Uganda is strictly tied to the curriculum which presents topics, aims and goals for what pupils should learn together with teaching suggestions for the teacher. Mr. B explains in interviews: *The curriculum first of all has it ones weakness where there is much of theoretical issues. It brings out theoretical math, and what I mean by this... theoretical in a sense that is even something that could be worked out practically you do much of the theory, which is the teaching to the learner. And that is one weakness of the curriculum. Other thing, the curriculum addresses issues which will not be acquired by somebody. Let me give you an example. A child in Karamoja, Karamoja is a rural place, now when you teach a topic of fishing, and i believe there is a way in which this is not relevant for a child in Karamoja. as opposed, a child in Kalangala. Kalangala is an island, the topic of cattle keeping is not relevant for a child on an island. You know. So, I feel that the curriculum does not address much of the practical kind of things.*
In discussing the implementation of curriculum, Mr. B explains the changes his seen: *Yes, in today there is a correlation. As opposed to the old times when the curriculum .. for us, in the primary, we were studying North America, about the France, the South America, the Pampas, Nazareth. I mean we have much of European.... We don’t even have the knowledge about our... it was not helpful enough, but today the curriculum is very clear, on primary level the child is brought up knowing what is home. Home district, then the country, then by the time the child comes to p7, now he is able to know about Africa, about Europe. So it starts from home.*

6.3 The roles of pupils within the mathematical classroom

The participating pupils give similar accounts for their roles within the classroom. They refer to themselves as pupils who listen carefully at the teacher’s instructions, try not to make a fuss or draw unwanted attention to themselves. It is not until we discuss the relationship between teacher and pupil that differences in opinions arises. Both girls explains how they feel comfortable asking questions and making their voices heard. Anna explains: *Yes. I tell teacher please mister I don ’t understand. Then they tell me.* Mary, expanding on Annas’ thoughts, explains:

*Martha: A good teacher can be judging but when a teacher judge sometimes the teacher might be annoyed. But I think a good teacher should first explain to the student before getting annoyed without explaining.... What shows disrespect in front of you, first do not beat you, first tell ok, explain, then the student will understand this and this, and then the pupil will know that you are a good teacher. Sometimes teacher just beat students but when you are a good teacher and the student does not understand and then the student ask a question and you do not answer it the student may feel bad.*

Clarifications in Marthas’ comments arouse in interviews with Adam and Edward. The boys share a similar relationships to the school teachers, where fear and intimidation are key components of their relationships.

F: *Do you feel like you can ask your teacher anything?*

Adam: *No... because i .... I fear teacher.*

F: *You do? What do you fear?*
Adam: *I fear when he takes out his hose pipe... his hose pipe.*

F: *What is that?*

Adam: *A pipe, which he uses for caning...he use it... He uses it for... caning. For holding the skulls plugg. And for caning the skulls.*

Edward gives a similar testament of his role in the classroom, describing it as a position of obeying and correcting his behavior according to the teacher.

Edward: *If you don’t do what to do, they punish you but if you do, you become happy...I just.. I just do it for the reason. If i am wrong or correct, if I am sad or what I don’t care. I just do it for the reason... just care about the position. But my position is twelth.*

The act of corporal punishment is evident throughout the school, not just within the mathematical classroom. Using plastic canes for hitting pupils on the back of their heads, their backs and hands is a common occurrence, and is used to keep an orderly classroom. Further, staff continually slap pupils for standing in their way, speaking when not spoken to, or forgetting their homework. The act of corporal punishment has deep roots in Uganda, as explained by the headmaster. The headmaster attributes the wide-spread acceptance of corporal punishment as a two-edged dilemma. The majority of caregivers and parents at the school supports the usage of caning, as it is considered a cornerstone of qualitative parenting. Referencing the Bible, the phrase “Drop the cane, spoil the child” is commonly used to justify the physical punishment. The phrase is interpreted as a warning: if an adult does not discipline a disobedient child, that same child will become spoiled and not know right from wrong. However, the act is illegal. In 1997, Uganda outlawed corporal punishment in accordance of to the passing of the CRC (Segawa, 2018). However, the phrasing of laws concerning child care made it possible for parents, caregivers and teaching staff to administer corporal punishment as long they deemed it “reasonable chastiment”. In 2016, Ugandan legislators amended the Children Act, extending its corporal-punishment ban to all schools and colleges. Nonetheless, the act of corporal punishment is still prevalent throughout schools (Ibid.).

6.3.1 Pupils’ relationships to mathematics
In discussing the pupils’ views of school and mathematics as a subject, the pupils referred to what they liked/disliked, and distinctly different views and experiences of Mathematics was revealed. Further, the pupils’ understanding of mathematical applications and the objective of school mathematics differed greatly. For example, Martha expressed advanced knowledge of why mathematics is taught in school:

Martha: ... *sometimes it explains with maths like when you take spoons in your tea with sugar. It is like counting, one two it is like counting. One and a half. Even when you are walking you count your steps one two. It is like math. That is what I like. Like math is life.... Mathematics can also become time, we also learn about time in Mathematics. The time you wake up, the time you go to sleep. The time you have break. The steps you walk, the steps you go back, the steps you go forward. It is Mathematics.*

F: *Why do you believe we learn Mathematics in school?*

Martha: *Because when you pass.. Ok .. when math is easy for you then other subjects can also be easy you can see science has some, little math and ... because you can’t hold a compass without knowing where you are going. Where it is pointing.*

Martha shows an understanding of mathematics as a connection to other subjects, as well as its applications outside of school. She expressed an understanding of why Mathematics is important, relating it to other subjects. As Martha demonstrates mathematical fluency that encompasses understanding of its applications outside of the classroom, as well as long-term plans for achieving further understanding of the subject, this learning gives her the ability to progress her learning according to criteria independent of personal opinions of a particular teacher, thus, taking action of her own learning (Sfar & Prusack, 2005a).

Contrarily, the other participants expressed attitudes and beliefs about Mathematics isolated from other subjects, referring to mathematical activities as something you do in school. When asked why the class do exams in mathematics, Anna replies: *To get monitored and understanding wisdom, and to know more about math. Or exams. Because we know that God is with us, and we get a grade to be excited, to be happy and get a gift.*

F: *Do you get a gift if you excel in mathematics?*

Anna: *I told my mother, will you give me a gift? She said yes. Be encouraged.*
Edward tell similar motives for getting a good grade, explaining that his uncle becomes annoyed with him and does not buy him gifts until he improves his grades. Both Adam and Edward referred to the mathematical operations they do within the mathematical classroom:

Adam: *Because mathematics is counting, and counting makes me tired. I count and i count and i count and i count... for ages....*

Edward: *I like mathematics because mathematics is just about adding and dividing and...*

Nevertheless, in the second interviews, when asked in which jobs you could use mathematics, both boys gave several examples:

Edward: *Like being an engineer. Like being a person who makes business. Who owns a supermarket and counts the money. So when he is buying more things to put in the supermarket so that if they do not teach him what he is buying or sale things to other people.*

Adam: *Accounting, working in the bank, and being a teacher.*

### 6.4 God and mathematics

Religion plays a paramount role in the lives of many Ugandans, encompassing nearly every aspect of their day-to-day life (O’Connor, 2016) The church plays an important role in providing support to people in the many harsh challenges they face in their every-day life, and references to God and religious idioms are frequent in discourses, acting as warnings or encouragements. The participating pupils are no exception, as they throughout the study refer to God or religious elements in explaining and asserting their motives and narratives in their daily lives, including their participation in the mathematics classroom.

F: *Is it important for you to follow the guidelines of your church? Why?*

Adam: *Yes. Because you should follow the ten commandments.*

F: *What happens if you do not follow them?*

Adam: *Then you might do a bad thing. You become a bad person.*
As Adam explains, being a good person is synonymous with being a good Christian, further equating being a “good citizen” and “good student” with being a “good believer”. It also laid the ground for his narrative. Identifying oneself as a practitioner of religious worship gave motivation for mathematical inquiry, but at the same time limiting their actual inquiry. As belief was a cornerstone in excelling in school, it was also valued higher than practicing or revising their work. To Anna, praying plays an important role in her studies, as she explains how it helps her succeed in exams and weekend work.

Anna: *I believe that God will be with me when I will be doing the paper of mathematics and I believe that God will let me pass the examination that I did last week.*

When asked if she studies for the exam, the following conversation took place:

Anna: I pray.

F: How did you prepare yourself for the exam?

Anna: Yes i did. I prayed. And then I went to toilet and washed my hands, to not get my paper dirty.

6.5 The value of mathematics

As Anna refers to mathematics as a mean to receive gifts, or keep up her appearance as a “good Christian”, she exhibits a relationship to mathematics as it has an exchange value. Her main motivation for studying and keeping her grades up are not directly in relation to learning mathematics, but to what she can achieve through it (Black et.al., 2010).

Further, both Edwards and Adam refers to mathematics as something you do in class, “for the reason”, and to avoid repercussions. In addition, keeping their grades up is in line with their belief of what a “good Christian” is supposed to do, demonstrating a value of mathematics as exchange value. In exchange for keeping their behaviour in check and getting the desired grade in mathematics, they receive something desirable to them.

Thus, it is only Martha that put a different value on mathematics. Martha explains how she see mathematics as a subject encompassing many of her day-to-day experiences, and find uses for it outside of the classroom. Further, she does not see mathematics as a means to receive
something in return. Her gratification lies in learning and using mathematics, thus, her value of mathematics can be described as use value (Ibid.).

6.6 Pupils’ actual identities

In discussing the pupil’s actual identity, how they see themselves in the present within the mathematical classroom, Edward, Anna and Martha all refers to themselves as being “good students”, at least most of the time. In describing the characteristics of a “good student”, the pupils consistently referred to someone who respects the teacher. When asked to specify what the concept of respect encompasses, the pupils used connotations such as obeying, being humble and listening. Other characteristics they identified themselves with, in relation to being a “good student”, was someone who avoids making mistakes and is promoted to the next class.

Even though Adam refers to himself as being a poor performer in Mathematics, his grades tell differently. He rather refer to the behaviour of himself as actions constituting his performance, than the actual performance. Thus, by adapting his behaviour to the social norms that resides within the classroom, he can achieve mathematical competence. Edward give similar testament of his behaviour in the mathematical classroom, explaining that mathematics is a lot about how to act in the classroom, and not the numbers and operations themselves. When asked how a pupil can become a better performer in mathematics, Edward explains: If they (pupils) work hard and do nott play in class they might do good. I do not know. Yes being persistent. And listen more to teacher.

6.6.1 Pupils’ designated identities

In exploring the pupils designated identity, the person they see themselves become, and the actions they will have to take in order to become this person, answers differed across the participants. All but Martha explains the importance of getting married. It is explained to be a cultural practice, and they might get shunned by their families if they remain unmarried.
Regarding future professions, all the pupils show different aspirations and methods to get there. Anna shows an indecisiveness in her plans, not sure if she wants to follow her family's wishes.

Anna: *I see myself to be a doctor, to be a pilot. My family wants me to get married and they want me to be a lawyer, but I don’t think so that I will be a lawyer. I don’t because don’t know how to do the work of a lawyer. My family say lawyer report bad people to police, to report them.*

Edward is looking to work in a supermarket, preferably his own. He knows he needs to know mathematics in order to do a good job and make money, which he values highly. In order to own his own supermarket, Edward explains that he needs to save money and get married: *But i have to save, if I will do the supermarket. Like save for a future, like if i finish the supermarket I can may be lucky to… like to buy some shoes for me, and… family…*

Adam, the soccer fan, has ambiguous dreams. When asked if he would like to continue his studies, he says he would like to study religious education. Adam refers to religious education as a cornerstone in becoming the person he wishes to become, and explains that being a good Christian is vital for his identity. However, his real dream is to become the next Lionel Messi. He explains that the most important thing to do, to become like Messi, is to practice a lot, grow tall and move to England or Barcelona.

Of all the participants, Martha presents the clearest visualization of her *designated identity*. She positions herself as an active performer in becoming her desired identity, mindful of the steps she needs to take in order to become this person.

F: *What would you like to do in the future?*

Martha: *Yes. I first study the secondary, then after secondary I go to university. They teach about life, they teach about some jobs that like if you want to become a doctor they first teach you how to treat, like a cardiologist, you cannot go and cut someone’s middle part without knowing where the heart is. And it is also mathematics. You must learn how to become a doctor, must learn how to count like an artist, when you are singing, the moves that you take, yes. You must also learn it.*

Martha is the only pupil to express an explicit need for mathematical understanding in order to achieve her future vocation, thus reinforcing the *use value* of mathematics she earlier expressed (Black et.al., 2010). However, as Edward is looking to own his own supermarket, and also need to save money in order to achieve this, mathematics will be an intricate part of
reaching this dream. However, he still views mathematics as having an *exchange value*, not expressing the need of mathematics outside the classroom. As Edward and Anna are still unsure of their future vocation, and thus their *designated identity*, they both remain the view of mathematics as a subject offering them *exchange value* (Black et.al., 2010).
6. Discussion and conclusionary remarks

The following chapter will present the conclusionary discussion, with regards to the purpose of the study. In order to answer the research question, a summary of which discourses could be interpreted from the students' narratives and at what levels they occur will be presented with references to earlier research included. Following, implications for the study is discussed and suggestions for future research is given, ending with the relevance of this study for my future profession.

6.1 Discussion

The aim and purpose of this study has been to explore and trying to reach an understanding of how pupils identify themselves within the mathematical classroom and the educational narratives that shape them. Recurring themes in the pupils' narratives have guided the content of the analysis, that is, what in the students' narratives has been prominent has been analyzed in regards to the research question. The results of the study are in some parts disheartening, as when pupils tell stories of abuse, and some encouraging, as Martha with her visionary beliefs. However, it is never possible to fully capture the students' perspectives, but my aim has been to get as close as possible. The results are discussed below in relation to the research question, which is: *How do students identify themselves within the Mathematical classroom and the educational narrative that shape them, as students in the present as well as future individuals?* Further, the micro-level factors that are the basis of the study, identities and personal goals, beliefs about mathematics abilities and motivation to learn, and self-narratives, are incorporated into these discussions (Martin, 2000; Bishop 2012).
In this paper, I have used actual and designated identity to try to understand how the motives derived from pupils’ aspirations may play a role in shaping their relationship with mathematics and, specifically, the mathematical identities they may draw on in narrating the self (Sfard & Prusack, 2005a; Sfard & Prusack, 2005b). In this part, the terms use value and change value will be used to identify the pupils as the linkage between their designated identity and their relationship to mathematics (Black et. al., 2010). As Adam, Anna, Martha and Edward all speak of previous and current troubles in studying the subject, they also narrate their troubles very differently. Therefore, the theoretical tools used in this study, may provide useful conceptual tools to explain their differences.

6.2 Basis of narratives

The discourses that could be interpreted from the students' narratives were four themes constituting motivation and basis for narratives: fear of corporal punishment, religious motivation, mathematical understanding, and the possibility of rewards for excelling. It can be concluded that these four themes are interrelated, and exist in varying degrees within the pupils: In interviews, Anna and Edwards refers to the possibility of receiving gifts as a motivator for studying mathematics. All pupils express views of themselves as “good Christian”, synonymous with being a “good pupil” and a foundational characteristic of a pupil in order to become a gifted performer in mathematics. The boys revealed fear of corporal punishment as a motivator for working hard in mathematics, but not explicitly in order to learn mathematics. However, the boys approach to mathematics remains passive - only engaging with the subject if they ‘have to’. Or, as Edward, describes it: I just do it for the reason. If i am wrong or correct, if I am sad or what I don’t care. I just do it for the reason… Lastly, Martha articulated mathematical understanding as a basis of motivation, while drawing on religious belief as a cornerstone for succeeding in her future vocation.
6.3 Mathematics as *use value* and *change value*

As Black et.al (2010) show in narrative analysis of interviews with two pupils (aged 16–17 years old) in post-compulsory education in England, motives for studying mathematics can be defined by its *use value* or *exchange value*. Motives for studying mathematics defined by its *use value* has a linkage for pursuing a vocation, thus, motivates a pupil to learn mathematics because of its usage in other subjects or in their future. In contrast, developing an identity focused on the activity of studying for the exchange value of mathematics, such as passing the subject or being transferred to a higher grade, is defined by its *exchange value*. The authors suggest that, for the *use value* of mathematics to be motivational (and, thereby, integrated into one’s hierarchy of motives), pupils need to experience or at least come to recognise the power of mathematics in terms of its eventual consumption (Ibid).

In this study, it has become evident that no one factor is to be subjected as the main source of mathematical narrative, but the pupils motives for learning mathematics tells a lot of how they value mathematics, thus, shaping their narrative. In light of this, Martha’s motive for study (and thereby, the identity she constructs and consequently draws on) is qualitatively different from the others in that it is clearly ‘vocational’, and she draws on cultural models which frame the content of her studies (in this case, mathematics and becoming a cardiologist) in terms of its use in what will eventually become (if she is successful) activities of production. By contrast, Anna’s, Edward’s and Adam’s motives to become their designated identity, is embedded entirely in the activity of studying and is mediated through cultural models which define study in terms of its *exchange value* (e.g. getting the grades, receiving gifts, maintain their identites of being a “good Christian”, avoiding corporal punishment). There is no explicit recognition that the object of study, mathematics, has value in terms of its use outside of the context of the education system. On the other hand, it is possible to argue that Martha’s purpose for studying mathematics offers a different, arguably more meaningful, engagement with the subject (Black et.al., 2010).

Further, though the curriculum aims to incorporate child-centered methods that enables learners to meet the demands of life, and to develop in learners a positive attitude towards mathematics and awareness of its applications, the connection between the mathematics needed
outside school and that learned in school is hardly articulated (Namukasaa, Quinln & Kaahwa, 2010). There is not much coherent emphasis on mathematics activities beyond learning new mathematical procedures and practicing them, restricting the application of out-of-school experiences - possibly hindering the development of a mathematical understanding, as well as curiosity, beyond the classroom (Ibid.). However, this is not to say that either the curriculum or the class teacher fails to incorporate the outside experiences of pupils into the classroom, but rather, there might be a missing link between the mathematics that is taught in school, and the actual, lived experiences of pupils. Thus, as the discourses that shape pupils’ narrative to create mathematical identities works both explicitly and implicitly, there might be more to consider than merely discourses directly linked to the school and mathematics when discussing what counts as a success or a failure in mathematics (Svensson, 2014).

6.4 Conclusionary remarks

As the results show, the basis of narratives for studying mathematics is not always explicitly about mathematics, but rather, created and affected by discourses existing outside of school. As explained by Gutiérrez (2013), the sociopolitical field of research does not limit itself to factors acting within the classroom, but rather, embrace the social context that exists outside of, but affects, the mathematical discourses within the school. As this study has shown, mathematical identities emerge in part as a result of outside factors, and in part, of factors acting within the mathematical classroom. Thus, the cultural and social influences, identified by authors such as Lerman (2000) and Martin (2000), are of continued interest of exploring the narrative of pupils within the mathematical classroom. Svensson (2014) show similar accounts when exploring how immigrant pupils in Swedish schools construct their mathematical identities and how they experience their abilities to learn mathematics. Nevertheless, the participating pupils in my study are not immigrants, but do have a background in similar conditions; they come from multicultural and socially deprived areas. Svensson (2014) argues that the discourses that guide pupils narratives within the mathematical classroom often emerge outside of said classroom. Thus, the intentions for learning mathematics,
which are created based on the students' positions in the various discourses, mean that it is also of value to investigate students' motives for learning mathematics. This will allow for an examination beyond the explicit discourses in direct relation to school mathematics, and possibly offer a broader picture of what contributes to students’ experiences about their opportunities to learn mathematics (Ibid.).

Concluding, addressing the nature of discourses within which participants are situated is a prerequisite for understanding identities, actions and the way in which pupils construct meaning, and thus, their mathematical narrative and the motives that shape them (Tsatsaroni, Evans & Morgan, 2007).

6.5 Limitations

This study was conducted within the guidelines of a degree work constructed by Malmö University and MFS. Due to these guidelines, there are some limitations that I wish to address. First, the size of degree project involves a limited number of participants. However, the study has provided valuable information about the situation these pupils are in and how they experience it. Secondly,

In addition, despite efforts in reducing the stigma of ethnicity, such as spending time with the pupils outside the classroom, engaging in casual conversations and account for my own background, cultural differences and stigmas may have affected the study. It is possible that the pupils expressed views adapted to what they thought was appropriate, or what they thought that I, as a researcher and European, wanted to hear. However, by establishing a relationship with the pupils in between interviews, elements of influence may have been minimized. Interviews were designed to bring forth ideas and thoughts, and therefore opening up to the possibility to ask supplementary questions and go in depth. Further, the individual interviews made the interviewees more comfortable with developing their thoughts without the risk of being criticized by each other, or having their views vocalized in an open setting.
6.6 Suggestions on future research

This research shows some of the narratives that shape pupils projectories in their academic endeavour, however, it can only be seen as a first attempt to describe the pupil’s views. Further, the presented data is not representative for Ugandan pupil’s as a whole, but rather, presents the narrative of a chosen few.

As suggested by authors within the sociopolitical area of research, such as Bishop (2012), correlations of mathematical identities as the link to their willingness to continue studying mathematics, are of great value for continued exploration. Further, the theoretical coordination used in this study proved to be valuable because they provided a rich and nuanced picture of how students perceived their opportunities to learn mathematics and what they experienced limited them.

As the government aims to strengthen mathematical education, more studies in this area can be of value not only for the country of Uganda, but for Western countries as well. Knowing the pupils’ backgrounds, as well as their desired future, in one particular cultural and linguistic group is important because that knowledge can be used in order to develop appropriate culture-sensitive mathematics education. Again, the culture-sensitivity pertains both to the curriculum materials and the learning procedures (Pinxton, 2016).

Lastly, on a personal note, this study has helped me guide me in my future profession as a primary teacher in mathematics. Though I will start teaching in a considerably different cultural context, the study has illustrated in which the many ways pupils narrate themselves in the mathematical classroom, and furthermore, the great implications of pupils lived experiences and cultural background, outside of the school, has for their ability and motivation for learning mathematics. Further, as I aim to continue my studies in a couple of years, this study has offered me insights into a field of research I aim to continue exploring, both in terms of methodology and theory. I would like to finish this paper with a quote from the ever inspiring Martha:
Even when you are walking you count your steps one two. It is like math. That is what I like.

Like math is life...
8. References


8. Appendix

8.1 Appendix A

Thank you for participating in this interview!

You are voluntarily taking part in this audio-recorded interview and you can stop the interview at any time without giving any reason and without any negative consequences. You can choose to withdraw from the study at a later date. In addition, you are free to decline to answer any particular question or questions. Some of the questions may be hard to answer, and you are free to decline to answer at any time, then we will just move on to the next question. If you would like me to repeat the question and if there is something you need me to clarify, please let me know. Your name will not be linked with the research materials, and will not be identified or identifiable in the thesis. You will receive not receive any benefit or payment for your participation. The signed consent forms and original audio recordings will be kept until the thesis is completed, and then destroyed. You will be asked set questions (follow-up questions when applicable) and you can answer them as you wish.

Tell me a little bit about yourself:

- How old are you?
- Where did you grow up?
- Where do you live? How would you describe your neighbourhood - socioeconomic level, the population background, religious affiliation etc.
- What is your level of schooling?
- For how long have you been a teacher?
- Have you been a teacher in other schools as well?
- What subjects do you teach?
- How come you choose Mathematics as your subject? Any particular reasons?

School - general
• To what extent do you believe that the lessons are affected by my presence?
• In what ways might my presence affect how the pupils answers to my questions?
• According to you, what sets of skills do you believe to be the most important for students to learn during your lessons?
• Do you perceive that you accomplish to teach students these skills?
• According to you, which factors contribute to a positive learning climate?
• In which ways can a teacher works towards creating a positive learning climate?
• In which ways can students contribute towards creating a positive learning climate?

Curriculum
• The curriculum shows what the student should be taught week by week, and is very detailed. In what ways does this affect your teaching?
• Is there some part of the curriculum that you find problematic regarding what the students should be taught? If so, what parts and why?
• Is there a strong correlation between Ugandan culture and the curriculum? If so, in which ways?
• Do you believe that the curriculum correlates with the life outside of school, thus preparing the students for “real life”? If so, in which ways?
• What influences the curriculum in terms of culture? Is there a strong influence of the British, or any other country’s, curriculum and school culture?
• Are there political influences on the pedagogy that is taught in school? If so, in which ways?
• Have there been changes in the curriculum or syllabus during your years as a teacher that can be attributed to political changes? If so, which would these be?

Urban and rural life
• Do you believe there are differences in how the curriculum is taught in urban schools compared to rural schools? If so, can you name any reasons for why that may be?
• An article in the Observer brought to light the differences between rural and urban schools performances in the PLE, which showed great differences. What factors would affect the differences in performance standards between the different areas?
• 85% of Uganda's population live in rural areas, by which a large part of these people support their family through agriculture. Would you say that there is any visible relation between how Mathematics is taught in school and how many students families support themselves?

Religion
• Do the students belong to different tribes? If so, are the different background a source of conflicts?
• Religion is a big part of the Ugandan lifestyle - does it play a major part in school as well? If so, how?
• Do the students belong to different religions? If so, which ones?
• Is religion ever a source of conflict? Regarding different views, background, belief systems etc.?
• Is religion something that brings the students together? If so, in which ways?

Social life
• What are the socio-economic background of your students? Is there a big variety in the students backgrounds?
• In which ways can the students communities help create a positive attitude towards school, and specifically Mathematics?

Family values
• In your own words, how would you describe the typical Ugandan family values?
• What attributes to these values?
• Do you experience differences in the family values of today compared to earlier years? 10, 20 or 30 years ago?
• In what ways would you describe the students parents to be involved in their children's academic life?
• Are there big differences in parents' involvement in their children's academic life?
• If so, what do you believe attributes to these differences?
• In which ways do you believe parents can affect a students’ performance?
In which ways do you believe a parent can support their child's academic development?

**Classroom norms**
- What are the norms that you believe exist in your classroom?
- Do you actively try to create certain norms in your classroom? If so, in which way and why?
- Do you think that students sometimes don’t ask questions in order to appear polite, even though they do not understand?
- According to you, do you believe there are strong differences between what is expected of the pupils in school and at home? If so, in which ways?
- Is the expectations of pupils ever a source of conflict? For example, if a parent can be offended or upset with the different expectations that they carry with them and what the school expects of the pupil. If so, can you please give an example or explain in detail what this might be.

**Language**
- How many of your students have English as a first language?
- As a second language?
- What are some of the other languages that your students speak?
- At the teacher parent meeting there was one parent who questioned the use of English as the language of teaching, is this a common critique within education?
- Why do you believe some parents have this view of the use of English?
- Do you believe that the usage of Luganda, and other local languages, can support or hinder the students development in the Mathematical classroom?
- If so, in which ways?

**Mathematics**
- In the curriculum there is sections that name students who are finished with the objectives of the lessons as “gifted”, and that they should be offered additional work. What counts as a gifted performer?
• Do you believe that a student can be naturally gifted in Mathematics? Thus, that rather than developing their Mathematical skills in school they are born with certain skills.
• What counts as a strong performer in Mathematics?
• What do you believe make a good performer in Mathematics?
• What skills do you believe are important to possess in order to be good in Mathematics?
• What are the difference between being a skilled performer in Mathematics compared to being a poor performer?
• What do you believe counts as valued mathematical knowledge?
• Do you perceive that the Mathematics taught in your school has a strong correlation to the students life outside of school? For example, if examples that are given on the chalk board are real life examples?
• Do you believe it is important for students to be able to relate to out-of-school experiences in your classroom?
• Do you perceive your students to be aware of the values of learning Mathematics?
• Are your students aware of the different ways they use Mathematics in their everyday life?
• Is feedback important in Mathematics?
• If so, in which ways do you give your students feedback?
• In which ways can a teacher motivate his students?
• What words do you use to motivate your students?

8.2 Appendix B

Thank you for participating in this interview!
You are voluntarily taking part in this audio-recorded interview and you can stop the interview at any time without giving any reason and without any negative consequences. You can choose to withdraw from the study at a later date. In addition, you are free to decline to answer any particular question or questions. Some of the questions may be hard to answer, and you are free to decline to answer at any time, then we will just move on to the next question. If you would
like me to repeat the question and if there is something you need me to clarify, please let me know. Your name will not be linked with the research materials, and will not be identified or identifiable in the thesis. You will receive not receive any benefit or payment for your participation. The signed consent forms and original audio recordings will be kept until the thesis is completed, and then destroyed. You will be asked set questions (follow-up questions when applicable) and you can answer them as you wish.

**School - general**
- According to you, what sets of skills do you believe to be the most important for students to learn during your lessons?
- Do you perceive that you accomplish to teach students these skills?
- According to you, which factors contribute to a positive learning climate?
- In which ways can a teacher/students works towards creating a positive learning climate?

**Curriculum**
- Is there some part of the curriculum that you find problematic regarding what the students should be taught? If so, what parts and why?
- Do you believe that the curriculum correlates with the life outside of school, thus preparing the students for “real life”? If so, in which ways?
- What influences the curriculum in terms of culture? Is there a strong influence of the British, or any other country’s curriculum and school culture?
- What are the political influences on the pedagogy that is taught in school?
- Have there been changes in the curriculum during your years as a teacher that can be attributed to political changes? If so, which would these be?

**Religion and social life**
- Do the students belong to different tribes? If so, are the different background a source of conflicts?
- Do the students belong to different religions? If so, which ones?
- Is religion ever a source of conflict? Regarding different views, background, belief systems etc.?
• Religion is a big part of the Ugandan lifestyle - does it play a major part in school as well? If so, how?
• What are the socio-economic background of your students? Is there a big variety in the students backgrounds?

Language
• Do you believe that the usage of Luganda, and other local languages, can support or hinder the students development in the Mathematical classroom?

Mathematics
• What do you believe makes a good/poor performer in Mathematics?
• What skills are important in order to be a skilled performer?
• What do you believe counts as valued mathematical knowledge?
• Do you perceive that the Mathematics taught in your school has a strong correlation to the students' lives outside of school? For example, if examples that are given on the chalk board are real life examples?
• Do you perceive your students to be aware of the values of learning Mathematics?
• Are your students aware of all the different ways they use Mathematics in their everyday life?
• Is feedback important in Mathematics? If so, in which ways do you give your students feedback?

Family values
• In what ways would you describe the students parents to be involved in their children's academic life?
• Are there big differences in parents' involvement in their children's academic life? If so, what do you believe attributes to these differences?
• In which ways do you believe a parent can support their child's academic development?

Urban and rural life
• Do you believe there are differences in how the curriculum is taught in urban schools compared to rural schools? If so, can you name any reasons for why that may be?
• 85% of Uganda's population live in rural areas, by which a large part of these people support their family through agriculture. Would you say that there is any visible relation between how Mathematics is taught in school and how many students families support themselves?

8.3 Appendix C

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Tell me a little bit about yourself:
• What is your name?
• How old are you?
• What do you like to do outside of school? Sports, music, dancing, etc.

**Family and background**
• In which part of Kampala do you live?
• Does your parents come from Kampala as well?
• Do you know if your parents went to school? If so, for how long? Primary, secondary or higher education?
• Do your parents work? If so, in what profession?

**Siblings and school**
• Do you have any siblings? If so, how old are they?
• If you have siblings, do they go to the same school as you?
• How do you talk about school at home? Do your parents ask you about school? For example what you have done in class or how your day was?
• Does your parents support you with homework?
• What are your parents ideas of school? How do they talk about school?

**School**
• Have you gone to any other school than Buganda Road? If so, can you name any differences between that school and Buganda Road?
• How do you go to school? Does someone accompany you to school?
• How do you feel on your way to/when you finish school? Why?
• What is your favorite subject? What do you like about it?
• What classes don't you like? Why?
• Do you feel like you can ask your teacher anything?
• Please describe how you feel in class when you ask questions.
• Are there specific teachers you feel comfortable asking questions? If so, why?
• What do you believe makes a good teacher? Why?

**8.4 Appendix D**

Thank you for participating in this interview!
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- You did an exam in Mathematics last week. Can you tell me about the exam?
- Why do you believe that you do exams in Mathematics?
- How did you feel right after the exam? Relief, anger, happiness, worries?
- How did you think you did on the exam?
- Was there any particular part of the exam that you found hard? Why?
- Did you study before the exam? How did you study?

**Identity in Ugandan perspective**

- For you, what does it mean to be Ugandan?
- Do you speak any other languages than English? If so, which ones?
- In what way do you use English outside of school?
- Can you tell me more about your home - how does it make you feel?
- In which place in your life do you feel like you belong the most? At home, in school, when you are with your friends/parents/aunts/, at church, by yourself?
- Collective identity - in which a group of people do you feel most comfortable? In school, with your family, your friends, at church, in your soccer group?
- How does your family talk about you? As in, do they say that you are good in class, a good student, a good football player/singer. What characteristics do they apply to you? Do you know of these?
Identity and religion

- Do you go to church? Which one? Who do you go to church with?
- For you, what does it mean to be a believer?
- Is it important for you to follow the guidelines of your church? Why?
- In what ways do you church support you?
- Do you believe in miracles? If so, what is a miracle?
- Can you tell me of an event in church that you remember clearly?

Identity in school

- In school, what kind of student would you describe yourself to be?
- How would you describe a good student?
- Do you believe it is important to be a good student? Why?
- Do you believe that you can become a better or worse student? If so, how do you become this student?
- What makes you feel like a good/poor student?
- What makes you feel good in school?
- Can you tell me a story about when you felt good as a student? When you felt proud of your achievements?
- Who do you feel most comfortable to talk with? About school, your future, etc?
- What makes a successful person? How does one become a successful person?

Mathematics

- How do you like Mathematics?
- How do you feel when you do Mathematics? What do you think about during your Mathematic lessons?
- What are the difference between being good in Mathematics and a poor performer?
- What skills do you believe are important to possess in order to be good in Mathematics? For example, being persistent, naturally gifted, to have a lot of support from home, to have a lot of support from teachers, to have support from your friends, etc.
- How does a student become a gifted performer in Mathematics?
• In which ways can you use Mathematics outside of school?
• What opportunities does a student have if he or she is a gifted performer in Mathematics?
• Do you experience that the Mathematics taught in your school has a lot to do with your life outside of school? For example, if examples are given on the chalkboard, do you feel like you have experienced them outside of school?
• How do you do your weekend work? In detail, tell me about how you study. Do you read your notes, make your own notes, try different examples, does your parent or other give you examples, do you correct your work, do you stick to the examples you have been taught in school, etc.

Future
• Would you like to continue your studies after graduating Buganda Road Primary School?
• Does your family, aunts, siblings or parents, give you guidance on what to do in your future?
• Does you family, aunts, siblings or parents, express what they think that you should do in the future? Work, be married, have children of your own, be involved in church
• What does your family, aunts, siblings or parents, express to be valuable skills to be successful? Do you agree with them?
• Do you believe yourself to be born to do this, or is this something that you become by actions and choices?
• Do you believe to have many opportunities when you grow up?
• If you could choose any profession, what would it be and why?
• What future would you not like to have? In terms of job, being married, opportunities.
• What kind of person do you see yourself to be when you grow up? (include follow up questions in this part)
• What actions do you believe you would have to make in order to become this person?
• How do you feel about the future? Hopeful, angry, worried etc? Why?
• Would like you to stay in the city when you get older?
• Would you ever consider moving? Either answer, why?
• Do you want to stay in Uganda when you grow older? Either answer, why?