

University of Alberta

Being There for the Other: Towards a Phenomenology of Help in Mathematics

by

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*To the memory of my late sister, Alice Njeri, who sadly passed away
just two days after I successfully defended this thesis.
May her soul rest in peace.*

Abstract

A qualitative study, framed within a hermeneutic phenomenological stance, was undertaken to explore and describe the essence of the meaning of help in mathematics from the perspective of high school students. Participants were drawn from seven high schools located in the eastern and mid-eastern regions of Tanzania Mainland. The participants were asked to recall and describe a moment when they either sought or gave help in mathematics. Data were gathered through in-depth interviews and participants' own written experiential accounts.

According to the participants, seeking help in mathematics means seeking change in one's mode of being in the mathematics life-world, and exhibiting responsive openness to the target of the seeking intention. This means that when students are seeking help, they are looking for someone who would help them experience conceptual change. Giving help, on the other hand, is more a way of being there for the recipient than a kind of doing.

Most of the participants recalled and described a moment of seeking or giving the type of help that was ultimately aimed at improving the recipient's performance in examinations. Accordingly, this thesis underscores the need for the seeking that has epistemological significance; namely, the seeking that is aimed at achieving conceptual understanding.

In their lived-experience descriptions, many participants also shared feelings of being neglected and disobliged by their teachers. Although the participants longed for the teacher's time, presence, attention, concern and care, these longings were not satisfied. This led to feelings of aloneness among the participants, which appear to have acted as an impulse for the participants to seek help in the sphere of peer-group relationships. However, due to the peers' limitations in their ability to help each other, they felt the need to consult private tutors.

As professional helpers, teachers play a critical role in transforming help-seeking

moments into pedagogical moments. In this regard, one of the challenges raised in this thesis is the need to recover the notion of teaching as a vocation since in essence, it is those teachers who have been called to teaching that will express their being in and through the act of teaching.

Keywords: *help; mathematics; high school; student-student relationship; teacher-student relationship; phenomenology; private tutoring; Tanzania*

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Preface

The joy of being in kindergarten was but very short-lived, for just as I was beginning to grasp what the difference was between the letter ‘I’ and the numeral ‘1’, my mother withdrew me so I could look after my brother. And so as my mother worked on coffee farms, I would keep an eye on my brother, moving the umbrella as the sun moves. When he woke up, I would keep him entertained, but once he started crying, I would call my mother to breastfeed him.

The short duration I spent in the kindergarten stirred my interest in formal education, and I began to learn a lot from my sister, Eunice, who was in class one then. By the time I resumed kindergarten, I had learnt how to count the numerals as far as 100, as well as the column-addition algorithm for two 2-digit numbers. In other words, I knew, for example, that

$$\begin{array}{r} 1 \\ 15 \\ + 15 \\ \hline 30 \end{array}$$

Eunice’s help gave me a head start over my classmates throughout my primary school years, and although I eventually overtook Eunice, it was with her help that I developed a liking for mathematics. This, however, is not to suggest that Eunice was always willing to help, for sometimes she would withhold help from me when I really needed it. One moment that comes to mind was when I was in class two. Eunice and I were doing our homework. After answering the first three questions in my homework, I was stuck, and I turned to her for help. “I am not helping you,” she said, “you refused to share your sweet with me.” With my elbows on the table and my chin upon my hands, I aimlessly stared into space. After a while, my mother, who was coming from the kitchen, noticed that I was not working:

Mother: *What is the problem Simon? Why aren’t you doing your homework?*

Simon: *I have done numbers one, two and three, but I don’t know how to do the rest.*

Mother: *Did you ask Eunice?*

Simon: *Yes I did but she doesn’t want to help me.*

Mother: *Eunice why aren’t you helping Simon?*

Eunice: *I’m still working on my homework.*

Mother: *But you can show him how to do his and then continue with yours.*

In annoyance, Eunice grabbed my scrapbook, worked out question four without explaining what she was doing, threw the scrapbook back to me, and continued with her homework. Question five in my homework was very much related to question four, and so after copying the solution for question four into my exercise book, I was stuck again, and I turned to Eunice for help. “I said I am not helping you,” she whispered. It took a spanking from my mother for Eunice to assist me with the homework. I am certain that I never comprehended what Eunice did at that moment.

Undoubtedly, the foregoing episode is not my first encounter with the need for help. Although I do not remember anything concerning the first four years of my life, I know – based on my experiences with my younger siblings – that during my toddler years, I was helped with such daily activities as feeding, toileting, bathing, dressing, walking and playing. At this age, the only way to ask for help was by crying, and it was easy for someone to guess what I needed since the list of my needs was very limited. As I grew older, I began to insist on ‘doing it myself’ even when I could not do it right, much to the annoyance of my mother. Gradually, crying ceased to be an effective means for seeking help. My mother would constantly remind me that I was no longer a baby. Whenever there was a quarrel between me and my younger brother, I was always the one to blame, because according to my mother, my brother was ‘the baby’.

It was about this age that I learnt that ‘help’ was not always helpful. My mother warned me not to accept gifts from strangers, because people are, in general, ill-inclined. “They will put bad things in the sweets,” warned my mother, “so that once you take the sweets, you become sick.”

Gaining acquaintance with the help-seeking norms

On joining school, I learnt the acceptable way of seeking help from the teacher inside the classroom. I was expected to raise my hand and wait to be called on by the teacher. However, sometimes the waiting took a lot longer than I would have liked. I remember a particular moment back in class one when I needed to go out to relieve myself. I rose up quietly and went to the teacher. Since it was unacceptable to interrupt the teacher when he was talking, I stood there for a couple of minutes, waiting for the teacher to give me permission to seek his permission. When he eventually turned to me, I said to him “Please teacher may I go out for a short call.”

“Wait until break time, Simon,” he replied. Although I was really pressed, I did not know how to negotiate. When I got back to my seat, I just wet myself, and everyone was laughing at me for the rest of the day.

Fearful teachers

During my early primary school years, our class teacher would appoint me to lead the class in echo reading, where I would read aloud a line or a phrase in a textbook or wall-chart, and the pupils would repeat it after me at each pause. In addition, our class teacher would appoint me to help him and his two other colleagues (there were three streams in each of the classes in primary school) in the marking of our assessment tests and examinations. We would sit in a table and my role was to read aloud the answers as the teachers marked the papers. I would be reading something like “One Dog, two Boy, three Boy, four Cat, five Apple, six Boy, . . . ” This, however, was as far as the good relationship with the teachers went. Corporal punishment during out time was so severe that the idea of seeking help from the teacher was out of question. It was impossible for any pupil to be in the good books of the school authorities throughout an entire school term. The list of offences that were punishable corporally was long. It included tardiness, untidiness, bullying, truancy, fighting, gossiping, incompleteness of homework, speaking vernacular, failure to stand aside while the teacher went past, et cetera, et cetera. If you were the obedient type, you could not escape the collective class punishment when, for instance, the teacher-on-duty passed by your class and found the class making noise. When it was your turn to receive the punishment, the teacher would tighten the shorts or the dress by pulling on one side and lashing the cane. Often, the boys would be told to remove their shorts and would be caned on bare skin. The caning was so severe that sometimes it would take a week for the welts to disappear.

Many teachers used to teach with the cane. For example, during the English lesson, Mr. Ngugi would go round the class saying something like “*First person singular, future continuous tense, the verb is help!*” and if he pointed at you with his cane, you would be expected to stand up and say “*I shall be helping.*” If you could not get it right, he would rap your knuckles with the cane.

A hopeful cousin

I began learning how to ride a bicycle at the age of fifteen. This was both an exciting and a scary experience. My cousin, who was a year younger than I, would firmly

hold the passenger seat as I got on the bicycle to sit on the crossbar (this was my father's bicycle and, so it was too tall for my age). With my feet on the pedals and my hands on the handlebars, he would give me a push and tell me to pedal. Then, while still holding the passenger seat, he would trot alongside as I pedalled. Whenever he let go of his hold, I would become fearful of losing my balance and would wobble from one side of the road to the other. His advice was that although he could teach me how to pedal and how to hold the handlebars, I would never learn how to find my balance on the bicycle as long as he was holding the passenger seat. "There is no shortcut!" he quipped, "to maintain your balance, you have to sit erect and keep the pedals moving." To demonstrate how easy it was, he would bike without holding the handlebars. We went to an open field and I tried his suggestion of sitting erect and keeping the pedals moving. It worked for a couple of minutes, then I was down. We started again, I hung on for about five minutes and I was down again. I kept on falling off until I mastered it. Eventually, I relaxed my grip on the handlebars. It was such an exhilarating experience to coordinate pedalling, balancing, steering and braking. But this was not before an impressive number of skinned knees and a barrage of humiliating laughter from spectators. As my cousin was teaching me, I could see in his eyes that he had hope for me, and this hope is exactly what helped me overcome my initial fears.

Masquerading as a help-seeker

My father used to own a retail-shop-cum-bar, and people were fond of leaving their luggage with him. Whenever someone requested for this favour, my father would quickly direct, "Keep it over there at that corner." One day, a middle-aged man who was a stranger to my father, came to the shop in the evening. He ordered a bottle of *Tusker* beer and sat in a table close to the main door. He had with him a sack that was three-fourths full. After ordering the second bottle, he asked my father if he could leave the sack behind and come for it the following day, since it was late and wet. "No problem," answered my father, "keep it over there at that corner." After closing all the doors, my father kept the day's proceeds in the safe and went to bed. In the wee hours of the morning, he woke up to relieve himself, and was surprised to find the door unlocked. He swept his torch around the rooms and ascertained there was no one else inside. He was certain that he could not have been too drunk to forget to lock the door. He tried to relive the moments before he went to bed and was convinced he had locked the door. He looked into the safe and found all the money intact. He then checked the cash box and, to his astonishment, it was

almost empty, except for a few five- and ten-cents coins. He then noticed a number of items on the shelves were missing. What a shock for him! He began recounting the events of the previous night. The only new face in the room was the man who requested to leave his luggage behind. He directed the torch to the corner where he had told the man to put the sack and the sack was not there. It dawned on him that he had been duped. Apparently, what was inside the sack was a human being. From that day, my father learnt to always ascertain the contents of a luggage before accepting to hold it for someone.

Autonomy-incompatible help

Development Studies was a compulsory course for all students during my undergraduate degree. The general philosophy of the course can be summarized using what Ellerman (2001) refers to as the conundrum of autonomy-compatible development assistance: How can an outside party ('helper') help those attempting to undertake autonomous activities (the 'doers') without overriding or undercutting their autonomy? At the time I took the course, I did not pay much attention to the connection between this conundrum and the nature of the pedagogical encounter between a teacher and his or her students. But years down the line, having looked at how Ellerman addresses this conundrum, I cannot but appreciate the course's relevance to the teaching profession. Drawing on the works of eight renowned thinkers, including philosopher John Dewey, educationalist Paulo Freire and psychotherapist Carl Rogers, Ellerman identifies five themes of autonomy-compatible 'helper-doer' relationship, namely:

- (i) help must start from the present situation of the doers – not from a 'blank slate';
- (ii) helpers must see the situation through the eyes of the doers – not just through their own eyes;
- (iii) help cannot be imposed upon the doers, as that directly violates their autonomy;
- (iv) doers cannot receive help as a benevolent gift, as that creates dependency; and
- (v) doers must be 'in the driver's seat'.

My most memorable first-hand experience of autonomy-incompatible development assistance was when I was in my second year of bachelor's degree. The Kenyan government, at the behest and with the 'help' of the World Bank and the

International Monetary Fund, introduced the so-called structural adjustment programmes, which, among other things, required a reduction in the government expenditure on public education, as a condition for any further ‘help’ from the Bretton Woods Institutions. Consequently, a ‘freeze’ on teacher employment was imposed, meaning that the government would only hire teachers to replace those who left the profession through natural attrition such as retirement, resignations, and deaths. The freeze meant increased class sizes, which, in turn, meant that those students who needed extra help from the teacher could not get it.

Coming to the research question

The research question for the study reported in this thesis has evolved from the recollections of and contemplations on my own experiences with the phenomenon of help, either as a seeker or as a giver. It has evolved too from my interactions with the writings of other commentators on the phenomenology of help. I have particularly been influenced by Garret Keizer’s (2004) compelling and evocative book, *Help: The Original Human Dilemma*. In this book, Keizer draws from history, literature, religion, first-hand interviews and personal anecdotes to examine why human beings offer help and how that help is accepted, resisted, or rejected. This book has invoked a desire and curiosity in me to grasp what it is like for a student to receive help in their academic work. As a mathematics teacher, I am always fascinated when I see a student brighten after receiving help. I am also often intrigued by how different students react differently when I help them with their mathematics problems. So I wonder: what experientially happens when a student receives help in mathematics? What does it mean to give help in mathematics? This thesis is an attempt to answer these and related questions. The phenomenon of helping in academic settings is often overlooked, yet an explication of this phenomenon could enrich teachers’ effectiveness when giving help to students. For decades, the international community has been ‘helping’ Tanzania improve her education system. Yet, day after day, Tanzanian newspaper headlines report of a crisis in education. Whenever the results of the national examinations are released (as it happened the week my advisor and I discussed the draft of this thesis), statistics point to an education system that is in dire need of major overhaul. This thesis provides an intimate look at the students who ask for help in that education system. In doing so, it brings a human face to the experiences of those who long to be educated, and their struggle to have that longing satisfied.

Chapter 1

Introduction

Rob, Bill and I share a large open office space. I usually sit facing the open space, while Bill and Rob sit facing the wall. Bill turns around in his chair to face Rob as the latter is walking reflectively around the room.

“By the way,” says Bill, “do you know any good book on Gröbner bases? I need to reference some information I wrote down but I cannot remember the source.”

“Oh! There are quite a number,” replies Rob, “Adams and Loustaunau is quite good.”

“How do you spell Loustaunau?”

“El oh yew ess tee ay yew en ay yew.”

Rob also suggests Becker and Weispfenning (1993). Bill thanks Rob and gets back to work. After a few minutes, Rob interrupts Bill and suggests Kreuzer and Robbiano (2000). Bill jots it down and returns to his work without saying ‘thank you’. After a few minutes, Rob interrupts Bill again and suggests Cox, Little and O’Shea (1992). This time, Bill does not jot it down, but just says “Okay.” Some minutes later, Rob interrupts Bill, but before he finishes saying “there’s also ...,” Bill turns around and interjects dismissively: “You know what, I’ve had enough,” to which Rob replies, “Oh! Okay, I’m sorry.”

What counts as help? How do we know when we have helped? And what do we mean when we say we have helped another? These are hard questions with no easy answers. Bill is in need, and so he requests Rob for help. In his mission to help, Rob helps to the point of overhelping. He seems not to have read the cue from Bill to know when his help was enough. Eventually, this leads to resentment of help. If Bill foreknew that his request for help would end the way it did, it is highly unlikely

that he would have bothered Rob in the first place. After all, Rob's help was not all that needed, since Bill could have used other means to get the help that he needed; for example, Bill could have used the online library catalogue to help himself. So then, what made Rob bother helping Bill? Was Rob not aware that Bill had the capacity to help himself?

Help is so much a part of our lives that a day hardly passes without our being called upon to help, or without our being in need of help. Somehow we know what help is, and yet we seem not to know how to describe it. We are experientially able to recognize when we have received help, yet we may not be able to truly define help. The meaning of 'help' can differ wildly from one person to another and from one context to another.

Suppose you are walking along a corridor when suddenly you hear someone shouting, "*Help, please, someone, if you are out there, please, help me!*" Irrespective of how you react to that experience, you would know exactly what the bearer of that voice expects you to do; namely, taking some action with the intention of benefiting him or her. If upon walking further down the corridor you noticed a box with a sign '*Help Yourself*', would you know that the sign is actually inviting anyone to check (and pick up if necessary) some free things in the box for one's own benefit? And suppose you were walking along a street in the city of Ottawa and you saw a sign posted at the entrance of a jewelry shop reading '*Help Wanted*'. Then, unless you are familiar with the 'Ottawan' culture, it may come to you as a surprise to learn that the purpose of the sign is to invite anyone interested to apply for an available job in the shop for the purpose of benefiting one's own economic interests.

It seems, then, that help is anything that is given or received, and which is deemed beneficial to the recipient. When I say that I am giving help to Paul, the implication is that I am giving or doing something that is deemed beneficial to Paul. That seems agreeable, doesn't it? But then, does it occur to you that what I deem beneficial to Paul may not necessarily be beneficial to him? Suppose, for example, that Paul is one of my mathematics students who has no interest in mathematics. Further, suppose I have decided to give an extra mathematics lesson on a Saturday when Paul's favourite team is playing a much-publicized and long-awaited game. If attendance to the Saturday lesson is mandatory, it is highly unlikely that the lesson will be beneficial to Paul, and yet I will claim that by teaching on a Saturday, I was giving help to Paul.

Is there a basic meaning of the word ‘help’ that can be applied to any context? How can ‘help’ be grasped as a phenomenon? How is help experienced? Is there a distinction between what help is and what help ought to be? The *Oxford English Dictionary* (1989) defines the verb *help* as:

To add one’s own action or effort to that of (another) so as to make it more effectual; to further the action or purpose of. ... To supply or relieve the wants or necessities of; ... To be of use or service; to avail (p. 126).

One of the notions embedded in this definition is the fact that helping entails *being with*, a ‘being with’ that is neither in the togetherness sense, nor in the co-existence sense, nor in the sense of ‘being alongside’ (as in ‘next to’) but, rather, in the sense of taking care of; seeing to it; providing for; or attending to. Helping entails a sense of an involved commitment and an awareness of being there for the other.

Etymologically, ‘helping’ is closely associated with ‘assisting’. The latter, however, usually implies making a subordinate or auxiliary contribution. According to Black (1990), to ‘assist’ means to “participate in as an auxiliary. To contribute effort in the complete accomplishment of an ultimate purpose intended to be effected by those engaged” (p. 120). It may thus be argued that ‘to help’ is *‘to do with’* someone, while ‘to assist’ is *‘to do for’* someone. The import of helping – as opposed to assisting – can be explained using the old adage, “Give me a fish and I will eat today; teach me to fish and I will eat the rest of my life” (Stryker, as cited in Leene & Schuyt, 2008, p. 41). I can assist a friend by contributing my effort to eliminate my friend’s problem, and yet I may not have helped my friend.

Helping is also etymologically close to ‘supporting’. Originating from the Latin words *sub* (‘up from under’) and *portare* (‘to carry’ [Harper, 2001]), the verb ‘support’ literally means ‘carrying up from under’; that is, maintaining in position so as to keep from falling. Therefore, supporting connotes a long-term process. If I am supporting my friend, I am implicated in easing my friend’s long-term burdens. Whereas supporting entails *‘carrying someone’*, helping entails *‘lifting someone up’*. The relationship between a ‘struggling’ student and his or her caring teacher is a supportive one, consisting of numerous episodes of helping and advising.

Talking of advising, to *advise* is to give an opinion or counsel, or to recommend a plan or course of action (Black, 1990, p. 54). The word ‘advice’ derives from the Old French word *avis* (‘opinion, view, judgment, idea’). *Avis* is itself derived from the Old French phrase *‘ce m’est à vis’* (‘it seems to me’), or from the Vulgar

Latin phrase '*mi est visum*' ('in my view' [Harper, 2001]). To advise, therefore, is to offer one's opinion to the other, with the preparatory condition that the opinion is good for the other. Implicit in the notion of advising is the idea that the other has the final decision; that is, the other has to decide whether or not to take the advice given. A teacher can advise a student to work hard, but it is up to the student to decide if they will work hard. At times, one may be misadvised. But one can never be wrongly helped. In other words, whereas one can talk of a bad or wrong advice, the same cannot be said of help. In its pure form, help is always already good. The following section examines the meaning of seeking and giving help in the context of mathematics learning.

1.1 Seeking and giving help in mathematics

Seeking can mean asking or looking for something; trying to find or obtain (something advantageous); questing or requesting for something (*Oxford English Dictionary*, 1989). The sought is always in the future. It can never be in the present. In other words, we always seek that which is not present.

Seeking is a very natural phenomenon, not only in human beings but also in other animals. For example, the gallinaceous birds such as the quail and turkey spend most of their time scratching the ground in search of food, while the dogs are always sniffing around. Seeking manifests itself in many of our everyday activities, both physical and psychological. We may be seeking for information, employment, affection, wealth, respect, inner peace, or help. Whatever it is, we usually seek that for which we have a quest of sorts. Seeking is prompted by something beyond us, something more powerful than our will or our understanding (Hogenová, 2011). Therefore, to seek is to pursue an elusive goal.

One of the etymological roots of the word '*seek*' is the Latin verb *sagire*, meaning 'to perceive quickly or keenly' (Harper, 2001). This implies that seeking is not just a cognitive act. It is also a corporeal one, involving physical interactions with others. To be sure, perceptual behaviour emerges from the relations between the subject, its body and its world to a situation and to an environment which are not merely the workings of a pure, knowing subject (Merleau-Ponty, 1964, p. 4).

In mathematics, seeking help amounts to questioning and finding answers. It amounts to requesting for a means to understand a mathematical problem. Giving help can then be characterized as an attempt to provide (or increase) the recipient's understanding of a mathematical problem. But what is a mathematical problem?

Schoenfeld (1989, pp. 87-88) defines a mathematical problem as a task in which one is interested and engaged and for which one wishes to obtain a resolution, and for which one does not have a readily accessible mathematical means by which to achieve that resolution. Schoenfeld's definition is related to that of Henderson and Pingry (1953), who enumerate three necessary conditions for a mathematical task to be a 'problem-for-a-particular-individual'. First, there must be a conscious awareness of a clearly defined goal, the attainment of which the individual desires. Second, there must be an occurrence of a blockage of the path towards the goal, and the individual's fixed patterns of behaviour or habitual responses are insufficient to remove the blockage. Third, the individual must become aware of the problem's existence, define the problem more or less clearly, identify various possible hypotheses (solutions) and test them for practicability (p. 230).

These conditions have important implications for the phenomena of seeking and giving help in mathematics. First of all, a given task is not a problem for a particular student until that particular student makes it his or her problem. For a task to be considered a problem for a particular student, the student must not only desire to find the solution to the task, but must also exert an effort to solve the task. Thus, if there is no desire on the part of the student to find the solution to the task, or if the student, though desirous of finding the solution, does not exert any effort to solve the task, then the task is not a problem for the student. This means that if a student who has no desire to find the solution to a task exerts an effort to solve the task – as is sometimes the case when helping another student – but realizes that he or she cannot solve the task, then the task is not a problem for this student. But a task that initially was not a problem for a given student may become a problem for them after the student exerts an effort to solve the task and realizes that they cannot solve it. For example, students who desire to be regarded by their peers as 'maths persons' tend to make a task that was initially another student's problem their own problem when they realize that they cannot solve it. This is one of the reasons why it is pedagogically important to help students develop a positive mathematics identity.

For a task to be considered a problem for a particular student, the student must reach a point where they are unable to proceed toward the solution of the problem, and no amount of familiar, learned or habitual routines are going to get them unstuck. The student must acknowledge that they are stuck, re-define the problem in a more complete manner by identifying what is given, what is to be found, and what conditions could be imposed on the problem, and test these conditions for practicability. Getting stuck, according to Mason, Burton and Stacey (1982), occurs long

before an awareness of being stuck develops, and the act of noticing that one is stuck and stepping back to gain a clearer and wider perspective of the problem is tremendously helpful. Mason *et al.* write: “The act of [noticing that I am stuck] helps to distance me from my state of being stuck. It frees me from incapacitating emotions and reminds me of actions that I can take” (p. 56).

Before a task can be considered a problem for a given student, the student must engage all the strategies at their disposal and fail to arrive at the solution. Thus, it may be pedagogically unhelpful to assist a student who has not tried hard enough to get unstuck on their own. At most, what such a student should be provided with are hints that will encourage them to work out the problem on their own, otherwise providing them with help may reduce their motivation to help themselves.

What is it about help in mathematics which makes it precisely ‘help in mathematics’ and not something else, like ‘help in literature’ or ‘help in history’? Clearly, ‘explanation’ is not a unique feature of the phenomenon of help in mathematics, for even in other academic disciplines, students seek and give explanations. Nonetheless, help in mathematics may be considered unique in its own way for at least two reasons. First, mathematics “has its own intrinsic quality due to the fact that, unlike other school subjects such as literature, history, etc., it presents some features that are more or less independent of the cultural context and of territorial factors” (Furinghetti, 1993, p. 34). The English poet Samuel Taylor Coleridge (1772-1834) described mathematics this way:

I have often been surprised that Mathematics, the quintessence of truth, should have found admirers so few and so languid. Frequent consideration and minute scrutiny have at length unravelled the cause; viz. that though Reason is feasted, Imagination is starved; whilst Reason is luxuriating in its proper Paradise, Imagination is wearily travelling on a dreary desert (cited in Furinghetti, 1993, p. 34).

One of the essential elements of mathematics learning is abstraction. The cumulative nature and interconnectedness of mathematical ideas demand a high level of precision as one moves from the concrete to the abstract. As a result, many students experience difficulties not only in relating mathematical objects to their own prior knowledge and experiences, but also in establishing the connections between the objects. Even in mathematics ‘word’ problems, which may be argued to closely resemble problems in other academic disciplines, many students encounter difficulties since they tend to disregard essential and familiar aspects of reality when solving such problems (Schoenfeld, 1991). It is no wonder, then, that “[a]lmost at

the flip of a switch, highly competent street vendors are unable to complete similar mathematical problems when imported into a ‘school math’ context” (Gutiérrez, 2012, p. 18).

The second reason as to why help in mathematics may be considered unique has to do with the fact that one’s experience of a phenomenon is almost always context sensitive. In this regard, it is worth recognizing the powerful gatekeeper role that school mathematics serves in many educational, socioeconomic and political spheres of life. This privileged status serves well to perpetuate the popular myth of mathematics as a difficult subject; so much so that some students believe that mathematicians are born and not made. Proficiency in mathematics can satisfy a student’s need for future economic security, the need for membership and recognition in a mathematical community, and the need to develop an identity as a capable and competent learner of mathematics. Help is thus an essential part of understanding mathematics. Success in mathematics is often attributed to a student’s intrinsic motivation and persistence in the face of challenging tasks (Newman, 2008). Self-motivated and persistent learners are able to recognize when help is needed, to decide to seek help, and to secure the needed help from others. Such students also recognize giving help in mathematics as a way of increasing their own understanding of mathematics.

In summary, we note that because of the nature of mathematics, students will at one point or the other need help to make sense of certain mathematical objects. And whereas sweeping generalizations abound regarding behavioural patterns of those students who normally seek help from others or help others with mathematical problems, little is known about what it is really like for a student to seek or give help in mathematics. This thesis seeks to contribute to a better understanding of the phenomena of seeking and giving help in mathematics from the students’ perspective. The ultimate goal of this thesis is to ground mathematics pedagogy in the concrete realities of being in need of help, being helped and helping others. The next section gives a layout of the thesis.

1.2 Outline of the thesis

This thesis consists of seven chapters. The current one has provided an introduction to the study. The next chapter reviews the literature related to the phenomena of seeking and giving help in academic settings. It also describes the questions that guided the research study. Chapter 3, *Research Context and Methodology*, dis-

cusses the orientation as well as the context within which the study was situated. It also explains the methodological procedure employed in the study. Chapter 4 examines some texts related to the phenomenon of help in academic settings as a way of increasing the depth of understanding of the phenomena of seeking and giving help in mathematics. Chapters 5 and 6 present the research findings as well as the implications of the findings for pedagogy, practice and policy. In particular, Chapter 5 describes the phenomenon of seeking help in mathematics from the research participants' perspective, while Chapter 6 describes the participants' experiences of their classroom learning environment, as well as the meaning of giving help in mathematics. Finally, Chapter 7 provides a conclusion and suggestions for further research.

Chapter 2

Review of Relevant Literature

This chapter reviews selected literature on seeking and giving help, to understand how researchers theoretically conceptualize and empirically operationalize these phenomena. The chapter begins by presenting a brief history of the Western and African traditions of helping. This is followed by a review of the literature on the phenomena of seeking and giving help, after which some of the key limitations in the existing literature are identified. The chapter concludes by providing the questions that guided the research study reported in this thesis.

2.1 Two cultural traditions of help

The concept of help has a long history in both the Western and African traditions. The history of help in the Western tradition is a troubled one. During the Middle Ages, the life of the poor was hopeless, and an offer of material help was rather “ineffectual and deluding” (Keith-Lucas, 1972, p. 186). Motivated by a need to save their own souls, “[t]he rulers and feudal lords customarily maintained a large number of beggars in their courts, gave them money and food and lodging” (Gujewitsch, cited in Gronemeyer, 1992, p. 55). However, as the number of beggars increased, the fearful contemplation of the future of one’s soul lost its fervour, leading to a gradual decline in the readiness of the powerful to give alms. Eventually, the beggars were declared actual enemies of the State (Gronemeyer, 1992, p. 56). There was a shift towards ascribing poverty to personal failings.

By the end of the Middle Ages, the church had lost its status as the official ‘helping agency’ and the provision for the needy became the obligation of the State. Nevertheless, the church’s influence on the State was so enormous that the latter’s provision of help was to a large extent based on Christian principles (Keith-Lucas,

1972, p. 158). Perhaps motivated by these principles, “the impulse to help turned to the conquered territories overseas in reaction to the indescribable atrocities committed by the conquistadors against the inhabitants of the Caribbean. To be sure, the natives had first ... to be made *capable of being helped*” (Gronmeyer, 1992, p. 56). The strategy was to try and help ‘them’ be like their helpers.

The advent of the Industrial Revolution in the eighteenth century led to a radical reconceptualization of what it meant to be human. One was considered human insofar as they were compliant with the requirements of mechanical production. The needy were regarded as anti-social elements and avoiders of work, and giving them help was tantamount to exacerbating their needy conditions (Gronemeyer, 1992). In other words, giving alms was construed as an encouragement to beggary and idleness.

It was during the nineteenth century that the word ‘help’ became a euphemistic substitute for a servant, a hitherto despised position. Lowell (1890) explains:

The fewness and dearness of servants made it necessary to call in temporary assistance for extraordinary occasions, and hence arose the common use of the word *help*. As the majority kept no servants at all, and yet were liable to need them for work to which the family did not suffice, as, for instance, in harvest, the use of the word was naturally extended to all kinds of service. That it did not have its origin in any false shame at the condition itself, induced by democratic habits, is plain from the fact that it came into use while the word *servant* had a much wider application than now, and certainly implied no social stigma (pp. 43-44).

It is noteworthy, however, that this euphemism was only applicable to a particular class of people; namely, a domestic servant of American birth, and without Negro blood in his or her veins (Mackay, 1859):

Let Negroes be servants, and, if not Negroes, let Irishmen fill the place; but for an American, an Englishman, or a Scotchman to be a servant or a waiter is derogatory. ... But a Negro is not a help; he is emphatically a servant (p. 243).

Nowadays in North America, it is common to find ‘Help Wanted’ signs posted outside business premises and factory buildings, the purpose of which is to invite job seekers to apply for available jobs in these establishments.

As a consequence of the Christian emphasis on salvation of one’s soul and the legal emphasis on the ethic of personal responsibility, there was, and still is,

a strong emphasis on individualism in the West. Being in need of help is, according to Chesler (1973), a pathetic situation: “Help-seekers are pitied, mistrusted, tranquilized, physically beaten, given shock therapy, lied to, yelled at, and ultimately, neglected – and all ‘for their own good’.” (p. xxiii) The Western society tends to view a person as an independent being, separate from all others. This individuated self of the West stands radically at odds with the interdependent self of the traditional African society. An African person was an integral part of society, a society in which a ‘we’ consciousness was emphasized through such other-oriented values as concern for others, respect and recognition of the rights and needs of others, and mutual obligations.

In the traditional African society, the adults were responsible for teaching children the values and norms of their family, society and culture. Education was oral in nature and was transmitted through various aspects of culture such as folktales, songs, myths, legends, proverbs and riddles. There was a collective responsibility amongst members of the larger kin network – biological parents, surrogate parents, uncles, aunts, grandparents etc. – for the upbringing of children. These kinship arrangements fostered a sense of collective identity. Every effort was made to equally distribute resources so that no one would go without food, shelter and clothing (Martin & Martin, 1985; Nyerere, 1964). This communitarian orientation gave equal ontological status to all persons. A number of notions were used to enunciate this ‘being for’ the other. For instance, the Xhosa term *ubuntu*, which roughly translates into ‘humanness’, denotes a social expectation for interdependence and mutual generosity. Tutu (1999) describes *ubuntu* this way:

When we want to give high praise to someone we say, “*Yu, u nobuntu*”; “Hey, so-and-so has *ubuntu*.” Then you are generous, you are hospitable, you are friendly and caring and compassionate. You share what you have. It is to say, “My humanity is caught up, is inextricably bound up, in yours.” We belong in a bundle of life. We say, “A person is a person through other persons.” It is not, “I think therefore I am.” It says rather: “I am human because I belong, I participate, I share.” A person with *ubuntu* is open and available to others (p. 31).

Since independence, the clarion call for solidarity among Kenyans is *harambee* (a Kiswahili term meaning ‘let us pull together’). The government has been using *harambee* to mobilize local resources for economic development. Building of such public infrastructure as schools and hospitals is done through community participation – either through payment of user fees, or through participation in fundraising

projects.

The Kiswahili term *ujamaa* (meaning ‘familyhood’) connotes the idea of belonging together, the belief that everything should be done for the good of the community. Ujamaa epitomizes the traditional patterns of social life in African societies. Nyerere (1964) explains:

In our traditional African society we were individuals within a community. We took care of the community, and the community took care of us. We neither needed nor wished to exploit our fellow man. ... Both the rich and the poor individuals were completely secure in African society. Natural catastrophe brought famine, but it brought famine to everybody – ‘rich’ or ‘poor’. Nobody starved, either of food or of human dignity because he ... could depend on the wealth possessed by the community of which he was a member (p. 240).

After independence, Tanzania adopted the *ujamaa* ideology, ostensibly as a counterweight to the imperialist cultural narrative. This ideology advocated for solidarity, equality and communal participation. Kyle Vath, who in 2004 was on a six-week medical mission trip to Tanzania says, “Everything in Tanzania is relationship-oriented. Their customs revolve around the idea that relationships are precious” (Vath, 2006, p. 49). As he reflected on his mission trip, Vath contrasted the African and American ways of relating with the other:

I had one Tanzanian asking me, “I have heard that Americans are so busy that they don’t help other people or spend time with their families. Is that true?” ... I sat and thought for a minute and I had a difficulty arguing with this statement. ... Even as we were called in to resuscitate a woman who was not breathing and had a weak heart beat, the Tanzanian nurses were relaxed! Much to the frustration of us borderline-obsessive-compulsive Americans, the clinical officer calmly greeted us and asked us how we were doing. As I tried to catch my breath and quickly mutter the customary “*nzuri*” (good), my American mind was not so polite. It screamed, “Get out of my way! You have a patient who is dying here! Get an airway, bag her, push in the fluids, and get some help in here ... ” Meanwhile the Tanzanians were thinking, “Relationships are key, and friendliness is crucial. I must first greet this crazy American who is running into this room like a madman” (p. 49).

Hundt, Chatty, Thabet and Abuateya (2004) summarize the differences in help-seeking and giving behaviours between Western and African societies this way:

In Western societies, coping strategies are often connected to the individualistic approach, where the individuals can seek help through pro-

fessional channels. ... In comparison, within the context of [African] countries the coping approach is more collective. Individuals are part of the community and they resolve their problems and get their support within community networks, since professional assistance is rarely available (p. 418).

As we shall see in Section 3.2, a number of factors, including climate change, globalization and neo-colonialism appears to have contributed to the failure of the ujamaa policy to achieve the desired results. Since a social phenomenon is always experienced within a particular social context, it would be interesting to examine the role that cultural heritage has played in shaping how the phenomenon of help in academic settings is framed by Tanzanian students.

Students will at times experience conflict between how they have been socialized in their home-cultures and how they are expected to behave in the classroom practice. Nelson-Le Gall and Jones (1991) report of one such conflict, where African-American students who came from backgrounds that favour help-seeking were discouraged from seeking help in school contexts, because such behaviour was considered by some teachers to be encouraging dependence rather than independence. These kind of issues will be examined in Section 2.3. Before then, the following section will examine how research on helping was institutionalized, and how different theories explain people's helping behaviours.

2.2 Research on seeking and giving help

Systematic research on why people do or do not provide help to others at the time of need was inspired by the violent and tragic case of Kitty Genovese in 1964, who was repeatedly attacked and ultimately killed in the middle of a street in a residential section of New York City. Although the attacker took more than half an hour to kill Kitty, none of the more than thirty people who had witnessed the attack from the safety of their own apartments did anything to help (Darley & Latané, 1968, p. 377). Darley and Latané attributed the witnesses' inaction to a number of reasons including *diffusion of responsibility*; that is, the responsibility for helping was diffused among the witnesses since each of the witness assumed that others would take responsibility. There was also diffusion of any potential blame for not taking action. Still, some of the witnesses may have failed to help because they did not want to 'get involved'. Darley and Latané hypothesized that in a situation requiring someone to help, the more the number of bystanders, the lower the likelihood of

someone helping.

Another explanation for people's helping behaviour was provided by evolutionary biologists, who showed that relatedness is often an important factor in people's inclination to help others. The *kin selection theory* (Hamilton, 1964) predicted that human beings will preferentially help close relatives over more distant relatives and non-relatives, since doing so preserved the genes they had in common. Roughly, the theory predicted that helping behaviour will be favoured whenever

$$rb > c,$$

where r is the degree of kin-relatedness between the helper and the recipient of help, b is the benefits of the helping act to the recipient, and c is the cost incurred by the helper in the course of helping. The kin selection theory could explain why some people will 'sacrifice' to educate their siblings or close relatives, or why there is the temptation for one to engage in nepotism when there is an opportunity to do so. But then, how can we explain the fact that human beings often help non-relatives? Well, the kin selection theory could be invoked assuming that human beings were initially close relatives, who later on migrated to become distant relatives and, eventually, non-relatives. Alternatively, we could appeal to the *reciprocal altruism theory* (Trivers, 1971), which holds that human beings would help even strangers because there exist opportunities for the recipients of this help to reciprocate at a later point in time. The assumption in this theory is that there would be a mechanism to detect those who receive help without reciprocating. Hedge and Yousif (1992) carried out a study which showed that compared to people who reside in more urban environments, individuals living in rural areas and small towns are more likely to help.

The *arousal: cost-reward hypothesis* (Dovidio, Piliavin, Gaertner, Schroeder & Clark, 1991) posits that human beings have the common goal of maximizing their rewards and minimizing their costs. As such, human beings help because they want to increase their own welfare. Dovidio *et al.* argued that people's reaction to a person in need of help depends on the costs associated with helping or not helping. When the costs of helping are low, then people are more likely to help; and when one's benefits of helping increase, helping behaviour also increases. Thus, people may help in order to reduce the unpleasant arousal they experience when others are in distress. According to Keith-Lucas (1972, p. 187), some people help others to satisfy their own conscience, to minister to their own desire to be liked, to control

others, or to establish their own superiority. Keizer (2004) argues that people's inherent urge to help is often characterized by ambivalent feelings. He writes:

On the one hand, a sense of impending mortality has the potential to make us more compassionate. ... On the other hand, that same sense of impending mortality can make me hesitant to invest too much of my short, sweet life in caring for others – especially if I've done a bit of that already and have had occasion to do some bookkeeping on the emotional profit and loss (p. 8).

According to the *empathy-altruism hypothesis* (Batson, Batson, Slingsby, Harrell, Peekna & Todd, 1991), an empathetic reaction is primarily responsible for people's helping behaviours. When we feel empathy for a person, we will attempt to help that person purely for altruistic reasons; that is, without expecting to receive any benefits in return, and without considering the costs we are likely to incur by helping. Batson *et al.* argue that when we see a person in distress, we usually feel that person's distress. In other words, we are capable of empathizing with a suffering person. Keizer (2004) cites the example of a woman named Magda in Le Chambon – a French town that sheltered Jews from the Nazis – who would feel the cold in the bodies of the Jewish refugees (p. 152). This sharing of feelings makes us want to help the person in distress so that they can feel better.

Sometimes we help to meet the moral imperatives; that is, the deeply held beliefs and expectations about the 'right thing' – the 'oughts' and the 'ideals'. This is what Simpson (1995) alludes to when he characterizes helping as a way of "actualizing a background cultural commitment to communalism, or of not helping as a way of 'living out' such a commitment to individualism" (p. 45). Heidegger (1927/1962) refers to this characteristic of our mode of being as 'fallenness'; namely, we are always already fallen away from ourselves as authentic beings. In other words, we always stand in subjection to others. We help out of a sense of responsibility, duty, or obligation. In Keizer (2004), the dwellers of Le Chambon described their motive for helping the Jews this way: "We were doing what had to be done. ... We helped them because it was the human thing to do" (p. 158). Sometimes we are compelled to help to avoid self-disapproval or the disapproval of others. Teachers may help their students out of a sense of commitment to the teaching profession or out of a sense of responsibility to their students. The negative aspect of helping out of responsibility is that the helper may eventually begin to make distinctions between those they are willing to help and those they are not (Keith-Lucas, 1972).

At times helping may be an act of false generosity. When Keizer (2004) taught high school, he was known for being always available to give extra help to his students. But at the same time he was not revising his lesson plans from year to year. In addition, he was often behind schedule in correcting students' assignments. Keizer reflects:

I have wondered if I didn't work out a little deal with myself: set a standard so high [that] it requires your help, make that help available in large doses, and thereby give yourself time away from the harder, more solitary, and less heroic work of enabling your students to learn on their own (p. 72).

Keizer's reflection highlights an important distinction within the helping literature between autonomy- and dependency-oriented help (Nadler, 1997). Autonomy-oriented help provides the one in need of help with the appropriate resources to independently solve problems. On the other hand, dependency-oriented help provides the recipient with the solution to the problem at hand but it does not provide them with strategies of how to solve similar problems on their own in the future (Nadler, 1997). Although dependency-oriented help is often less demanding on the part of both the help-seeker and the helper, it provides less learning elements than autonomy-oriented help (Nadler, 1997). The following section provides a review of research literature on the phenomena of seeking and giving help in academic settings.

2.3 Seeking and giving help in academic settings

Since the mid-nineteen-eighties, research literature has shown that seeking and giving help are essential components of successful academic achievement and self-regulated learning in students (e.g., Karabenick & Dembo, 2011; Karabenick & Newman, 2006; Nattiv, 1994). Before then, the predominant view – perpetuated by the Western values of individualism – emphasized the need for independence and, consequently, students were encouraged to be self-reliant and autonomous. Seeking help was seen as an act of dependence on the part of the student (Beller, 1955; Nelson-Le Gall, 1981, 1985; Taba, 1955). According to Taba (1955), ordinary classroom assignments not only set tasks individually, but it was also expected that the solutions of these tasks were to be private, competitive, and completed without help. This inevitably fostered a conceptualization of helping as cheating, and deterred students from discovering the mutuality of helping relationships (p. 78).

The negative effects of students' failure to seek needed help (such as poor learning outcomes) appear to be the main driving force behind educational research on seeking and giving help. Many research studies have shown the positive effects of seeking and giving help. For example, while seeking and giving help, students enhance their interpersonal and problem-solving skills. Seeking help can, and often does, alleviate students' difficulties and enable them to achieve success in completing the task at hand. When students seek help, they are more likely to develop self-confidence and self-esteem. In the course of being helped, students are able to recognize and correct misconceptions, to clarify and extend understanding, and to make personally relevant connections to the problem with which they are seeking help. And in the course of giving help to their peers, students are more likely to develop deeper understanding of the concepts they are explaining, as well as reflect on any misconceptions they may have regarding the concepts they are explaining. Furthermore, giving help has the potential to build self-confidence and self-esteem of the help-giver. It also inculcates in the students an attitude of consideration for and cooperation with others (Karabenick & Newman, 2006; Nattiv, 1994; Nelson-Le Gall, 1985).

Seeking help is a complex decision-making process with multiple antecedents and multiple consequences. It is a planned behaviour in the sense that one's attitude towards and beliefs about seeking help will, to a great extent, shape their help-seeking tendencies. Seeking help involves interpersonal interaction with a potential helper (Cornally & McCarthy, 2011), and is normally triggered by a problem that challenges one's ability. Nelson-Le Gall (1981) developed a conceptual 5-step model to explain the process of seeking help. The process begins with *an awareness of the need for help*; that is, a student becomes consciously aware of the difficulty of a task and, at the same time, recognizes that they cannot resolve it without help. Then, on the basis of the student's judgment of the potential benefits and costs associated with seeking help, the student makes a *decision to seek help*. In the third step, the student *identifies a potential helper* on the basis of such factors as personal characteristics of the potential helper and situational characteristics of the helping context. In the fourth step, the student approaches the identified potential helper and *uses strategies to elicit the help* that they need. This necessitates disclosing or communicating the object of the student's need for help to the (potential) helper. The student must make a decision on whether they are seeking explanations, clarification of information, confirmation of uncertain answers, or just the correct answer. Finally, the student *evaluates the helping session* to determine if they have received

the help that they needed. If not, the student may have to seek help from an alternative source. The ability of a student to engage in each of the five steps requires the fusion of skill and will. In particular, Newman (2006, p. 228) has identified some skills and resources that may be required by the help-seeker. These are:

- (a) *Cognitive competencies* – the ability to know when help is necessary and to be linguistically skillful at formulating requests or questions that will yield the needed help.
- (b) *Social competencies* – the ability to know that others can help, to know who is the best person to approach for help, and to know how to carry out a request for help in a socially appropriate manner (for example, knowing how to approach, interrupt, engage, and thank the helper).
- (c) *Affective-motivational resources* – the ability to withstand any negative perceptions and feelings arising from one's decision to seek help.

Based on how help-seekers utilize the above skills and resources, help-seeking can broadly be categorized into two types: *adaptive* and *maladaptive* help-seeking (Newman, 2006). Adaptive help-seeking occurs when the help-seeker only asks for the type of help that enables them to complete the task on their own. This type of help-seeking is characterized by a sense of reflexiveness and responsibility on the part of the help-seeker. An adaptive help-seeker will request for help only after attempting and failing to solve the problem at hand. For adaptive help-seekers, seeking help is a means for gaining insight (through, say, clarifications or hints) so that they can find the solution on their own. The aim is to understand the general process leading to the solution so that they can be able to independently solve future problems. Some other terminologies used for adaptive help-seeking include *negotiating* (Asser, 1978), *autonomous* (Nadler, 1998), *instrumental* (Karabenick, 2004; Karabenick & Knapp, 1988; Nelson-Le Gall, 1981, 1985) and *strategic* help-seeking (Karabenick, 2004).

Maladaptive help-seeking refers to either seeking help unnecessarily or failing to seek necessary help. Seeking help unnecessarily is variously referred to as *didactic* (Asser, 1978), *dependent* (Nadler, 1983; Nelson-Le Gall, 1981, 1985), *expedient* (Nadler, 1998), *executive* (Nelson-Le Gall, 1981, 1985), or *convenient* help-seeking (Chan, 2012). It is characterized by over-dependence on others' help to solve one's problems, and may involve requesting help even before attempting to perform the task on one's own. It may alternatively involve requesting the type of help that would expedite task completion; in other words, requesting others for help with the

goal of reducing the cost of achievement. For example, a help-seeker may seek to have the help-giver completely solve the problem at hand on the help-seeker's behalf instead of seeking to understand the process leading up to the solution. Students who frequently seek help unnecessarily may become overly dependent on others, thereby failing to function quite well academically independently. At times, these students may employ such dysfunctional strategies as guessing, copying or cheating just to get the task at hand completed (Karabenick & Newman, 2006).

Avoidant help-seekers will choose not to ask for help even when they are aware of the need for and availability of help. For example, instead of asking for a hint, some students may continue trying to solve a problem even after making several consecutive errors in the problem-solving process. Butler (1998) postulates that there are three reasons as to why students may be reluctant to seek help even when help is clearly instrumental to problem solution. First, some students will refrain from seeking help because of a desire to be autonomous ("I like working on my own so that I can understand"). Secondly, some students will avoid seeking help due to the perception that help-seeking would be equated with incompetence and, as such, they would want to protect and maintain self-worth ("If I ask for help, he will think I am dumb or stupid"). Thirdly, some students will refrain from seeking help due to perceptions that asking for help will not necessarily expedite task completion ("It wastes a lot of time seeking help from others" or "X cannot help me, he does not know how to explain").

Not all kinds of academic help are necessarily helpful. For example, merely providing an answer to a question does not lead to conceptual understanding. Research studies (e.g., Nattiv, 1994; Webb, 1991) have shown that there is a positive correlation between giving (or receiving) elaborate help and higher academic achievement. Nattiv's (1994) study with third-, fourth- and fifth-grade students found that students who gave and received explanations relevant to the topic under study were the ones whose achievement rose most dramatically (p. 286).

One of the theories that have framed the research on academic help-seeking is *achievement goal theory*, which is concerned with the reasons that students engage in achievement-related behaviour, as well as the criteria that students use to evaluate progress towards reaching their goals (Butler, 2006). This theory has proven useful in predicting students' perceptions of help-seeking, their intentions to seek help in the classroom, their actual help-seeking behaviour in controlled settings, and the conditions under which students of diverse abilities might be equally willing to seek help (p. 25). The theory suggests that goals focused on the development of compe-

tence (mastery goals) normally orient students to perceive the act of seeking help more instrumentally; that is, as a strategy that will help them improve their overall understanding of the content. On the other hand, goals focused on the demonstration of competence (performance goals) usually orient students to perceive the act of seeking help as an indication of inadequacy and, consequently, encourage help avoidance (Ryan, Hicks & Midgley, 1997).

Another theory that has provided a coherent framework for conceptualizing students' help-seeking behaviour is *attribution theory*. According to Ames and Lau (1982), whether or not a student seeks help may depend on, among other things, the student's use of external attributions in explaining academic performance. Students who attribute failure to external factors (such as bad luck or tricky test items) may be less likely to seek help when they need it.

Research studies have found gender differences in academic help-seeking behaviour. In most cases, females have been found to be more willing than males to seek help from others (Butler, 1998; Ryan, Gheen & Midgley, 1998; Solberg, Choi, Ritsma & Jolly, 1994). One explanation given for this finding is that help-seeking may better fit the typical feminine gender stereotypes in society. For example, Ryan *et al.* (1998) suggested that adolescent girls may be more likely to ask for help because it fits with the perceived stereotype of girls as unassuming and less independent. Newman (2002), on his part, argued that girls' relatively low expectations for success in mathematics may be accompanied by less threat to their self-esteem and, hence, they are more likely to reveal when they need help.

Research literature indicates that help-seeking behaviour may also be a function of age. At an early age, students have positive attitudes towards seeking help from adults, especially if those adults are likeable and competent (Newman, 2002). However, as these students grow older, negative impressions of help-seeking appear to emerge more frequently. For example, students generally become more fearful of seeking help, equating help-seeking with lack of ability (Karabenick & Newman, 2006; Newman, 2002). At the same time, it has also been suggested that autonomous help-seeking increases with student age (Nelson-Le Gall, 1981, 1985). This is because as students grow older, they usually become more aware of what they do and do not know (Butler, 2006).

There seems to be a link in the literature between students' expectations of and confidence in academic achievement and the students' help-seeking behaviour. Some studies have shown that low-achieving students are less likely to seek help than high-achieving students (e.g., Karabenick & Knapp, 1988; Nattiv, 1994; New-

man & Goldin, 1990; Ryan & Pintrich 1997; Ryan *et al.*, 1997). In a study involving fifth-grade students, Ryan *et al.* (1997) found that compared to high achievers, low-achieving students generally perceived greater threat of seeking help and, as a result, reported higher levels of help avoidance. Similarly, Ryan and Pintrich (1997) found that when compared with students with weaker perceptions of academic competence, students who believed that they were more academically capable reported lower levels of help avoidance.

Research literature distinguishes between experts and peers as providers of help. College students more often turn to their professors for explanations rather than to other students (Karabenick, 2003). Newman and Goldin's (1990) study involving second-, fourth- and sixth-grade mathematics classes found that students considered their classmates less helpful than adults in answering questions.

Some researchers view help-seeking and help-giving as culturally determined phenomena; namely, differences in people's help-seeking and help-giving behaviours can be ascribed to differences in their cultural orientations (Cox, Lobel & McLeod, 1991; Karabenick & Newman, 2006; Nelson-Le Gall, 1985; Nelson-Le Gall & Jones, 1991). Cultures that place high value on self-sufficiency and independence view help-seeking as an index of dependence (Nelson-Le Gall, 1985; Karabenick & Newman, 2006), while cultures that embrace interdependence view help-seeking as part of their everyday coping behaviour (Cox *et al.*, 1991; Karabenick & Newman, 2006). In their study involving students from diverse ethnic backgrounds, Cox *et al.* (1991) assigned students to teams according to their ethnicity and gave them team tasks. The authors observed that the ethnic composition of teams influenced the extent to which the teams cooperated or competed. Teams composed of students from collectivist cultures displayed more cooperative behaviour than teams composed of students from individualistic cultures. The collectivists were more likely than individualists to sacrifice personal interests for the attainment of group goals, and were more likely to enjoy doing what the group expected of them. In a related study involving university students, Sheu and Sedlacek (2004) reported that African-American students had more positive attitudes toward help-seeking for personal issues, whereas Asian-American students were more likely to use avoidant coping strategies.

2.4 Some limitations in the existing literature

In reviewing the existing literature on seeking and giving help in academic settings, a number of limitations were identified. One of these limitations is that the bulk of the literature has approached seeking and giving help from a psychological point of view, focusing primarily on factors that influence students' help-seeking and help-giving behaviours. In particular, research has focused on how such factors as decision-making processes, selfless acts, self-interests and socially learned behaviours affect students' help-giving behaviours (Morrisette, 1999), while assessment of students' help-seeking behaviours has been through surveys, questionnaires and other self-reporting techniques. Self-report data are known to be unreliable and susceptible to factors such as social desirability bias (that is, tendency to give socially desirable answers [Zusho & Barnett, 2011]).

The available research literature appears to be concentrated at either the elementary school, middle school, or college levels, with very limited research at the high school level. Furthermore, much of the research has been framed within a Western tradition, which places priority on individualism and independence, with very limited research in cultures that place priority on interdependence and cooperation.

Even though the insights derived from the existing studies have revealed much regarding seeking and giving help in academic settings, more research is needed to provide a more comprehensive understanding of the qualitative features of students' experiences. This is because if teachers are to act helpfully towards their students, it is important for the teachers to gain a deeper understanding of what it is like for a student to be in need of help and of what 'being helped' means to the student.

This study sought to advance the debate on the meaning and significance of seeking and giving help in academic settings by addressing the above inadequacies. The study was carried out in a culture that places priority on interdependence and cooperation; the research participants were high school students; and the adopted methodological approach aimed at articulating the nuances of the students' experiences as revealed in the everyday world of schooling from the perspective of the students themselves. Specifically, the purpose of the study was to explore and describe the essence of the meaning of seeking and giving help in mathematics from the perspective of high school mathematics students. The next section provides the rationale for the study.

2.5 Rationale for the study

One of the goals of education is to inculcate in the learners an attitude of consideration for and cooperation with others. This attitude can be nurtured in the dynamics of seeking and giving help. On the basis of these dynamics, students may develop particular kinds of relationships with their peers and teachers. Improving the quality of these relationships has important long-lasting implications for students' cognitive and social development. If students have a warm and open relationship with the other members of the classroom community, then the students are more likely to seek help whenever they need it and, hence, achieve the intended learning outcomes.

Research literature on the phenomena of seeking and giving help in academic settings has pointed out glaring inconsistencies between the 'rhetoric' of encouraging help-seeking and help-giving, on the one hand, and the values of self-reliance, independent achievement and competitiveness that are characteristically emphasized in the socialization goals of contemporary cultural-political structures, on the other (see, for example, Nelson-Le Gall & Jones, 1991). Recognizing that the provision of well-meant help can reduce a student's motivation to help themselves, how can teachers safeguard against encouraging an unhealthy student's dependence on others (in the sense of, say, rushing to others for help even when it is unnecessary)? How can the teacher ensure that the teacher-student helping relationship is not one in which the teacher dominates the student or, for that matter, one in which the student dominates the teacher? When seeking or giving help in mathematics, how do students position themselves in relation to popular representations of mathematics? How can the teacher help students challenge essentialist understandings of their mathematical subjectivities and encourage them to work towards understanding their own subjectivities as shifting and multiple?

An insight into why, when and how students seek and give help in academic settings is critical to the understanding of the teaching-learning process. The particular ways in which students make meaning of their experiences when seeking and giving help can inform teachers and teacher educators about effective help-giving practices that could facilitate student learning. Recognizing that students come into the classroom with their own backgrounds and experiences, it is pedagogically important to explore how these backgrounds and experiences facilitate or hinder the students' ability to seek help when they need it and to help others when others are in need. This study was an inquiry into the experiential meaning and pedagogical

significance of seeking and giving help in mathematics from the perspective of high school mathematics students. The study adopted an approach that would offer an in-depth understanding of students' experiences, while at the same time allow for empathic understanding of the phenomena of seeking and giving help. The next section describes the specific research questions that were addressed in the study.

2.6 Research questions

The main research question that guided this study was, *What are the lived experiences of high school students when seeking and giving help in mathematics?* The following research sub-questions were addressed:

- *How are student subjectivities (their experiences of self, others and the world) articulated within the dynamics of seeking and giving help in mathematics?*
- *How can we reconcile the pedagogical imperatives that promote student agency and autonomy with the need to encourage help-seeking and help-giving behaviours in mathematics students?*
- *How can students' lived experiences of seeking and giving help further inform our understanding of 'help' and its pedagogical possibilities?*

The next chapter describes the research context and methodology adopted in this study.

Chapter 3

Research Context and Methodology

The aim of this study was to explore and describe the essence of the meaning of seeking and giving help in mathematics from the perspective of high school mathematics students. This chapter provides a description of the context of the research setting, details the theoretical framework for the study, and explains the methodological procedure employed in the study.

3.1 Geographic and socioeconomic context

This study was conducted in the United Republic of Tanzania (URT), commonly and hereinafter referred to as Tanzania. Tanzania was formed on 26th April 1964 by the union of two sovereign states: the Republic of Tanganyika (Tanzania Mainland) and the Revolutionary Government of Zanzibar. Prior to the union, the two states were British colonies. Tanganyika gained independence on 9th December 1961, while Zanzibar became independent on 10th December 1963 (URT, 2011a). Zanzibar has its own semi-autonomous government, which is fully responsible for the administration and management of basic education (Revolutionary Government of Zanzibar, 2006).

Tanzania is located on the East coast of Africa, between latitudes 1°S and 12°S and longitudes 29°E and 41°E . It shares borders with Kenya, Uganda, Rwanda, Burundi, Democratic Republic of Congo, Zambia, Malawi and Mozambique (see Figure 3.1). It covers a total area of approximately $945,087 \text{ km}^2$ (URT, 2011a). Administratively, Tanzania is divided into thirty regions, twenty-five of which are in Tanzania Mainland and five of which are in Zanzibar.

In 2012, the population of Tanzania was estimated to be 47.7 million, with the majority of the population (about 78%) residing in the rural areas (United Nations

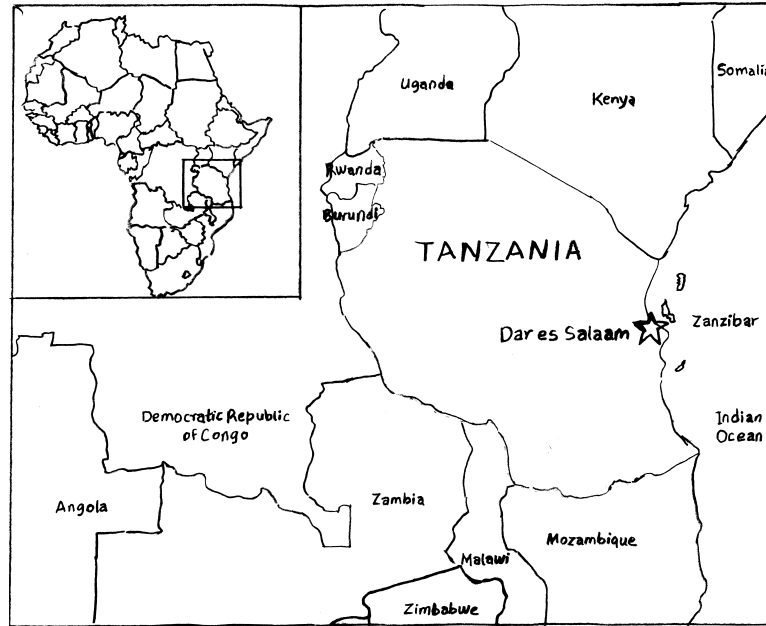


Figure 3.1: A geographical map showing Tanzania's location in Africa (inset) and with respect to neighbouring countries in Eastern Africa.

Development Programme [UNDP], 2013, p. 196). In the same year, Tanzania ranked 152nd out of 186 countries in the United Nations' Human Development Index (HDI)¹, with a life expectancy at birth of 58.9 years (p. 146) and a GDP per capita of 1334 U.S. dollars (p. 164). The agricultural sector is the main driving force of the country's economic development.

3.2 Cultural context

Tanzania is a multiethnic, multicultural and multilingual country, with no less than 120 indigenous languages. Kiswahili is the lingua franca, the official language, and one of the symbols of national unity and identity. Since 1967, it has been the sole medium of instruction for the entire primary education. Kiswahili is the native language of the Swahili people. The Swahili culture originated and developed on the East African coast as a result of generations of trade and intermarriage between Arab merchants and the Bantu-speaking Africans (Hino, 1980; Reusch, 1953). This culture, which transcended tribal limits, "moved inland along with the progressive inland expansion of Arab trade in the nineteenth century, a process that was further

¹HDI measures the average achievements in a country in three basic dimensions of human development: a long and healthy life, access to knowledge, and a decent standard of living (UNDP, 2013, p. 147).

promoted in the twentieth century by the European colonial regime” (Hino, 1980, p. 97). According to Reusch (1953), Islam played an important role in the advancement of Kiswahili since the Swahili people “became islamized. As Muhammedans they became estranged from the other (pagan) tribes” (p. 21). Those who stake their identity on the Swahili culture usually consider themselves to have *ustaarabu* (‘Arabness’), connoting that they are civilized (Hino, 1980), as contrasted with *ushenzi* (barbarism).

Tanzanians fondly address each other as *ndugu* (relative or comrade), and are often exhorted by their leaders to embrace *undugu* (relatedness/comradeship). This familial discourse is rooted in the ethos of *ujamaa* (familyhood). In 1967, Tanzania adopted *ujamaa* as the policy for socioeconomic, cultural and political development. *Ujamaa* was a socialist ideology rooted in traditional African values and premised on three basic principles; namely (i) mutual respect and recognition of the rights and needs of family members, (ii) sharing of property among all family members, and (iii) a universal obligation to work (Nyerere, 1967). Development was to be achieved through collective advancement and, as such, personal accumulation of wealth was discouraged. Ultimately, the objective of *ujamaa* was the attainment of a self-reliant society. Concretely, *ujamaa* involved the nationalization of property and adoption of *ujamaa* village system (*ujamaa vijijini*). The latter entailed building collective villages and persuading the rural people to live and work together in these villages instead of living on scattered homesteads across the country (McHenry, Jr., 1977). Towards the end of 1973, the government felt that the movement of people to the villages was going rather slowly and decreed that to live in villages was an order. This was followed by a series of massive ‘operations’ in which millions of peasants were forcefully moved to the village sites (Kilimwiko, 2011; McHenry, Jr., 1977).²

A notable precursor of the *ujamaa* policy was the decision by the government in 1966 to make *National Service* – a programme in which young people received semi-military training and worked in various development projects – obligatory for all students completing their education at high school level and above. Those affected were required to serve in the National Service for two years: six months in a

²It is noteworthy that there is some resonance between, on the one hand, the ideology of *ujamaa* as espoused by Nyerere (1967) and, on the other, the phenomenon of help as explicated in this thesis. Just like *ujamaa*, the point of any help is to make the recipient self-reliant. In real life, help is seldom imposed upon an individual. Normally, help is offered with the preparatory condition that the one to whom this help is being offered may refuse it. It appears that *ujamaa* was introduced without sufficient involvement of the rural people, and this could partly explain why *ujamaa* failed in its central objective of making Tanzanians self-reliant.

camp, followed by 18 months at their normal jobs, but with salaries reduced to 40% of their contractual level, the remainder being taken as a contribution to the National Service (Carthew, 1980, p. 541). The programme was aimed at inculcating national values as well as eliminating ‘elitism’ (Brennan, 2006, p. 237).

In the mid 1970s, Tanzania experienced a series of economic disasters, including the failure of the ujamaa village system to guarantee sustainable agricultural production, high levels of debt servicing, a brief war with Uganda, and increases in global oil prices (Green, 2011; Sitta, 2007). When the international donor organizations were called in to help, they agreed to provide conditional help: They tied any help to the country’s compliance to structural adjustment programmes, which required *inter alia* a reduction in the government expenditure on public education. For example, the country was expected to introduce cost-sharing measures in the education system, and a freeze on teacher recruitment (Sitta, 2007). Although these requirements went against the ethos of ujamaa, the government was too weak economically to survive without donor support. Therefore, the government abandoned the ujamaa policies and adopted liberal economic policies in the late 1980s.

3.3 Educational context

The structure of the formal education system in Tanzania Mainland comprises of 2 years of pre-primary education, 7 years of primary education (Standard 1 to Standard 7), 4 years of ordinary level of secondary education (Form 1 to Form 4), 2 years of advanced level of secondary education (Form 5 and Form 6), and at least 3 years of university level education (URT, 2011b, p. xii). Although primary education is free and compulsory, parents are expected to pay for such expenses as school uniforms and stationery.

Ordinary level secondary education is commonly known as ‘O-level’, while advanced level secondary education is commonly referred to as ‘A-level’. At the secondary school level, there are two school terms in an academic year. The first term runs from mid January to early June, while the second one runs from late July to early December. There are two mid-term holidays – in April and September – each of which is one-week long, and two end-of-term holidays – in June and December – each of which is approximately five weeks long (UNESCO, 2010). Kiswahili is the medium of instruction throughout the primary school cycle; thereafter, English becomes the medium of instruction (URT, 1995).

At the end of O-level, students sit for Certificate of Secondary Education Ex-

amination (CSEE), a national standardized examination, which accounts for 50% of a student's final grade. The other 50% comes from continuous assessment tests, which include one national standardized examination taken at the end of Form 2 (URT, 2004). A student's final grade determines admission to and placement in A-level and middle-level colleges (including pre- and primary school teacher training colleges).

At the A-level, students select a combination of three principal subjects to specialize in. Examples include: physics, chemistry and mathematics; history, geography and economics; or physics, chemistry and biology. In addition, *General Studies* and *Basic Applied Mathematics* are offered as subsidiary subjects (the final examination is graded on a pass-or-fail basis). *General Studies* is compulsory to all students, while *Basic Applied Mathematics* is compulsory to those students who do not take mathematics as one of their principal subjects but have at least one principal subject that requires some mathematical background, such as economics or physics. The participants in this study were A-level students who had mathematics as one of their principal or subsidiary subject. The official school attending age for A-level education is 18-19 years (URT, 2011b, p. xii). At the end of A-level, students sit for Advanced Certificate of Secondary Education Examination (ACSEE), a national standardized examination which accounts for 50% of a student's final grade. The other 50% comes from continuous assessment tests (URT, 2004). A student's final grade determines admission to and placement in university and higher-level colleges. Table 3.1 shows the grading system for the CSEE and ACSEE. The minimum entry requirements for admission to a degree programme in public universities is two A-level principal passes³ (Tanzania Commission for Universities [TCU], 2011, p. 8).

An A-level teacher typically holds a Bachelor of Education degree or a general degree plus a Postgraduate Diploma in Education. The degree course takes three years, while the postgraduate diploma course takes one year.

3.3.1 Issues in the education system

Some of the issues in the Tanzanian education system include inadequate infrastructure, low transition and high dropout rates (URT 2011b), and low levels of teacher motivation (Mhando, 2006; Sumra, 2004).

In some areas, existing schools do not have enough classrooms for all students

³A principal pass is a score of at least a grade E (see Table 3.1).

CSEE Grading System			ACSEE Grading System		
			Grade	Points	Descriptor
			A	5	Excellent PP†
Grade	Points	Descriptor	B	4	Very good PP
A	1	Excellent	C	3	Good PP
B	2	Very good	D	2	Satisfactory PP
C	3	Good	E	1	Satisfactory PP
D	4	Satisfactory	S	0.5	SP
E	5	Fail	F	0	Fail

†PP and SP stand for principal pass and subsidiary pass, respectively

Table 3.1: Grading system for CSEE and ACSEE (Source: URT, 2004, p. 18; TCU, 2010, p. 8).

to attend classes at the same time. Therefore the schools operate a double shift whereby one group of students attends classes in the morning, and another group attends in the afternoon.

In 2010, only 11.7% of the candidates who sat for CSEE proceeded to A-level (URT, 2011b, p. 72). Table 3.2 shows the number of O- and A-level students who dropped out from school before completing their education in 2010. The highest proportion of dropouts was the truants, accounting for 72.7% of the total number of dropouts, while inability to meet basic needs was the second leading reason for dropping out, accounting for 13.8%.

Reasons	Form						Total
	1	2	3	4	5	6	
Truancy	5685	15405	16043	10653	191	49	48026
Pregnancy	536	1524	1800	1443	35	8	5346
Death	166	323	255	175	4	4	927
Poverty	2137	2657	2750	1576	19	8	9147
Illness	52	211	193	183	5	12	656
Parental Illness	11	65	147	59	4	7	293
Misbehaviour	84	382	593	502	16	32	1609
Others	25	10	9	7	12	2	65
Total	8696	20577	21790	14598	286	122	66069

Table 3.2: Number of secondary school dropouts in Tanzania in 2010 (Source: URT, 2011b, p. 77).

Over the years, the Tanzanian teacher’s social status has greatly diminished, greatly affecting the calibre of students who join the teaching profession. According to Mhando (2006) and Sumra (2004), only those students who do not qualify to

join other professions end up becoming teachers. A study conducted in 2004 looking at teachers' own perceptions about their living and working conditions showed that more than 50% of the teachers would leave teaching if they found a better paying job, and that more than 40% of the teachers would not advise their children to take up teaching as a career. The main reasons for these unfavourable perceptions were low income and poor working conditions (Sumra, 2004). About 25% of the teachers said that they engaged in other activities to bring in supplemental income. One of the participants in Sumra's study, a primary school teacher said, "*Nowadays, especially in this village, it is better to be a witch doctor than to be a teacher*" (p. 14). Another participant, a secondary school teacher, described teaching as "*a profession of failures*" (p. 13). Another participant (also a secondary school teacher) said, "*I have tried to encourage my students to opt for the teaching profession and they all laugh. I can see in their eyes as if they are saying, 'I do not want to become like you'*" (p. 13).

The phenomenon of private tutoring – fee-based instruction in academic subjects that takes place outside of, and in addition to, the mainstream schooling system – is widespread in Tanzania Mainland. Sometimes this private tutoring is offered to students by the students' own teachers (URT, 2005, p. 39). The amount of money students spend on private tutoring is disproportionately high when compared with the tuition fee levied in public schools. For example, whereas the tuition fee in A-level government schools is about fifteen U.S. dollars per year, the private tutoring is normally organized around topics, with the fee for a single topic ranging from three to fifteen U.S. dollars, depending on the private tutor as well as on the length and complexity of the topic.

Although teachers have been prohibited from using school premises for private tutoring⁴ (URT, 2005, p. 39), some of the student-participants in the study reported in this thesis indicated that some of their teachers usually violate this directive. Indeed, in one of my school visits, I found one group of students sitting outside while another group was studying inside the classroom during regular school hours. When I inquired from some of those who were outside, I was told that the ones who were inside the classroom were receiving private tutoring because they had paid for it.

⁴It is worth noting that in Zanzibar, teachers are allowed to engage in private tutoring with their own students after the official working hours. According to the government of Zanzibar, private tutoring "offers a rare opportunity for parents to voluntarily contribute to teachers' remuneration and therefore increasing the motivation for teachers and decreasing their propensity to look for another job" (Revolutionary Government of Zanzibar, 1998, p. 32).

A number of reasons can account for the phenomenon of private tutoring in Tanzania Mainland. One is that private tutoring is offered “as a possible or supplemental solution to a defective educational system” (Sambo as cited in URT, 2005, p. 48). Most of the participants in the study reported in this thesis expressed reservations about their teachers’ professional competence and dedication to their work. The students said that teachers normally neglect their teaching duties to engage in alternative income generating activities to supplement their meagre salaries. The income generating activities mentioned include part-time teaching in private schools, conducting private tutoring, poultry farming and petty trading. One of the participant described his mathematics teacher as at least better compared to the other teachers, because he (the teacher) used to consistently teach mathematics twice a week. Ideally, the students were supposed to have a mathematics lesson daily. The syllabus states: “The Ministry of Education and Vocational Training has allocated 10 periods per week to Advanced Mathematics. The teacher advice to make maximum use of the allocated time. Lost instructional time should be compensated through teacher own arrangement with schools authority (sic)” (URT, 2009, p. vii).

Another reason for the phenomenon of private tutoring is, according to Mhando (2006), the examination-orientedness of the curriculum. There are numerous weekly examinations, popularly known as *jipime* (“assess yourself”), both inside and outside the school. Students pay a certain amount of money to sit the examination, to have their examination marked, and to receive corrections on those questions they get wrong. Mhando observes that the examinations are not based on how the learners learn, but on what they learn and, as such, the teachers spend most of the time speculating for model answers than engaging in inquiry with the learners.

Some students attend private tutoring to get ahead of the teacher so that the content will be familiar when presented in class. Moreover, because of the over-emphasis on the examination, some students usually attend private tutoring so that they can complete the prescribed curriculum as early as possible. This way, they get enough time to drill for the examination by revising questions from past examination papers. Two participants in the study reported in this thesis were as much as one year ahead of the mathematics curriculum (in other words, the participants were in Form 5, but they indicated that they had completed the entire mathematics syllabus through private tutoring).

3.4 Research methodology

The purpose of the study and the exploratory nature of the research question guided the choice of research methodology. The study made use of a qualitative research design informed by the theoretical framework of hermeneutic phenomenology (van Manen, 1997). This section provides a description of this theoretical framework and the methodological procedure adopted in the study.

Phenomenology: A philosophy and a methodological approach

Phenomenology is both a school of philosophical thought and a research methodology. As a philosophy, it calls into question the assumption of a single, wholly determinable and objective reality. Recognizing the primacy of relation, phenomenology consists in learning to *see* the world anew as it is experienced pre-reflectively (Kearney, 1986). Epistemologically, perceptual experience is the only valid evidence for our knowledge of the world (Spiegelberg, 1964, p. 326). Ontologically, perceptual experience constitutes our primordial way of being in the world.

As a methodological approach, phenomenology is a way of gaining insight into the essence of the meaning of phenomena in the everyday world. Phenomenology is dedicated to rendering explicit the structures of everyday life as it is lived in all of its contexts from the first-person perspective. Phenomenology, therefore, privileges the experiencing subject as the source of all knowledge about a given phenomenon, and seeks to deepen our understanding of what it is like ‘from the inside’ to live through an experience of that phenomenon (van Manen, 1997).

Etymological roots of phenomenology

Although the roots of the term ‘phenomenology’ can be traced back to such German philosophers as Kant and Hegel, it was the German mathematician-turned-philosopher Edmund Husserl (1859-1938) who, at the beginning of the twentieth century, pioneered the development of phenomenology as a philosophy and methodology for studying the world of everyday experience (Kearney, 1986; Spiegelberg, 1982). Through phenomenology, Husserl aimed at establishing philosophy as a ‘rigorous science’ by means of which one could study one’s primordial grasp of things prior to any reflection on or interpretation of them. In effect, Husserl was seeking to reconcile the Cartesian split between the mind and the body.

Etymologically, the term *phenomenology* is derived from two Greek words,

phainomenon, meaning “that which shows itself, the manifest” (Heidegger, 1927/1962, p. 51), and *logos*, meaning “to make manifest what one is ‘talking about’ in one’s discourse” (p. 56, emphasis added). Combining *phainomenon* and *logos*, phenomenology, then, means “to let that which shows itself be seen from itself in the very way in which it shows itself from itself” (p. 58). In other words, phenomenology is a way of dis-closing that which proximally and for the most part does not show itself at all – that which though hidden is perceptible in consciousness – yet this ‘that’ belongs to what thus shows itself, and it belongs to it so essentially that it constitutes its meaning and ground (p. 59). The dis-closure proceeds not by any act of interpretation but rather by letting the phenomena themselves speak for themselves.

3.4.1 The meaning of ‘lived experience’

The German words *Erlebnis* and *Erfahrung* are both rendered ‘experience’ in English. *Erlebnis* signifies the subjective sense impressions of an individual that precede intellectual reflection or objectification, and the lasting significance that results from these impressions (Dilthey, 1887/1985). On the other hand, *Erfahrung* connotes the stock of more or less wobbly generalizations, maxims or inclinations that are acquired through active perception and reflection on a particular phenomenon (Spiegelberg, 1964, p. 325). In other words, *Erlebnis* denotes a punctuated occurrence in which a potentially knowing subject makes cognitive contact with an individualized phenomenon. This is the sense the word ‘experience’ has in the expression ‘an experience of the sight of a car accident’. *Erfahrung*, on the other hand, is the cumulative first-hand knowledge that is gained through involvement with or exposure to a phenomenon. This is the implied sense of the word ‘experience’ in the expression ‘experience in helping victims of car accidents’.

Citing Simmel, Gadamer (1960/1975) argues that every *Erlebnis* has something of an adventure about it:

An adventure is by no means just an episode. Episodes are a succession of details which have no inner coherence and for that very reason have no permanent significance. An adventure, however, interrupts the customary course of events, but is positively and significantly related to the context which it interrupts. Thus an adventure lets life be felt as a whole, in its breadth and in its strength (p. 60).

The following anecdote, taken from Illouz (1997, pp. 240-241), is an example of an

experience in the sense of *Erlebnis*. In this anecdote, a woman was responding to the question: *Can you remember a moment in your relationship with your husband that stands out in particular?*

One very special moment – I don't even know why this comes to mind – but it was Valentine's Day, it was the first Valentine's Day that I knew him. And he called me to see if I was home and if he could come over and I told him not to, because I had something, something had happened to my eyes, they were all swollen, I really looked like a freak, I had gotten something, I still don't know what it was, but my face was all popped up and I told him not to come over because I didn't want him to see me like that. And a while later he was up at the door with a dozen roses and it did not offend me that he came over, it made me feel good because it did not matter to him that I looked that way. He still wanted to spend time with me.

According to Dilthey (1887/1985), an *Erlebnis* does not confront the perceiving subject as something perceived or something represented; it is not given to the perceiving subject. On the contrary, the reality of an *Erlebnis* "is there-for-me because I have a reflexive awareness of it" (p. 223). This reflexivity is constituted by a "qualitatively determined reality," which runs its course in time. The 'structural nexus' of this temporal course

receives a peculiar character of *presence*. ... This word 'presence' indicates that when a component of the structural nexus of lived experience recedes into the past, but is experienced as a force reaching into the present, it obtains a peculiar relation to the present in our lived experience, namely, that of being drawn or incorporated into it (p. 226).

Unlike mediated experience, which is historical and social, a lived experience is immediate (pre-discursive) and intensely private.

As a research methodology, phenomenology invites us to examine the often-unexamined typical everyday experiences as subjectively lived through. The underlying presupposition is that a great deal more is implied in every experience than meets the eye, as it were. Thus, instead of relying on scientific or metaphysical explanations about a given phenomenon, a phenomenologist seeks to understand *what it is like* for someone to experience the phenomenon first-hand. For example, instead of relying on established theories of helping behaviour among students, a phenomenologist would be interested in gaining an understanding of what it is like for a student to be in need of help and of what 'being helped' means to the student. Ultimately, phenomenology seeks to transform an *Erlebnis* into "a textual

expression of its essence – in such a way that the effect of the text is at once a reflexive re-living and a reflective appropriation of something meaningful” (van Manen, 1997, p. 36).

3.4.2 van Manen’s hermeneutic phenomenology

This study was informed by van Manen’s hermeneutic phenomenological approach to human science research and writing, whose goal is to explicate the meaning of a given human phenomenon and to understand the lived structures of meanings from the viewpoint of those who have experienced the phenomenon under investigation. In *Researching Lived Experience*, van Manen (1997) makes it clear that the methodology of hermeneutic phenomenology is more a carefully cultivated thoughtfulness than a technique (p. 131). As a method (from the Greek words *meta* – meaning across or beyond – and *hodos* – meaning a path or way), hermeneutic phenomenology “is a way or path toward understanding that is as sensitive to its phenomenon as to its own orderly and self-correcting aspects” (Pollio, Henley & Thompson, 1997, p. 28). Hermeneutic phenomenology is *systematic* insofar as “it uses specially practised modes of questioning, reflecting, focusing, intuiting, etc. ... [It] is *explicit* in that it attempts to articulate, through the content and form of text, the structures of meaning embedded in lived experience. ... It is *intersubjective* in that the human science researcher needs the other (for example, the reader) in order to develop a dialogic relation with the phenomenon, and thus validate the phenomenon as described” (van Manen, 1997, p. 11). It is *descriptive* in the sense that it seeks to let the phenomena themselves speak for themselves; and it is *interpretive* to the extent that any description of an *Erlebnis* of a phenomenon is an attempt at rendering the phenomenon meaningful.

van Manen’s hermeneutic phenomenology is rooted in two phenomenological traditions – the hermeneutic/interpretive tradition of the ‘Dilthey-Nohl School’ in Germany and the descriptive tradition of ‘the Utrecht School’ in the Netherlands (van Manen, 1997, p. ix). This blend offers a means through which phenomenology can be used as a tool for critical reflection in pedagogy. According to van Manen, human science research in education should be guided by pedagogical standards. The ultimate goal of such research, says van Manen, should be to increase one’s thoughtfulness, practical resourcefulness and tact (p. 4).

As noted in Section 3.4.1, *Erlebnis* (‘lived experience’) is one of the key notions in phenomenology. It connotes the phenomenal unity of experience that precedes

intellectual reflection or objectification (Jay, 2004; Thompson, 2001), and is usually distinguished from *Erfahrung* (mediated experience), which is associated with “the outer, sense impressions or with cognitive judgments about them” (Jay, 2004, p. 11). *Erlebnis* derives from two semantic roots: *erleben* (“to be still alive when something happens”) and *das Erlebte* (“the experienced”). *Erleben* points to the immediacy that “precedes all interpretation, reworking, and communication” whilst *das Erlebte* points to “the permanent content of what is experienced” (Gadamer, 1960/1975, p. 53). *Erfahrung*, on the other hand, is derived from the German word *Fahrt*, meaning ‘journey’, connoting the more temporally elongated notion of experience based on a learning process (Jay, 2004, p. 11). Thus *Erfahrung* is objectively ‘there’ in an empirical sense, while *Erlebnis* is intimately felt by the experiencer.

The existential meaningfulness of our everyday life-world⁵ resides in our consciousness. Thus, by describing the contents of one’s consciousness, others can get to *know* how the life-world is constituted in one’s consciousness. How an *Erlebnis* presents itself to one’s consciousness may not be fully congruent with how one describes the contents of that *Erlebnis*. The degree of congruence depends on a number of factors, one of which is the concurrence of experiences. As one is experiencing a particular *Erlebnis*, one is concurrently experiencing *other*, related or unrelated experiences (*Erlebnis* and *Erfahrung*), of which one may be more, less or not at all aware (Erlich, 2003, p. 1127). Consider, for example, a hypothetical student, Paul, who is receiving help with a mathematics problem from his teacher. As he receives help, Paul may have a more or less focused, purposeful and intentional attention on understanding the problem at hand, getting to know where he ‘is going wrong’, and identifying the intermediate steps and ‘tricks’ in the problem-solving strategy. Concurrently, Paul may be attending to his immediate physical environment – the shaky seat, the piled and dusty desk, the picture on the wall, the pleasant scents, the cool air, the teacher’s wrist-watch, the teacher’s terrible handwriting, and so on. Paul may also be attending to his immediate past experience – the call he had just received from his sister Angela informing him that Angela’s application for admission to the School of Engineering had been approved. But if Paul is very goal orientated, pressed by an overpowering desire to understand the problem at hand, he is much more likely to find himself attending to the intentional data and details of his *Erlebnis* of receiving help, in which case the other concurrent experiences

⁵Life-world refers to the frame of reference within which a phenomenon is lived through and given meaning.

will recede to the background (cf. Erlich, 2003, pp. 1130-1131).

The ability to use language – or any other representation mode for that matter – determines how detailed and complete the description of the contents of an *Erlebnis* is. It is noteworthy that when one uses language to describe an experience, one does not merely represent the experience qua experience, but, on the contrary, one (usually) *defines* the experience. The articulated words may not match the felt meaning. In fact, some experiences are ineffable – they cannot be adequately put into words – and, so only the experiencer can understand it. Consider, for example, the following description by Rachel, who is a synesthete:

I most often see sound as colors, with a certain sense of pressure on my skin. I have never met anyone else who saw sound. I'm not sure "seeing" is the most accurate description. I am seeing, but not with my eyes, if that makes sense. I can't imagine being without my colors. One of the things I love about my husband are the colors of his voice and his laugh. It's a wonderful golden brown, with a flavor of crisp, buttery toast, which sounds very odd, I know, but it is very real (Cytowic, 1993, p. 118).

Undoubtedly, unless we were to get into Rachel's consciousness, we may never fully understand what Rachel experiences, and much more so when we ourselves are not synesthetes. But even without going to such extreme situations as Rachel's, it is safe to argue that an *Erlebnis* is somewhat elusive; it may not be singularized. The goal of hermeneutic phenomenology, however, is not to reduce an *Erlebnis* to this or that thing. Rather, the goal is to elicit a 'phenomenological nod' from the reader (van Manen, 1997); namely, a sense of recognition of the described *Erlebnis* as something that resonates with the reader's sense of lived life while, at the same time, evoking a sense of wonder in the reader at the reader's taken-for-grantedness of the described *Erlebnis* – the 'I-did-not-know-that-I-knew-that' response⁶. According to Tesch (as cited in Sandelowski, 1993, p. 3), a phenomenological description should be viewed as

a representation in the same sense that an artist can, with a few strokes of the pen, create an image of a face that we would recognize if we saw the original in a crowd. The details are lacking, but a good 'reduction' not only selects and emphasizes the essential features, it retains the vividness of the personality in the rendition of the face.

⁶A qualification to this goal is that not all phenomenological descriptions will resonate with everyone's sense of lived life. As such, it is possible for a phenomenological description to instead elicit in the reader the 'I-did-not-know-that' response.

Generating hermeneutic phenomenological research data

In hermeneutic phenomenology, research data is generated through a number of sources including:

- i) gathering descriptions of lived experiences from those who either live or have lived through an experience of the phenomenon being investigated;
- ii) conducting intensive case studies (especially with young children and patients);
- iii) constructing anecdotal accounts from one's own life experiences;
- iv) consulting other phenomenological writings as insight cultivators; and
- v) utilizing experiential materials from different sources so as to increase the depth of understanding (van Manen, 1997).

Descriptions of lived experiences are commonly gathered through one-on-one, open-ended and in-depth conversational interviews with research participants, as well as through the participants' own written experiential accounts. The aim of a phenomenological interview is to obtain detailed first-person accounts of the lived experience of the phenomenon under investigation. Interviewing, then, requires skill, practice and good luck. The researcher must be able to relate with the participant in a way that allows the participant to speak freely and confidently about his or her experience. According to Pollio *et al.* (1997), the meaning of a phenomenological interview emerges only from a dialogue in which "the *investigator* assumes a respectful position vis-à-vis the real expert, the subject, or more appropriately, the co-researcher. In this way, a path toward understanding emerges from the common respect and concern of two people committed to exploring the life world of one of them" (p. 29). The course of the dialogue is largely set by the co-researcher, and the researcher's role is to provide a context in which the co-researcher freely describes his or her *Erlebnis* as fully and deeply as possible. The questions, statements, and summaries used by the researcher are designed to elicit specific and detailed descriptions (Pollio *et al.*, 1997). The researcher guards against influencing the interview in the direction of what the researcher has either seen, heard, read, imagined or thought about the phenomenon. Instead, the researcher employs exquisite tact and thoughtfulness in the choice of evocative questions and statements to help the co-researcher share his or her experiential description with the researcher as faithfully and closely as possible to the original experience. The researcher must endeavour

to immerse him/herself in the co-researcher's experiential description to get a sense of what it would be like for one to have such an *Erlebnis*.

Participants' own written experiential accounts have two main challenges; the linguistic demands of the writing process and the tendency by the writer to switch into a reflective attitude (van Manen, 1997, p. 64). van Manen offers a number of helpful suggestions for the one who is writing an experiential account:

- (1) Focus on a particular example or incident of the object of experience.
- (2) Describe the experience as you lived through it. Avoid causal explanations, generalizations, or abstract interpretations you may have derived from the experience.
- (3) Describe the experience from the inside out – the feelings, the mood, the emotions, etc.
- (4) Try to focus on an example of the experience that still stands out because of its vividness or the circumstances of its happening.
- (5) Attend to how the body felt, how things smelled, how they sounded, etc.
- (6) Avoid trying to beautify the account with fancy phrases or flowery terminology. Rather, aim at rendering a concise and concrete description of your experience (pp. 64-65).

One of the challenges of intensive case studies is that they are written from the perspective of the researcher rather than that of the experiencing subject, the latter being important in a phenomenological inquiry. The researcher may not be privy to the subject's inner thoughts and feelings. Take, for instance, a researcher who is exploring children's lived experiences of encountering crawling insects. A child may be experiencing fear and other emotions, and unless these feelings are verbalized by the child, they may not be accessible to the researcher.

Making sense of hermeneutic phenomenological data

As with most qualitative research methods, data collection and analysis in phenomenology occur more or less concurrently. Once the participants' experiential accounts are gathered, the researcher objectively strives to transform these accounts into evocative texts; namely, fine accounts that are trimmed of all extraneous aspects, such that whatever remains of the account reawakens the reader's basic experience of the phenomenon being described (van Manen, 1997, p. 122). The

accounts so constructed are referred to as phenomenological *anecdotes*. According to van Manen (1989), a phenomenological anecdote has an evocative capacity to mediate between the particularity of a phenomenon and the generality of its meaning.

Using the anecdotes, the researcher then embarks on thematic reflection, uncovering the essential aspects of the participant's experience. According to van Manen (1997, pp. 92-93), there are three ways of achieving this: In the *wholistic* or *sententious* approach, the researcher aims at identifying sentences or phrases that capture the fundamental meaning of the text as a whole. In the *selective* or *highlighting* approach, the researcher selects or highlights statements or phrases that seem particularly essential or revealing to the experience being described. In the *detailed* or *line-by-line* approach, the researcher analyzes each single sentence or sentence cluster to establish what the sentence or the sentence cluster reveals about the experience being described. The researcher then uses the themes identified to reflect upon the participants' experiences and to conduct follow-up interviews with the participants. During a follow-up interview, the researcher shares the reflections with the participant to elaborate and clarify the participant's meanings. This helps in safeguarding against the researcher's subjectivity in the study.

To bring the reader closer to the participants' lived experiences, the researcher employs the process of *reductio* with the aim of re-achieving direct contact with the phenomenon under consideration. This entails suspension of prejudgements, bracketing of assumptions, deconstruction of claims, and restoration of openness (van Manen, 2011), with the aim of getting back to the phenomenon in its original givenness. "This does not mean that one empties oneself of all possible past knowledge," says Giorgi (1997); rather, one "puts aside" or renders "non-influential" all categories and frameworks that may be associated with the presently given phenomenon, so that it has a chance to present itself, as it truly is (p. 240). According to van Manen (2011) *reductio* consists of a series of 'reductions' aimed at arriving at the *essence* of a phenomenon: In *eidetic reduction* (or *intuition of essences*), one shifts their attention from the differentiating and particularizing elements to the universal and essential qualities of the phenomenon under investigation. Starting with an arbitrarily perceived or imagined phenomenon, one investigates what variations can be made in the phenomenon without making it cease to be what it is. What, for example, makes a helping relationship a helping relationship? Suppose we had a helping relationship between two people: a 45-year-old man and a 70-year-old woman. What is it about the relationship which makes it precisely a helping re-

relationship and not something else, like an advising relationship or a counselling relationship? Is it essential for the relationship to consist of two people for it to be a helping relationship? Can one of the members of the relationship be a dog, for example? Or a robot? Would it still remain a helping relationship if we varied the proximity of the 45-year-old man and the 70-year-old woman? We continue this process of imaginative variation, eliminating one after another of the various features of the relationship – such as familiarity, responsibility, acceptability, reciprocity, love, gratitude, giving, indebtedness, and so on – until we eventually isolate those invariant features without which the relationship would cease to be called a helping relationship. This invariant set of features is what is referred to as the *eidōs* or *essence* of a helping relationship.

Heuristic reduction consists in setting aside (bracketing) the attitude of taken-for-grantedness with a view to stirring a profound sense of amazement at the phenomenon under investigation (van Manen, 2011). According to van Manen, the ‘way’ to knowledge and understanding begins in wonder. Heuristic reduction challenges the phenomenologist to not only be receptive and awakened to a profound sense of wonder, but also to write in such a way that the reader of the phenomenological text is similarly stirred to the same sense of wondering attentiveness to the phenomenon in question (van Manen, 2011; van Manen & Adams, 2010).

In *hermeneutic reduction*, one reflects on one’s own “preunderstandings, frameworks, and biases regarding the psychological, political, and ideological motivation and the nature of the question,” in search for genuine openness in one’s “conversational relation with the phenomenon” (van Manen & Adams, 2010, p. 452).

Phenomenological reduction requires that the phenomenologist brackets all “theoretical or scientific conceptions and thematizations” (van Manen & Adams, 2010, p. 453), with a view to evoke concreteness or living meaning.

Methodological reduction consists in bracketing all established investigative techniques and seeking or inventing an approach that seems to fit most appropriately the phenomenon under investigation. This means that the method of inquiry has to be constantly invented anew and cannot be reduced to a general set of strategies or research techniques (van Manen, 2011). The expression that ‘there is more than one way to skin a cat’ holds true for the methodology of hermeneutic phenomenology.

Ontological reduction consists in suspending the being and, instead, asking the question: What is other than being? (van Manen, 2011). In other words, ontological reduction is based on the notion that a being can be shown to be nothing other than

something else. For example, to get at the meaning of help, we can seek to show that help is nothing but a dependent relationship between at least two beings; that a dependent relationship is nothing but the act of trusting another being for one's needs, that the act of trusting the other is nothing but one's expectation of the other's goodwill, and so on, and so forth.

Life-world existentials as guides to reflection

In the description of and reflection on the lived experience of a given phenomenon, it may prove helpful to focus on four life-world existentials (van Manen, 1997, pp. 101-106). These are *lived body* (corporeality), *lived space* (spatiality), *lived relation* (relationality), and *lived time* (temporality). The lived body refers to the body as experienced from within, as opposed to the body as a purely physical object. The lived body is an embodied first-person perspective of the body. It might be difficult to describe such abstract feelings as shame, pity and joy, yet these feelings are clearly felt in the lived body. Our descriptions of objects, time and space are all relative to our experienced body. Put differently, the lived body is the condition and context through which we are able to have relations with objects (Merleau-Ponty, 1964). The human experience, in Merleau-Ponty's ontology, is the manner in which we, as potential knowers, live our body and our world. One's experienced bodily presence can either reveal or conceal something about oneself.

The lived space refers to the space that one pre-reflectively experiences and lives, as opposed to the physical space. In lived space, the spatiality of an object is not determined by its objective distance but rather by the manner in which one relates to the object. The distance between two points may be experienced as further than it actually is in absolute terms because, for example, of its unfamiliarity to us (as is the case when we are encountering a place for the first time).

The lived relation refers to one's pre-reflective way of living with the other; that is, how the other is experienced as a human being in the shared interpersonal space. The human person is a relational being. On the basis of what gets noticed when we encounter another human person, we can have a sense of who we are in terms of what is significant for and to us (Pollio *et al.*, 1997). In their description of lived relation, Pollio *et al.* (1997, p. 145) identify three major themes: relationship, comparison and benefit. Relationship pertains to our awareness of relational patterns in our day-to-day dealings with others; comparison pertains to the tendency to categorize others as similar to or different from ourselves, each other, and/or some social norms; while benefit refers to the tendency to experience the other in terms of their

possible serviceability for us; that is, in terms of their ability to meet our needs.

The lived time refers to the subjective experience of time as opposed to the objective 'clock' time. The lived time may vary according to the interest of the experiencing person, or according to the novelty of the experienced phenomenon. For example, on the one hand, time may be experienced as dragging when listening to a 'boring' lecture or speech, while, on the other hand, the same amount of objective time may be experienced as fleeting when watching an episode of one's favourite comedy show on TV. An encounter with a stranger might appear to last longer than it actually does in objective time if, say, the two 'strangers' do not find much in common to talk about. Simply put, the more involved one is in an event, the less aware one is of the passage of 'clock' time.

Validity and rigour in hermeneutic phenomenology

Hermeneutic phenomenologists reconceptualize validity and rigour in ways that pay homage to three key relationships; namely, between the researcher and the participants, the researcher and the data, and the researcher and the readers (Rashotte & Jensen, 2007). By consciously guarding against influencing the research participants, the researcher seeks to let the phenomenon present itself as it was pre-reflectively experienced. Recognizing the actual circularity of the research process, the relationship between the researcher and the data should be moved away from the linear form of data gathering to transcription to analysis to writing up (Rashotte & Jensen, 2007). Finally:

Both the researcher and the reader must *leap into* the text with a hermeneutic attitude – that is, with a sense of attentiveness, empathy, sensitivity, carefulness, respect, reflection, engagement, conscientiousness, awareness, ... open-mindedness, and open-heartedness. ... Hermeneutic phenomenological researchers must invite the reader to open the door to the experience of this otherness, while the reader must be willing to continue the engagement of dialectic, to be drawn into the implications of meaning, to pick up the thread of meaning and become part of the whole. ... The reader must be open to the idea that not all interpretations will work for everyone [and, as such, the] findings cannot simply be dismissed as untrue or untrustworthy (p. 104).

To the extent that an experiential description can never be exhaustive, a good phenomenological description validates and is validated by lived experience (van Ma-

nen, 1997). All that a phenomenological description can attempt is a clarification of the essential structure of the lived experience (Spiegelberg, 1984, p. 331).

3.4.3 Methodological procedure for the study

This section provides a description of the specific methodological procedure adopted in the research study. Figure 3.2 shows a flowchart for this methodological procedure.

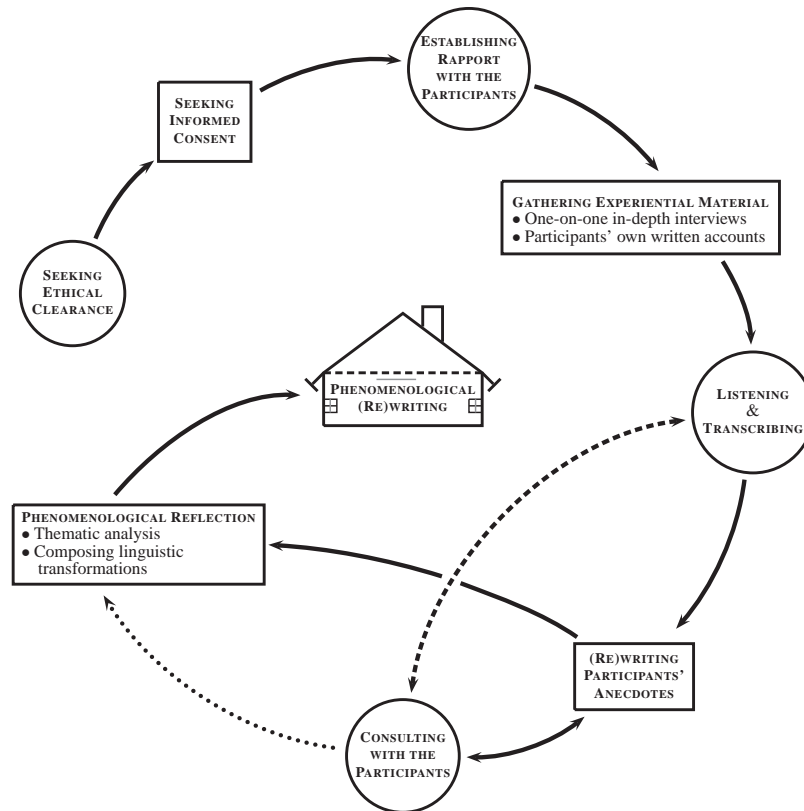


Figure 3.2: A summary of methodological procedure for the study.

dure. The study began by seeking and obtaining ethical approval from the University of Alberta’s Research Ethics Board (REB). A copy of the REB’s letter of ethical approval is shown in Appendix A. A research permit was also sought from the Ministry of Education and Vocational Training in Tanzania from where I was provided with an introduction letter to the Regional Administrative Secretary in the Prime Minister’s Office, Regional Administration and Local Government, which is responsible for the management and administration of secondary schools. The Regional Administrative Secretary provided me with an introduction letter to the District Administrative Secretary, who provided me with the research permits for each of the research sites. A copy of the research permit to undertake the study in

one of the schools is shown in Appendix B.

The participants in this study were 24 A-level mathematics students (14 females; 10 males) drawn from 7 secondary schools (5 government; 2 private) located in the eastern and mid-eastern regions of Tanzania Mainland. Out of the seven schools, two were boys-only, two were girls-only and three were coeducational (see Figure 3.3).

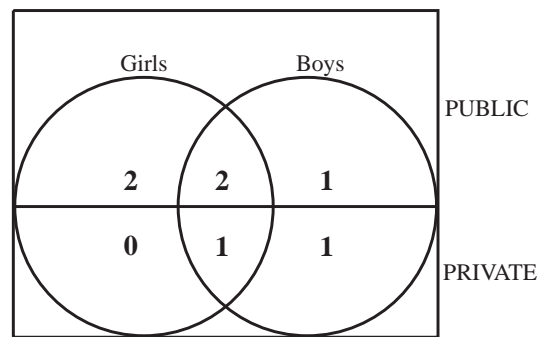


Figure 3.3: A diagrammatic representation of the composition of schools from where research participants were drawn.

Permission to invite students to participate in the study was sought and obtained from respective school head-teachers. Informed consent was sought and obtained from each research participant. Appendix C shows a copy of invitation letter and informed consent form for the research participants, while Appendix D shows the Kiswahili version of the same copy. Among the research participants, there were two minors both of whom were day-scholars⁷. In accordance with the ethical requirements for the study, parent's informed consent as well as the minor's informed assent were sought and obtained before the minors participated in the study. Appendix E shows a copy of invitation letter and informed consent form for the participant's parent. It was clearly explained – both verbally and in writing – to each participant: the study's background and purpose; potential benefits and risks; voluntariness of participation and withdrawal; participant's right to anonymity and confidentiality; and how the research findings were to be used and disseminated.

Experiential materials were gathered through one-on-one, open-ended and in-depth conversational interviews, as well as through participants' own written experiential accounts. Once a participant consented to participation in the study, the first meeting was scheduled at the participant's convenience. The aim of this meeting was: (i) to further clarify the purpose of the study; (ii) to establish rapport and trust with the participant; (iii) to give the participant a chance to ask questions and have

⁷Day-scholars refer to students who were not residing in the school premises during school terms.

them answered; and (iv) to arrange a convenient time for the next meeting, during which time the participant was either interviewed or requested to write his or her lived experiential account.

Appendix F shows sample interview prompts that were used to elicit a lived experience description. Throughout the interview process, the researcher was consciously aware of the need to guard against influencing the participant in the direction of what the researcher thought or knew about the phenomenon. Most participants were more comfortable and fluent (speaking and writing) in Kiswahili than they were in English. As such, most of the interviews were conducted in Kiswahili, transcribed verbatim, and translated into English. The researcher strived to preserve the meaning and intent of the participants in the translated versions. The interviews were thirty-five to eighty minutes long, and were audio-recorded. The majority of the interviews took place within the school compound, while a few took place in some other location convenient to the participant. At the end of an interview, a request for a follow-up interview with the participant was made.

For some of the participants, it was difficult to re-live a past experience and to simultaneously verbalize it. Participants sometimes slid towards generalizations. In such cases, the researcher's mediation consisted in helping the participant stay within the limits of a singular experience. For example, the following vignette (the researcher's translation) shows how one participant (Nick) started off describing his experience of seeking help:

I have sought help in mathematics so many times ever since I was in primary school. I remember when I was in Standard 3, it was difficult for me to seek help from my mathematics teacher because he was very harsh and he used to cane me. So I used to fear him. But since I loved mathematics, I would find myself going to him once in a while. He would pinch me as he was helping me. For example, he would ask me "Five times three?" And because I had not memorized the multiplication table, I would take some time trying to mentally compute the product. But even before I was done with my mental computation, he would start pinching me. So he would psychologically take me away from my mental computation. At times I would tell him I had understood when in fact I had not, just to leave from his presence. But when I was in Standard 7, I remember I would go to my mathematics teacher and he would cooperate very well. He used to work very hard. Even when he didn't know how to solve a question, he used to maybe tell me, "Come tomorrow so that I can seek its solution." And sure enough, when I returned to him the following day, I would find that he had found the solution and he would help me. So mathematics was enjoyable when

I was in Standard 7. But then when I went to secondary school, it was difficult for me to get help in mathematics because it was difficult to find secondary school teachers.

In this vignette, much of Nick's description consists of either generalizations, reflections, interpretations, or explanations. When Nick paused, he was respectfully interrupted and guided towards focusing on one particular moment that he could describe in details. Nick's vignette can be contrasted with that of another participant (Mwenesi), which shows how a description of a lived experience of seeking help looked like:

During my first days in Form 5, I was a great contributor of mathematics questions on the chalkboard. There were some students who had received private tuition in mathematics, and whatever question I put forward, one of them would always solve it. One day, I walked to the chalkboard and wrote a question. Just as I was returning to my seat, I caught one student wearing a derisive smile on his face. I thought that he felt that the question was too easy, but it is only because he had received private tuition. I felt sweat trickling down my back. I began to feel like I didn't understand mathematics; like I was a real fool. This made me vow that I would put in more effort to show him that I too could understand mathematics. It was an unofficially declared competition.

In this case, Mwenesi focused on a singular experience, which he described in details. He included such concrete details as where he was, what he saw, what exactly he did, how he felt, and how he experienced the other.

One of the methodological challenges in this study was the impossibility of transcribing such prosodic features as falling intonations and word stress; for example, when Nick was describing his experience of seeking help from his mathematics teacher in the classroom (see page 90), he used extended vowels to emphasize the derisiveness of the teacher's look: "*Ukimuuliza swali, anakwangaliaaaaaa, anakwangaliaaaaaa, halafu anaendelea*" ("When you ask him a question, he 'loooooooks' at you, he 'loooooooks' at you, and then he continues").

In some cases, it was easy to tell when a participant was really re-living an experience. For example, a participant would pause while letting go of eye contact with the researcher, and after a moment of staring away into space, describe the lived experience.

The participants who opted to write a description of their own lived experience were provided with the suggestions that are shown in Appendix G. van Ma-

nen's (1997) highlighting approach to phenomenological reflection was applied to the transcribed interviews and participants' written experiential accounts, whereby phrases that seemed particularly essential or revealing to the experience being described were selected. As the transcripts were read and re-read, the researcher asked himself, "What does this word, phrase, sentence or passage reveal about the phenomenon of seeking or giving help?" The unnecessary words were removed, and the highlighted statements were honed into short concrete anecdotes that captured the essence of the participants' lived experience descriptions. During the honing process, the researcher's preconceptions and biases were set aside so as to allow the participants' own experiential accounts to steer and shape the meaning-making process. This was achieved through the researcher's reflexivity – sustained self-awareness of how the researcher could influence the meaning-making process. The anecdotes so constructed were then taken back to the participants to determine if they (anecdotes) accurately reflected the experience of the participants and, if possible, to *deepen* the experience. During the follow-up meetings, further clarifications were sought regarding the first interview and/or the written account and, in some cases, an audio-recorded interview was conducted (the second one for those who had been interviewed, and the first one for those who had provided their own written accounts) at the informed consent of the participant.

The refined anecdotes from the participants' experiential accounts were then used to uncover the essential aspects of the participants' lived experiences (van Manen, 1997). This involved identifying thematic statements that evoked the meaning of the phenomenon for the participants. The researcher then composed 'linguistic transformations' of the identified thematic statements; in other words, the researcher further developed the identified thematic statements into "more phenomenologically sensitive paragraphs" (van Manen, 1997, 2011). Finally, the researcher used the linguistic transformations to write and re-write a phenomenological description of the lived-through quality of the participants' experiences. Throughout the data analysis process, the researcher guarded against imposing any interpretation. To this end, participants' own words were often used verbatim to allow the participants to essentially describe what seeking (or giving) help meant to them.

The next chapter seeks to cultivate insights into the complexities and subtleties of the phenomena of seeking and giving help in mathematics by using purposefully chosen texts from different sources.

Chapter 4

Orienting to the Phenomenon

As noted in Section 3.4.2, studies guided by hermeneutic phenomenology often use experiential materials from different sources as a way of increasing the depth of understanding of the phenomenon being investigated. This chapter examines some texts related to the phenomenon of help in academic settings, to help us gain some insight into the phenomena of seeking and giving help in mathematics. The first section portrays the act of seeking help as the help-seeker's adoption of a questioning stance towards questions. The second section seeks to demonstrate that the act of giving help can only be meaningful if 'giving help' is a lived experience for the helper. The third section describes the phenomena of seeking and giving help in terms of what they are not rather than in terms of what they are; while the last section examines the complexities and subtleties of seeking help in mathematics to show that when students are seeking help, they may not necessarily know what they are seeking.

4.1 Seeking authentic help

When Mpemba was in Form 3 at Magamba Secondary School, he, like other boys at the school, used to make ice cream by boiling milk with sugar, letting the mixture cool to room temperature, pouring the mixture into an ice-tray in the refrigerator, and waiting until the mixture had frozen solid¹. One day, in the rush for space in the refrigerator, a boy hurriedly put sugar into the milk, stirred the mixture and, without boiling it, poured it into the ice-tray. Aware that he risked losing the last available ice-tray, Mpemba put his mixture into the ice-tray without waiting for

¹This section is based on an article by Mpemba and Osborne (1969).

it to cool down. An hour and half later, Mpemba and the other boy returned to the refrigerator, and were surprised to find that Mpemba's ice cream had frozen solid but his friend's was still slushy. When Mpemba sought an explanation for this counterintuitive finding from his physics teacher, the answer he got was that he (Mpemba) was confused. "That cannot happen," said the teacher with finality. Mpemba took that for an answer and moved on. But during the next holiday, he met his friend, Harrison, an ice-cream vendor, and they got into a conversation about how ice-creams are prepared:

"Some days I make as much as twenty shillings profit from the ice-cream business," said Harrison.

"How long does it take to prepare them?" asked Mpemba.

"I just boil milk with sugar and then add pineapple squash and put the mixture into the refrigerator while hot and the ice-creams are ready in a short time," Harrison replied.

"Who gave you that idea of putting hot liquids into the refrigerator?"

"I was told by my brother who has been making ice-creams for the past five years, that it works quicker that way."

"Wow, that's funny! I made the same observation when we were making ice-creams at school, and when I asked our physics teacher for an explanation, he said I was confused; that it cannot happen."

After his O-level education, Mpemba proceeded to Mkwawa High School for A-level education. During the topic of *Newton's Law of Cooling*, Mpemba decided to pose his old question to the A-level physics teacher.

"Please, sir," said Mpemba *"why is it that when you put both hot milk and cold milk into a refrigerator at the same time, the hot milk freezes first?"*

"I do not think so, Mpemba," replied the teacher.

"It is true sir," said Mpemba, *"I have done it myself."*

"The answer I can give is that you were confused," retorted the teacher.

"No, sir," said Mpemba, *"I was not. I have even heard it from a friend."*

"Well, all I can say is that that is Mpemba's physics and not the universal physics," said the teacher in a matter-of-factly-tone.

The whole class bursted into laughter and Mpemba was humiliated. From then onwards, if Mpemba failed in a problem by making a mistake, the teacher used to say, "That is Mpemba's mathematics." And the whole class adopted this: Anytime Mpemba did something wrong, the students used to say to Mpemba "That is Mpemba's ..., " whatever the thing was.

Some time later when Mpemba was in Form 6, Professor Denis Osborne of the University College Dar es Salaam was invited by the head-teacher of Mkwawa High School to speak to the students on *Physics and National Development*. At the end of his talk, students were invited to ask questions. When he got his chance, Mpemba brought up his long-standing question:

“If you take two similar containers with equal volumes of water, one at 35°C and the other at 100°C, and put them into a refrigerator, the one that started at 100°C freezes first. Why?” asked Mpemba.

“Could you please repeat your question?” Osborne said smilingly.

“If you take two similar containers with equal volumes of water, one at 35°C and the other at 100°C, and put them into a refrigerator, the one that started at 100°C freezes first. Why?”

“Is it true, have you done it?”

“Yes, sir, I’ve done it more than once.”

“I do not know, but I promise to try this experiment when I am back in Dar es Salaam.”

What, phenomenologically, is ‘happening’ when we question? Hyland (2004) asks this question in his book *Questioning Platonism: Continental Interpretations of Plato*. He continues:

On the one hand, to question is to exhibit a certain *openness* toward that which we question. This is captured in English in the way we speak of holding things “open to question,” and in the way we characterize someone who refuses to hold their views open to question as “close-minded” (p. 147).

In this sense, the openness of Mpemba’s questioning should be contrasted to the very different, and more closed, stance of scepticism characteristic of Mpemba’s physics teachers. To be sceptical is to close off in advance. Mpemba’s physics teachers, unlike Professor Osborne, do not question their intuition. They do not entertain the possibility that there may be something fundamentally worthy in the question posed by Mpemba. Instead, they doubt Mpemba’s question in advance, possibly to avoid the kind of demands that questioning brings along. Mpemba’s questioning of his observation requires that he be open to it, to the possibility that it may be partly or even entirely worthy. So we can say that *openness* is a distinctive trait of the stance of questioning (cf. Hyland, 2004, pp. 147-148).

But questioning cannot be simply openness, else the questioner would merely accept whatever was proffered: openness to this, openness to

that. No, to question is at once to *respond* to that to which we have opened ourselves in questioning. In questioning, we do not merely accept a given view or leave it alone. Within our questioning, we respond to and in the light of the openness we exhibit. Joining this element of responsiveness to that of openness, then, we can say that the stance of questioning ... is that of responsive openness (Hyland, 2004, p. 148).

Mpemba's responsive openness enabled him to sustain an interest in his question for more than three years and, eventually, to gain a conceptual understanding of the phenomenon of cooling, thanks to Professor Osborne's stance of taking Mpemba's question seriously. Since then, the phenomenon, which has come to be known as the 'Mpemba effect', has generated great interest amongst physics researchers.

This anecdote points, on the one hand, to the epistemological significance of taking a questioning stance and, on the other hand, to the danger of an authoritarian pedagogy. In a mathematics classroom, there are students who will ask lots of questions, some of which may seem trivial to the teacher but very important to the student. Teachers, as well, often ask questions to students. Normally, when a teacher asks a student a question, the student is made responsible for answering the question. But does the teacher take the same degree of responsibility that is demanded of the student when the student asks the teacher a question? Taking responsibility for answering the student's question does not, of course, mean being expected to have an answer to each and every student's question. On the contrary, it means being expected to respond to the question in a way that demonstrates care and respect for the student.

It is often the case that when students are asking questions in mathematics, the students are either seeking to know factually or practically. In factual knowing, a student would, for example, be interested in knowing what '*at most 2 books*' means or how many centimetres are equivalent to one inch. In practical knowing, the student would, for example, be interested in knowing *how* to factorize $2x^2 - 4x + 1$. There is another type of knowing that students do not often seek help with, yet this is the type of knowing that engages them in critical thinking and creative reasoning; namely, theoretical knowing – the kind of knowing that responds to the '*why*' questions; for example, knowing *why* $\sqrt{2}$ is irrational or *why* $\frac{5}{0}$ is undefined. Responding to students who are seeking to know theoretically may not be as straightforward as responding to students who are seeking to know factually or practically. In the context of high school mathematics, factual and practical knowing may be considered utilitarian, in the sense that students are often ultimately interested in succeeding in an examination. But theoretical knowing may more or less be moti-

vated by a deeper interest than merely doing well in an examination. When students seek help with theoretical knowing from the teacher, some teachers may engage in the so-called ‘beating about the bush’, either because they do not know how to respond, or they simply do not want to take time to internalize the student’s question. It pays to take students’ questions to heart as shared questions and to hold them open, to allow sufficient time for a truly fitting response.

Only by *harbouring* a felt question in pregnant silence do we allow sufficient time for ... the question to gestate or incubate itself within us. In this way we prevent ourselves from prematurely ... framing it in an off-hand way that forecloses all deeper questions and forces a superficial answer. Only by inwardly *holding open* a space in which to *harbour* a question in pregnant silence before framing it in words do we open ourselves to the mystery at its core – the deeper felt questions that are seeking to formulate themselves within us. ... In *harbouring* a question we give both ourselves and others an opportunity to fully feel the question – indeed to *be* the question. *Being* the question allows us to *become* the answer (Wilberg, 2004, pp. 100-101).

By responsibly owning Mpemba’s question, Professor Osborne became the answer to Mpemba’s question. Professor Osborne saw value in respecting and internalizing Mpemba’s question. He reflected back on Mpemba’s questioning stance and offered a pedagogical advice:

I confess I thought he was mistaken [when he asked that question] but fortunately remembered the need to encourage students to develop questioning and critical attitudes. No question should be ridiculed. In this case there was an added reason for caution, for everyday events are seldom as simple as they seem and it is dangerous to pass a superficial judgment on what can and cannot be (Mpemba & Osborne, 1969, pp. 173-174).

4.2 Giving authentic help

Moa, a ninth-grade student, has difficulties understanding how to calculate 15% of 90. She decides to seek help from her mathematics teacher.² The teacher takes Moa’s book, writes down 90, below which he writes $\times 0.15$, placing the hundredth digit of 0.15 (i.e., 5) directly below the ones digit of 90 (i.e., 0) and the tenth digit of

²This section is based on a study by Johan Lithner that explored the absence or presence of mathematical foundations in students’ argumentation during problem-solving situations (see Lithner, 2005, pp. 63-64).

0.15 (i.e., 1) directly below the tens digit of 90 (i.e., 9). He then draws a horizontal line under $\times 0.15$ as shown in (*):

$$\begin{array}{r} 90 \\ \times 0.15 \\ \hline \end{array} \quad (*)$$

Teacher: What is 5×0 ?

Moa: 0 [*The teacher writes 0 under the horizontal line in (*)*]

Teacher: What is 5×9 ?

Moa: 45 [*The teacher writes 45 under the horizontal line in (*)*]

Teacher: What is 1×0 ?

Moa: 0 [*The teacher writes 0 under the horizontal line in (*)*]

Teacher: What is 1×9 ?

Moa: 9 [*The teacher writes 9 under the horizontal line in (*), draws a horizontal line and puts a plus sign as shown in (**)*]

$$\begin{array}{r} 90 \\ \times 0.15 \\ \hline 450 \\ + 90 \\ \hline \end{array} \quad (**)$$

Teacher: What is $5+0$?

Moa: 5 [*The teacher writes 5 under the horizontal line in (**)*]

Teacher: What is $4+9$?

Moa: 13 [*The teacher writes 13 under the horizontal line in (**)*]

Teacher: Where shall the decimal point be placed?

Moa: [*Silence*]

Moa hesitates. The teacher quickly puts the decimal point between 3 and 5, draws a horizontal line as shown in (***) and leaves.

$$\begin{array}{r} 90 \\ \times 0.15 \\ \hline 450 \\ + 90 \\ \hline 13.50 \\ \hline \end{array} \quad (***)$$

Moa's main problem is to understand how to calculate a percentage of a whole number. The teacher has first converted the percentage to a decimal (i.e., $15\% = \frac{15}{100} = 0.15$) and then performed the algorithm for multiplying a decimal number by a whole number. The teacher steers Moa through the algorithm without making any attempt to find out what Moa's difficulties really are. As he works through the

algorithm, the teacher does not discuss the fundamental principles behind the algorithm, does not help Moa think through these fundamental principles, and does not help Moa consider the alternative strategies available for solving the problem. For instance, the problem could have been solved as follows:

$$15\% = \frac{15}{100} = \frac{15 \div 5}{100 \div 5} = \frac{3}{20}; \text{ 15\% of 90 implies } \frac{3}{20} \times 90; \text{ and}$$

$$\frac{3}{20} \times 90 = \frac{3}{20} \times \frac{90}{1} = \frac{3 \times 90}{20 \times 1} = \frac{270}{20} = \frac{270 \div 10}{20 \div 10} = \frac{27\cancel{0}}{2\cancel{0}} = \frac{27}{2} = 13.5$$

Alternatively, the problem could have been solved as follows:

$$15\% = \frac{15}{100}; \text{ 15\% of 90 implies } \frac{15}{100} \times 90; \text{ and,}$$

$$\frac{15}{100} \times 90 = \frac{15}{100} \times \frac{90}{1} = \frac{15 \times 90}{100 \times 1} = \frac{1350}{100} = \frac{1350 \div 10}{100 \div 10} = \frac{135\cancel{0}}{10\cancel{0}} = \frac{135}{10} = 13.5$$

Moa does not participate in any activities other than those of addition and multiplication of one-digit numbers, which are trivial to Moa as she learnt them in Grade 3. Whatever Moa learns during the help-seeking encounter – if at all she has learnt anything – is irrelevant to her current difficulties. There are no opportunities for Moa to consider the strategy choices, or to consider the relevant mathematical properties involved in the algorithm. After the teacher has left, it is highly unlikely that Moa has understood the procedure for calculating a percentage of a whole number. She may have known how to obtain the solution for the particular problem she was seeking help with, but Moa may still be unable to solve a similar task by herself in the future. In short, Moa's teacher does not help Moa become independent. The teacher would probably have helped Moa if they had been reasoning about the concepts of percentage and multiplication, and perhaps about problem solving and strategy choices (Lithner, 2005).

Heidegger's (1927/1962) distinction between the two extremes of positive solicitude³ ('leaping ahead' and 'leaping in') can be helpful in articulating the distinction between authentic and inauthentic modes of 'being-there' for students during a helping encounter. In *Being and Time*, Heidegger writes:

With regard to its positive modes, solicitude has two extreme possibil-

³In Heideggerian phenomenology, solicitude is one of the modes of care, and refers to the way in which one comports oneself towards others, especially as this comportment relates to one's earnest desire for the welfare of others. The other mode of care is concern, which refers to one's comportment towards entities (Michelman, 2008, p. 89).

ities. It can, as it were, take away ‘care’ from the Other and put itself in his position in concern: it can *leap in* for him. This kind of solicitude takes over for the Other that with which he is to concern himself. The Other is thus thrown out of his own position; he steps back so that afterwards, when the matter has been attended to, he can either take it over as something finished and at his disposal, or disburden himself of it completely. In such solicitude the Other can become one who is dominated and dependent, even if this domination is a tacit one and remains hidden from him. ... In contrast to this, there is also the possibility of a kind of solicitude which does not so much leap in for the Other as *leap ahead* of him ... in his existentiell potentiality-for-Being, not in order to take away his ‘care’ but rather to give it back to him authentically as such for the first time. This kind of solicitude pertains essentially to authentic care – that is, to the existence of the Other, not to a “*what*” with which he is concerned; it helps the Other to become transparent to himself *in* his care and to become *free for* it (1927/1962, pp. 158-159).

John Dewey (cited in Ellerman, 2001, p. i) argued that whenever possible, the best kind of help to others is indirect, and consists in such modifications of the conditions of life as enables them to independently help themselves. By virtue of their specialized knowledge and skills, teachers play a key role in determining the nature of students’ learning experiences. In a pedagogical moment, the teacher ‘leaps ahead’ for the student, in the sense that the teacher can envision the possibilities that particular learning experiences hold for the student’s future.

The teacher’s act of taking responsibility for the essential part of the work that should have been done by Moa renders Moa dependent and deprives her of an opportunity to understand. Moa’s teacher may have decided to take Moa through the solution for the particular problem she was seeking help with because the teacher was busy or under time constraint. While this may be understandable because of the particular contexts within which the help was sought, it is neither helpful nor desirable. Langeveld (1955) warns that “Whoever takes an unnecessary part of somebody else’s responsibility steals the very heart out of his inner dignity” (p. 50). Helping a student to help themselves requires patience and time on the part of the helper. In other words, giving help to the other demands nothing short of oneself. It entails making oneself available for the other; being fully present and being actively attentive to the other. Dalferth (2006) fleshes out the difference between “a temporal and local co-presence of persons” on the one hand, “and their being present to each other,” on the other (p. 236). She writes:

Being present is not enough. What is needed is *becoming present* in

the present, and this only occurs when we become present *to the other* present. I may be here, but I am not present as long as I am not open to the other present in such a way that the presence of the other person is apprehended as a gift that enriches me. We become present in the present when we are opened up to the other's [presence]. But this is not something we can do by *fiat*. We cannot make ourselves to become present by deciding so because we cannot open ourselves to the other if we do not find ourselves already being open to him or her. We do not become present by what we do but what happens to us in doing what we do or before we do anything at all (p. 239).

Becoming present in the present entails opening oneself to the encounter with the other. It means bringing the fullness of oneself to the interaction, living fully in the Now for the other, purposefully directing one's awareness of the other in their individuality and uniqueness. It means giving one's total and undivided attention to the other. One cannot give help to the other as long as one is indifferent to the other's presence. By tuning in to the other's presence, one responds to the other's call for help. The 'how' of giving help as experienced by oneself is phenomenologically more primordial than the reason for or cause of giving help. The being of giving help is in the helping experience. In other words, my help to my student is only meaningful if 'helping my student' is a lived experience for me. This help cannot be abstracted from the 'I' who is helping my student.

4.3 Unmasking the masquerade of help

We have heard it said that "not all that glitters is gold." At first sight, a thing may, because of its glittering external manifestation, present itself to our consciousness as natural and pure. But it may, on stricter scrutiny, turn out that the true essence of the thing is totally different from what was initially apprehended. This holds true even for the phenomenon of help. Gronemeyer (1992) says that "help has become hypocritical, distorted to the point of unrecognizability" (p. 53).

The most distinguishing attribute of help is goodness. Yet, "[t]here is no odor so bad as that which arises from goodness tainted" (Thoreau, 1854/2008, p. 51). At least, it might be easier to intuit tainted goodness than masked one, and because of the emotional consequences of falling victim to masked goodness, some have become so wary of any form of help from the other that they would rather die of helplessness than receive the other's help. Thoreau once asserted that "If I knew for a certainty that a man was coming to my house with the conscious design of doing

me good, I should run for my life ... for fear that I should get some of his good done to me” (p. 51). Giving help may be distorted into a need to control, manipulate or dominate. Equally, seeking help may be used as a smokescreen to conceal what is really being sought. Perhaps this has to do with the innocence of help: whether sought, offered or given, help is always already innocent.

4.3.1 A masked teacher

At one time in the city of Dar es Salaam, my attention was drawn to a series of murals that were painted on the perimeter wall of one secondary school. In one of the murals, a school girl is depicted approaching the desk of a lustful head-teacher (Figure 4.1). The head-teacher is depicted with thought-bubbles of love, and then there is a reprimand: “KOMESHA RUSHWA YA NGONO!” (“STOP SEXUAL CORRUPTION!”).



Figure 4.1: A mural on a school’s perimeter wall. The text *MWL. MKUU* stands for *MWALIMU MKUU*, meaning ‘head-teacher’ in Kiswahili.

I also came across a play depicting sexual exploitation of students by their teachers. The play was part of a series of activities sponsored by a non-governmental organization to empower Sunday School teachers in Tanzania with strategies of raising their students’ awareness of HIV-related stigma (Christian Council of Tanzania & USAID, 2008). In this play (pp. 36-37), a fifth-grade female student is performing poorly in mathematics, and her mathematics teacher offers to help her improve. Because of the sexual connotations in the teacher’s offer, the girl vehemently refuses. Day after day, the teacher continues pestering this girl. Since the

girl is under immense pressure from her parents to improve her mathematics grade, the girl eventually agrees to be helped by the teacher. The teacher then helps the girl, and ensures that girl's report card indicates excellent performance in mathematics, which really impresses the girl's parents. Unfortunately, the girl is not only impregnated but she is also infected with HIV/AIDS by the teacher.

Although the murals and the plays are aimed at promoting HIV/AIDS-prevention and combating the stigma related to HIV/AIDS, I just wondered what other messages were being communicated to students through these murals and plays, particularly with regard to the image of the teacher as a professional helper. Pedagogically speaking, the teacher is like a parent to his or her students, meaning that whatever the teacher does is done in the best interest of the students. When a teacher offers to help a student, that teacher elicits trust in the student and invokes the student's confidence in the teacher's willingness to act helpfully. What the teacher owes the student, then, is the teacher's fidelity to that trust. With anything short of that fidelity, the result can only be something other than the conventionally understood-as-good concept of help.

4.3.2 A masked student

One of the participants in the study reported in this thesis (Charity) sent me a text message, a day after I had conducted an interview with her. In the text message, she informed me that she had just remembered another memorable lived experience of seeking help. As a researcher, this is one of the best things that could ever happen when gathering research data; namely, encountering a research participant who is so stirred up by a lived experience that she wants to verbalize it. I called her and arranged to meet with her the following day after meeting another research participant in a neighbouring school. Half an hour later after our telephone conversation, Charity sent me another text message. She informed me that she had just remembered that she would actually be in the neighbouring school – the very school I was scheduled to meet the other participant – sitting for a mathematics examination (it is very common for students to sit for weekly examinations outside their school at a fee). Charity offered to meet me after I was done with the other research participant because by then, she would have finished the examination. I thought this was very kind of her, and I patted myself on the back for a job well done in rapport building.

The following day, as I was walking with the other research participant looking for a convenient place to conduct the interview, I met Charity as she was waiting

to get into the examination room. One of the unusual things I noted with Charity was that she was not in school uniform. All the other students who were with her were in school uniform. We agreed that I would be waiting for her so that we could conduct the interview inside that school. We agreed where she would meet me once she was done with the examination.

I was only allowed to be in this particular school up to 2pm. When it reached 2pm without any communication from Charity, I left the school compound and waited at the gate. After waiting for about half an hour, I somehow felt uncomfortable, given that this was a girls-only school. I did not want to be seen by the teachers standing at the school gate. So I sent Charity a text message and suggested I could meet her at their school the following day if she was available. Then I left for my apartment. An hour later, Charity ‘beeped’ me (that is, she called my line and immediately hang up). I called her back and she told me that she was done with the examination, that she would not be available the following day but I could go back and interview her. I was not sure where we would sit to do the interview. So we agreed to postpone the meeting until Saturday, when I would meet her at their school. Before Saturday, I shared this experience with my friend Anderson, a long-time high school teacher in Tanzania, and he recalled a moment in his beginning years as a teacher when a female student was seeking ‘help’ from him.

This was Anderson’s second year in the teaching profession, and he had just been transferred to Kakinda Secondary School (Pseudonym), where he was assigned to teach physics and mathematics in Form 1 classes. There were some female students who used to live close to where Anderson had rented a house. One morning, Anderson met one of these female students at the shop where he used to buy basic commodities such as bread and milk. After exchanging pleasantries, the girl asked Anderson if he could help her with some problems in mathematics and English. Anderson told the girl that his specialization was mathematics and physics but they could look at the English questions as well. They agreed that the girl would go to Anderson’s house later in the afternoon, although they did not agree on the exact time. “In retrospect,” says Anderson, “it was a real mistake to suggest that she should come to my house.”

Anderson was expecting Anastasia to arrive any time after 3pm since the school day used to end at 2pm. But when it reached 6pm without seeing her, he concluded that Anastasia would not be coming. However, around 8pm, he heard a knock at the door, and when he opened it, he was surprised to see Anastasia. She was in a mini-skirt. She had makeup on her face and lipstick on her lips. She apologized for

being late and Anderson told her not to worry about it.

Anderson did not have a study table, and so they took chairs and sat across the coffee table facing each other. The coffee table was too low to hide Anastasia's thighs, which, according to Anderson, "*were demanding to be seen more and more frequently. All indications were that she expected me to make a move. But then, the previous year's predicament of my former O-level teacher was still loud and clear in my mind. The teacher had been dismissed from the teaching profession for having love affairs with female students.*" Although Anderson had a strong urge to tell Anastasia that she looked sexy, he could not afford to lose his job.

As they were going through the mathematics problems, Anderson sensed a sense of inattentiveness in Anastasia. "*You have been working very hard today, huh? How about we continue from there tomorrow?*" Anderson proposed. "*Tomorrow I am not available, but I can come next week,*" Anastasia retorted. She never returned again. Four months later, Anastasia was conspicuously pregnant. With a deep sigh of relief, Anderson concluded, "*I consider myself very fortunate to have escaped Anastasia's snare.*"

So when I met with Charity on Saturday, I ensured that our focus was on the phenomena I was investigating.

Heidegger says that "Dasein⁴ is in every case what it can be" (1927/1962, p. 183). The reason why someone would, having recognized something as a mask, proceed to respond to it as a face, is because that someone is either already masked or is contemplating masking himself. We all have potentiality for masquerading. In fact, at one point or another we have masqueraded; we have put on a face to conform to what we thought the other wanted, or to gain the other's approval. Normatively, it can be argued that sometimes it is acceptable to masquerade. It would, for example, be considered cruel for one to tell the other "You are unwelcome" instead of "You are welcome" even when one intends the former. The reason why one would masquerade as a seeker of help is possibly because help brings one face-to-face with the other. The kind of attention 'I' gets when receiving help from the other is different from the kind of attention 'I' gets when receiving instruction, punishment or admonition from the other.

⁴As used by Heidegger, the term *Dasein* refers to the inauthentic (conscious) self – the 'I' in the field of everyday experience – as contrasted with the authentic self – one's central purpose and meaning which is not absorbed in the 'worldliness' of the world.

4.4 Seeking how to know and knowing how to seek

i seeking something
i not knowing what seeking
i not knowing how know something seeking
i seeking how know something seeking

i know what seeking
i seeking how know seeking something
i knowing i seeking how know seeking something
i knowing something

(Jandl, Wynand & Kenney, 1978, p. 131)

This poem highlights two basic types of seeking: (i) “the merely exploratory, curiosity-directed surveying of new ground without looking for anything in particular,” and (ii) a seeking ‘for’ a known thing, directed by some more or less definite pattern of what one is seeking (Spiegelberg, 1964, p. 329). The latter is epistemologically more important than the former (Spiegelberg, 1964, 1984), because it leads to active knowing. Unless we know what we are seeking, we cannot know that we have found it when it is found. In other words, when the seeking is undertaken under the guidance of a pattern of what we are seeking (as opposed to a merely exploratory seeking), “the found is not *our* master. We are no longer at its mercy but can put it on the witness stand, as it were” (Spiegelberg, 1964, p. 329). The actual finding of what we are seeking with earnestness and expectation is often accompanied by a phenomenal lived experience, upon which we can turn our reflective gaze of consciousness.

One of the things that emerged from the research study reported in this thesis is that although the sequencing and progression of the mathematics topics in the Tanzanian syllabus is encouraged by the curriculum developers, sometimes the order of the topics in the A-level syllabus is not adhered to, so that a Form 6 topic may be covered in Form 5 and vice versa. Moreover, due to the reasons that were highlighted in Section 3.3, some students attend private tutoring. It then happens that when students are reviewing past examination papers, they may at times be unsure whether or not they are capable of tackling some questions. For example, one participant, Yunis, had covered a number of topics through private tutoring, and as she was going through a past examination paper, she came across a question she could not solve on her own. So she went to her friend, Chiku, and asked her

for help. Chiku started solving the question, but barely into the second step, Yunis interrupted:

Yunis: *What did you do here?*

Chiku: *Do you understand differentiation very well?*

Yunis: *I have not yet covered the topic of differentiation.*

Chiku: *Then it won't be easy for you to understand this question. To understand integration, you need differentiation.*

It appears that as Yunis was going to Chiku, she did not know what she was seeking, because to know what one is seeking means to seek consciously for something that, though immediately unattainable, is clearly conceived. This means that Yunis would have merely accepted whatever was proffered to her by Chiku. Does that kind of seeking have any epistemological significance? Perhaps it has the potential to acquire one by subsequent re-seeking (Spiegelberg, 1984) or through the mediation of the one from whom help is being sought.

Another participant (Joan) also described how while going through a past examination paper, she came across a problem she could not solve on her own, and so she consulted her classmate Boniface. At one point in the interview, she remarked that Boniface was very helpful, because he helped her understand (*elewa*) how to solve the problem. At another point in the interview, she said that Boniface helped her know (*jua*) how to solve the problem. Joan seems to be using 'knowing' and 'understanding' interchangeably. But are they really interchangeable? If not, did Boniface help Joan with knowing or with understanding? Which brings us to the question: What was Joan seeking from Boniface: knowledge or understanding or both? Let us, for one moment, suppose that the distinction between knowledge and understanding is a non-issue, at least for Joan, so that the statements "Boniface helped Joan *understand* how to solve the problem" and "Boniface helped Joan *know* how to solve the problem" collapse into the latter statement. Granted, we can then make the following proposition:

Prior to seeking help from Boniface, Joan did not know how to solve the problem.

This proposition is premised on the fact that if Joan knew how to solve the problem, there would have been no point for her to seek help on how to solve the problem. The proposition, however, is problematic, since it rules out the possibility of Joan having had some partial knowledge of how to solve the problem. The fact that Joan sought help from Boniface does not necessarily mean that she did not have some

knowledge of how to solve the problem. What Joan was seeking from Boniface may not be knowledge per se but, possibly, enhanced knowledge which she clearly could not have had prior to approaching Boniface. To be sure, there are many modes of knowing, and the manner in which something is known varies greatly from one person to another. In other words, there are different ways in which people can know the same object. As such our earlier proposition might need to be qualified. It is possible, for example, for a student to seek help not because they do not know how to solve a problem, but because they lack fluency and proficiency in the language in which the problem has been framed. Rea-Dickins *et al.* (2009) give an example where students were given the following frequency distribution table showing the age group of children in class, and were to use the table to find the number of children below 14 years:

Age	10	11	12	13	14	15
f	3	2	5	4	2	4

The students responded to the task in three different ways, depending on how they interpreted the phrase ‘below 14 years’. The first group of students gave the answer as the sum of all the frequency entries corresponding to each of the ages up to and including age 14 (i.e., $3 + 2 + 5 + 4 + 2 = 16$); the second group gave the answer as the list of all the ages less than age 14 (i.e., 10, 11, 12, 13); while the third group gave the answer as the frequency entry corresponding to age 14 (i.e., 2). When Rea-Dickins *et al.* modified the original task by replacing ‘ f ’ with ‘number of children’ and replacing the word ‘below’ with ‘under’ or ‘younger than’, the accuracy of student responses increased.

If we now relax our earlier assumption of the interchangeability of ‘knowledge’ and ‘understanding’, then we would develop a similar argument, *mutatis mutandis*, regarding Boniface helping Joan understand how to solve the problem. Understanding is a complex process, involving *knowing* how different aspects relate to one another. For example, understanding Pythagoras’ theorem would entail knowing the purpose of the theorem, when it holds, and how it is used. A student who has understood this theorem will be able to apply it in a situation that requires its application.

Morris (1978) describes mathematics as “strange in that it is entirely possible to succeed in mathematics without understanding what one is doing, or why one does what one does.” Depending on students’ views of mathematics, the motivation for seeking help in mathematics can vary from one student to another. Thus, taking

a cue from the poem at the beginning of this section, it can be argued that the following possibilities regarding what Joan was seeking from Boniface are not far-fetched:

- (i) Joan was seeking how to know what she was seeking;
- (ii) Joan was seeking how to understand what she was seeking;
- (iii) Joan was seeking some understanding of how to know better; or
- (iv) Joan was seeking some knowledge of how to understand better.

The next chapter seeks to address these and other possibilities by providing some insights into the dynamics of seeking help in mathematics from the perspective of the research participants.

Chapter 5

Seeking Help that Helps

As students, some of us may have had many experiences of seeking help in mathematics. For example, we may have sought help from the teacher during class time because we were having some difficulties following what the teacher was explaining. It may have been some problems with the homework assignment, and we were seeking help from parents or siblings. We may have had some difficulties understanding some materials that were covered during class time, either because we were absent during the lesson, or because we could not follow what the teacher was doing during the lesson. It may have been some problems we encountered as we were revising for an upcoming examination. Or the motivation for seeking help may have been an intriguing mathematics question that we were interested in solving but could not do so on our own.

Seeking help is an ongoing aspect of schooling. Indeed from our early years of schooling, we were taught how to seek help from the teacher. Inside the classroom, we were expected to seek help by quietly raising our hand and waiting to be called on by the teacher. Outside the classroom, we were taught that it was impolite to interrupt the teacher when the teacher was talking, and that it was polite to precede the description of the object of our need for help with the phrase ‘Excuse me madam’, or ‘Excuse me sir’, or ‘Excuse me teacher’. And so our way of seeking help from the teacher became almost like a ritual.

Perhaps we have never reflected upon what it means to seek help, or what it is that students seek when they seek help. Are there different kinds or forms of help? For example, is there a difference between a teacher’s help and a classmate’s help? Why does a student seek help from this particular person and not any other? What experientially happens when a student seeks help? And what meanings do students ascribe to their lived experiences of seeking help? These are some of the

questions we seek to examine in this chapter by appealing to the lived experiences of the research participants.

5.1 Getting to know the limits of one's competencies

Seeking help in mathematics usually begins with a sense of dissatisfaction with one's inability to attain a desired mathematical goal. Often, the desired goal is a solution to a mathematics problem, in which case help can be sought at various stages of the problem-solving process. Sometimes a student may need help to get started with a task; for example, one participant in this research study said, "*I didn't want her to solve everything; rather, I was seeking for some light.*" Sometimes a student knows how to get started, but somewhere along the way they are stuck; for example, one participant said, "*I knew the answer but somehow I could not get at it.*" At times, students may be seeking a confirmation that what they have done is correct; for example, one participant said, "*I decided not to tell her that I had done it so as not to influence her thinking.*" Sometimes a student may be seeking help with a forgotten mathematical fact; for instance, there was a participant who said, "*I was solving a polynomial equation and had forgotten the factorized form of a difference of two cubes.*"

Not all feelings of dissatisfaction evolve into acts of seeking help. Sometimes a student may try to minimize, deny, or cope with the feeling, but if the feeling persists, it often effects a change in the student's existential and experiential mode of being. There arises a sense of compulsion to strive to reclaim satisfaction. This often evolves into a desire to reach out to the 'other', and attempts are made at finding someone from whom help may be sought. This entails assessing the other's capacity to provide the help that one needs. For example, a participant described her moment of seeking help in mathematics this way:

I knew that my marks would be bad because I did not revise hard enough. But then I was not expecting them to be that bad. So I was kind of surprised when the teacher returned our examination papers. The results were on the noticeboard, and one of those who had done well was my dorm-mate. So I followed her.

The pre-assessment of the other's capacity to help is often dependent on the nature of the relationship and degree of familiarity between oneself and the other. Some participants said that they sought help from a particular student because that student "*is easily approachable*"; "*is easy to understand*"; "*will carefully take you*

through the solution"; "is open"; or "explains cheerfully in such a way that one is not bored." Some participants said that they sought help from a particular student because that student was performing well in mathematics. Other participants said that they sought help from a close friend because they were 'free' with that friend. There were some participants who said that they went to the teacher for help because the teacher "was knowledgeable and experienced." There was a participant who said that their mathematics teacher was not distinguishing between teaching and helping. She said, "Because he is old, I usually don't understand him very well. If I ask him a question, he explains the same way he did in class. So I see no need of going to him to ask for help." Some students, such as the one in the following anecdote, sought help from someone they had gotten to know indirectly through a reliable source:

I have a particular street teacher (private tutor) who has been helping me, because I did my research and found evidence that this teacher had helped very many students who at the end of the day became very good in mathematics.

It seems, then, that one's resonance with the other is a necessary but insufficient condition for an encounter with the other. It is insufficient because sometimes we feel so desirous of helping ourselves that if we were to seek help from the other, we may end up feeling guilty about our apparent failure or shortcoming. For example, Simba described his experience of trying unsuccessfully to derive a proof to a trigonometric identity this way:

There was an identity problem in the textbook that looked very much like the one that the teacher had just proved. I attempted applying the technique that the teacher had used but I wasn't getting it. I would try it, and it would resist. I tried and tried and it kept on resisting, until I finally got tired. I knew that Brian would be able to help because he is usually very good in mathematics, but I really wanted to solve it on my own so that I could understand. Later in the day, I re-tried the problem but it still did not work. So I just gave up and went to Brian.

One of the objectives of deriving a proof is to convince oneself – and perhaps others – that the idea being proved is either true or false, or that it makes sense (conceptual understanding). Students may also construct a proof to convince themselves that they have understood the algorithm for the proof (procedural understanding). Still, some students may derive a proof with the goal of achieving the teacher's approval in the form of a good grade. Whatever Simba's motivation is, he is repeatedly

experiencing difficulties. Although he is persistent, he is finding himself unable to achieve his objective. No strategy or trick is leading to the solution.

Sometimes the awareness of one's inability to proceed occurs when they cease their unsuccessful actions in despair. At other times, it occurs when one's body rebels and refuses to cooperate. When one is actively involved in a mathematics problem, they may not be aware of their thinking body as such; what they may be aware of is the problem they are working on. Being stuck, however, might make them aware of their body. For example, although Simba may not have been always clearly conscious of his body, he eventually felt that his body needed a break.

When one is stuck with a mathematics problem, one may be repeating the same calculation over and over again, with the hope that they will eventually remember how to solve the problem. But although being stuck is "an honourable state and an essential part of improving thinking" (Mason, Burton & Stacey, 1982, p. ix), one has limitations on how long they can keep on trying unsuccessfully. No matter how much they try, the solution may be beyond their reach. Therefore, seeking help is getting to know the limitations of one's competencies.

5.2 Aligning oneself with the other's expectations

In the course of learning mathematics, students often find that they have to meet certain expectations that have been set by such significant others as teachers, post-secondary institutions, professional bodies and employers. In Tanzania, a student's final grade at the end of O-level determines admission to and placement in A-level and middle-level colleges. Bilhah described why she needed help in mathematics this way:

Two months before the final O-level examination, I looked at the syllabus to see the topics I was required to cover, and I saw that I had not covered the topic of Circle. Based on the amount of time remaining before the examination, I did not believe myself that I could read that topic from the textbook and understand it on my own. I knew that reading on my own was good, but then if someone directed me, it would take a shorter time.

Bilhah was in need of help against a background of time limitations and a need to meet the requirements for A-level admission. She therefore said that she was seeking help so that she would be able to 'do' rather than to 'understand' mathematics:

I would have wasted a lot of time if I said I wanted him to teach me to understand. So I told him, "Please teach me so that I can know how to solve questions that often appear in the final examination." So he was teaching me using questions from his private tuition book, and then we would look for and solve similar questions from past examination papers.

Students' perceptions of school mathematics may be influenced by their experience of time. For example, under time constraints, some students may view school mathematics as 'things' to acquire. Time emerged as a dominant theme in the participants' lived experiences. Many participants indicated that they were studying under pressure because of time limitations. Pamela, for example, was very precise about the amount of time she had in A-level. She said, "*Actually it is not 2 years. When you take away the holidays, we only have 1 year and 8 months, and in economics, for example, we have 19 topics to cover within that time.*" For Pamela, seeking help from the other is to demand time specificity from them. Pamela needed someone to discuss some mathematics questions with, so she went to her classmate, Stephanie, in the morning and found her studying geography. Stephanie told Pamela to return later, without specifying exactly when Pamela should return. Pamela went back after lunch, only to find Stephanie sleeping, and she did not want to disturb her. Pamela described her experience of time this way:

This really bothered me, because if she had given me a specific time when I should go back, I would not have wasted my time. By the time I got that help, it was 7 in the evening. I was already feeling disappointed when she was helping me, and I had no strength to ask her any question. I felt like she didn't want to help me. I waited for her to solve the questions and immediately she finished, I just thanked her and went away. My timetable was really affected, because I had many things to do that day, and they kept on waiting.

Stephanie's failure to specify when Pamela should return to get help shattered Pamela's experience of time. Notice how often time features in Pamela's anecdote. She felt that she wasted a lot of time going to see when Stephanie was available. As a result, Pamela did not enjoy receiving help from Stephanie. She said that when Stephanie was helping her, "*there was no connection between me and her.*"

Many research participants described experiences of seeking help with questions from past examination papers because they wanted to master the kind of questions they would encounter in the final examination. A good number of participants

indicated that they would want to pursue a degree course in engineering at the university, and almost all degree courses in engineering require a good final grade in A-level mathematics. For example, to be admitted for the degree of Bachelor of Engineering in either Civil, Computer, Electrical, or Mechanical Engineering at Dar es Salaam Institute of Technology, a student must have obtained at least two principal passes in physics and mathematics (TCU, 2011, pp. 37-38; for details of what a principal pass is, see page 35). Even for those participants who were not intending to pursue a course requiring mathematics, they knew that a good final grade in A-level mathematics would ensure that their mean grade in the principal subjects was satisfactory for them to qualify for university admission. Besides, there are government scholarships for those who have performed well in mathematics. For example, to qualify for the 2011/2012 Algerian Government Undergraduate Scholarships to pursue a bachelors degree in science and technology, a student was required to have scored at least two principal passes in mathematics and physics and at least a subsidiary pass in chemistry (TCU, 2011, p. 20).

Besides wanting to meet the admission requirements for further education, some participants said they sought help in mathematics because of a desire to meet their teachers' expectations in mathematics. One participant said that his mathematics teacher was very scornful of weak students. He said, *"Anytime he returns our examination papers, he will humiliate those who have performed poorly. I therefore try very hard to attain at least 45%, which is his threshold. Whenever a mathematics examination is approaching, I usually work very closely with my friend since he is good in mathematics."* Another participant – Doreen – described her experience of being in need of help this way:

When I was in Standard 5, our mathematics teacher used to give us a weekly test, and anyone who failed to attain at least 50% would be punished. I used to suffer a lot. I thought about it and decided to seek help from my classmate Joram. He used to do very well and he was my friend. So I said to myself, "If I am with this Joram, I can get help."

As was the case with some research participants, Doreen was not in need of help with a particular mathematics question. She was in need of support. She felt inadequate because whenever she sat for an examination, she was unable to meet her teacher's expectations. And so from a state of satisfaction, she had entered a state of dissatisfaction – a loss of satisfaction. Anxiety about the implications of this state of dissatisfaction had taken the place of 'ease'. And she was wondering, *"Is there anything wrong with me? What can I do to understand mathematics like*

my classmates?" This indulgence in self-searching shattered the unity of her self-awareness. She said she used to suffer a lot – both physically and psychologically. For her, mathematics had become an enemy that had proved difficult to subdue. There was uncertainty regarding whether she would ever be able to master mathematics like others. At times she was wishing that she had Joram's brain, leading to a recognition of Joram's capacity to help her.

It is one thing for a student such as Doreen to be dissatisfied because she is suffering the consequences of not meeting the teacher's expectations. It is quite another for a student to be dissatisfied because of an overpowering desire to make sense of a mathematical concept regardless of its implications on an assessment outcome. Yet these two experiences have something in common; namely, the impossibility of the student changing the present state of affairs on their own. It is precisely this sense of impossibility that drives many students to reach out to the other for help. Therefore, to seek help is to recognize – at least implicitly – that one's current competencies are incommensurate with the demands of the task at hand, and to be dissatisfied with this imbalance. Seeking help is also a recognition that the person from whom help is to be sought has the capacity to meet the demands of the task at hand.

Seeking help is something between oneself and the other. The seeking intention goes unto the other. "This other is not an inanimate thing, nor is it one-self; it is a (non-ego) body other than one-self" (McHugh, p. 129). This other may be a classmate, a friend, a teacher, a tutor, or a relative. One goes to the other because one is dissatisfied; because one's perception of satisfaction or contentment has been put into question. By going to the other, one is now dependent on the other's know-how and their perception of one's problem. As such, the other enjoys a privilege with respect to the object of one's need for help. According to Leene & Schuyt (2008), there is a close link between the phenomenon of help and that of power:

Both the possessor of power and the provider of help are at an advantage, as they have access to resources that are less accessible to others. ... Both power and helping presume inequality. Neither power nor helping is possible within a relationship in which ego and alter occupy the same position (p. 45).

Seeking help is an admission of one's need for the other. To obtain the help that one needs from the other, one must be willing to reveal the object of their need for help to the other, and to accord the other at least a limited right to tell them what to do or to do things for them (Keith-Lucas, 1972, p. 20). This means that if one wants to be helped, one's freedom is, to some degree, curtailed. Thus, seeking help is

tantamount to surrendering one's control. The next section describes the process of seeking a relationship with the other when one is in need of help with a mathematics problem.

5.3 Sensitivity to the subtleties of one's sensibilities

The participants' experiential accounts revealed some of the ways in which language use defines and reinforces the relationship between the help-seeker, on the one hand, and the person from whom help is being sought, on the other. The following anecdote from one of the research participants illustrates one way of initiating contact with a potential helper when a student is in need of help:

I approached her and said "How are you doing Loise?" And she flatly said "Fine." From her facial expression, I could tell that she wasn't too happy. So I decided to defer asking her for help. Later that afternoon, I approached her a second time and her response was still cold.

Prior to asking for help from the other, one usually proposes oneself as an object for a relationship with the other. This detour, which may serve to mitigate the effects of one's intended intrusion into the realm of the other's life-world, is often achieved through a polite attention-getter – 'I am sorry for bothering you' or 'Excuse me'. It may also be achieved through a casual greeting – 'How are you?' or 'Good morning sir'. At times it may be achieved through an interrogative request – 'Can I take a minute of your time?' During the classroom time, it may be achieved through raising one's hand and waiting to be called on.

The other's response to one's initial endeavours can serve as an indicator of the other's openness to the envisaged relationship. For example, a neutral 'I-am-fine' response to a 'How-are-you?' may not be as indicative of a welcome as an expanded 'I-am-fine-thanks-and-how-are-you?' response. Likewise, the quality of the other's attention to one's introductory 'Excuse me' may provide or deny an entry point for the presentation of the object of one's need for help. But once an open and receptive individual is identified, there is an encounter between one person who is in need and seeks help and another person who promises to be able to offer that help. Therefore, helping occurs at the intersection of two life-worlds, and if we can gain some insight into this intersection, we can possibly understand why teaching is, or ought to be, a helping profession.

5.3.1 Seeking the teacher's help

The participants' experiential accounts highlighted a distinction between how help is sought from a teacher, on the one hand, and how it is sought from a student, on the other. The following conversation is reconstructed from the transcription of the interview with one research participant (Rukia). The conversation illustrates how some students sought help from the teacher. In the conversation, Rukia is in the company of her classmate, Fatuma, seeking help from their mathematics teacher (Teacher1). They had gone through a past examination paper, solving all the questions they could, and identifying those that they could not solve on their own. In total, they were unable to solve five questions, and so they decided to go to Teacher1 to ask for help. Teacher1 was in the staff room, which is about half-a-minute walk from Rukia's classroom.

Rukia was normally fearful of going to Teacher1 to seek help. She expressed concern that seeking help from the teacher would be seen as a bother, which in turn would reflect badly on her ability. She said "*If I go to him, I don't know how he will perceive me. He may take me badly. He may think I am disturbing him.*" As is oftentimes reported in the literature on seeking help in academic settings (e.g., Butler, 1998; Karabenick & Newman, 2006; Nadler, 1983), it appears that the struggle for Rukia was to allow the teacher to be 'there' for her, because to her, this was tantamount to exposing her vulnerability, at least to herself, and in so doing acknowledging a need, a realization that something was missing in her mathematics life-world. Owing to this internal struggle in Rukia, Fatuma used to go to Teacher1 alone, and upon returning, she would explain to Rukia whatever the teacher explained to Fatuma. However, on the occasion described in the conversation below, Fatuma had managed to coax Rukia into accompanying her to Teacher1. She said to Rukia "*Sasa woga ni wa nini bwana? Twende pamoja!*" (Now what is the fear for my friend? Let us go together!) Fatuma used the word *bwana* as a politeness strategy to convince Rukia to accompany her. The literal meaning of the word *bwana* in Kiswahili is husband, boss, master, sir, mister, or lord. Among friends, however, *bwana* is used as a marker of solidarity, and it can be used to address a male or a female friend.

After Fatuma had managed to convince Rukia, they both headed to the staff room and found Teacher1 marking examination papers.

Fatuma: *Shikamoo Mwalimu.*

Shikamoo teacher.

Teacher1: *Marahaba, mnasemaje?*

Marahaba, what do you say?

Fatuma: *Hatujambo Mwalimu. Samahani Mwalimu, tuna maswali. Tulikuwa tunaomba utusaidie.* We have no issue, teacher. Excuse me teacher, we have some questions. We were intending to request you to help us.

Teacher1: *Maswali gani? Hebu niyaone.* What questions? Let me see them.

Teacher1 looks at the questions, puts the paper he was marking aside, and begins to help Fatuma and Rukia. After solving the second question, he looks at his watch and then points at another teacher (Teacher2), who is seated at the other end of the staff room.

Teacher1: *Mengine kamfuata yule pale; naenda darasani nina kipindi.* The rest go and see that one. I am going to class I have a lesson.

As Fatuma and Rukia head towards Teacher2, Fatuma glances at Rukia with those 'it's-your-turn-to-speak' eyes.

Rukia: *Shikamoo Mwalimu.* *Shikamoo* teacher.

Teacher2: *Marahaba. Semeni kilichowaleta hapa.* *Marahaba.* Say what has brought you here.

Rukia: *Mwalimu tuna maswali matatu hapa. Tunaomba utusaidie.* Teacher we have three questions here. We are requesting you to help us.

Teacher2: *Nyie mmetoka pale sasa mkaja hapa! Mimi nina kazi.* You have moved from there and now you are here! I am busy.

Fatuma: *Hamna Mwalimu. Yule anaenda kwenye kipindi. Tusaidie tafadhali.* Not really, teacher. That one is going to class. Please help us.

Teacher2: *Ninyi njooni baadaye.* You come later.

The first thing Fatuma does when she and Rukia meet Teacher1 is to greet the teacher, “*Shikamoo Mwalimu*” (*Shikamoo* teacher). *Shikamoo* is a concatenation of two Kiswahili words; *shika*, meaning ‘hold’ or ‘clasp’, and *moo*, which is a form of *mguu*, meaning ‘a leg’. Thus *Shikamoo* literally translates as ‘clasp the leg’, and when addressed to someone else, it literally means “I clasp your leg” (Abdurahman, 1939, p. 76). The origin of the word *Shikamoo* is disputed. Gibbons (1936) gives two possibilities of its origin. The first is that it was introduced during the slave trade by the Arabs. As a sign of abject submission, the slaves were to address their master “*Shikamoo*,” and to acknowledge the respect, the master would retort “*Marahaba*,” which is an Arabic word meaning “well” (Abdurahman, 1939). Gibbons, however, notes that a very careful investigation and questioning of a large number of Africans failed to betray any sign of derogatory feeling about the term.

The second possibility, according to Gibbons, is that *Shikamoo* originated in the small child learning to walk holding on to their father’s legs to steady and support

themselves. In contemporary Tanzania, *Shikamoo* is a respectful greeting addressed to all persons older or of higher status than the speaker. The manner of opening conversations is such an important discourse function in Tanzania that from a very early age, children “are taught the art of greeting, and they are reprimanded if they do not perform this function appropriately” (Omar, 1991, p. 13). When one meets someone who is older than them, one has to greet them “*Shikamoo*.” If instead of “*Shikamoo*” one greets an elder person with, say, “*U hali gani?*” (How are you?), then one is considered to have ‘no good manners’.

According to the participants, teachers who want to cut you short when you greet them “*Shikamoo*” will simply respond narrowly “*Marahaba*,” otherwise if they are welcoming, they will go beyond “*Marahaba*” and probe into your welfare by saying things like *Hujambo?* (You have no issue?), *Wasemaje?* (What do you say?), or *Habari za masomo?* (What are the news of your studies?) But even before the ritualized inquiry after the student’s well-being, the teacher always already has expectations and anticipations of how the student will respond – things to the effect that all is well (note, for example, that in response to Teacher1’s inquiry, Fatuma told the teacher that they had no issue when, in fact, they had an issue). Nonetheless, it is precisely in this probing at the initial encounter that the mystery of their separateness and their uniqueness comes to the fore (cf. Meerloo, 1966, p. 256).

The teacher’s manner of response to “*Shikamoo*” may display a certain stance towards the student who is seeking help. For example, the use of the phrase “*Marahaba, what do you say?*” by Teacher1 made Rukia feel drawn towards the teacher. This experience of feeling welcomed by Teacher1 dissolved Rukia’s sense of culpability towards her needfulness in the eyes of Teacher1. She said that Teacher1 made her feel at home. According to her, were it not that Teacher1 had to go to class, he would have solved all the questions that Rukia and Fatuma had taken to him. What emerged from Rukia’s lived experience description is that Teacher1 solved the two questions completely, thereby *leaping in* for Rukia and Fatuma (Heidegger, 1927/1962). This is perhaps because Teacher1 was time-constrained. Therefore, finding the teacher’s help depends not just on the teacher’s willingness to be there for the student, but also on the teacher’s ability to be there.

The use of the phrase “*Marahaba, say what has brought you here*” by Teacher2 made Rukia experience Teacher2 as harsh, confirming her preconception about Teacher2. According to Rukia, they went to Teacher2 just because they had to obey Teacher1, otherwise they would not have gone to him. She said, “*It was about obedience. It was not about seeking help. There is no way we could have told Teacher1*

that we do not want to go to Teacher2." When Fatuma noticed that Rukia was confused on what to say after Teacher2 had declined to help them, she intervened and tried to plead with Teacher2.

In their greetings to both Teacher1 and Teacher2, Rukia and Fatuma used the title '*Mwalimu*' (teacher), a very respectful title. Suffice it to mention here that throughout his political career, the first president of Tanzania, the late Julius Nyerere, used to be addressed as Mwalimu Julius Nyerere. He acquired the title *Mwalimu* during his career as a secondary school teacher. Another title that students used while addressing the teacher is 'sir' if the teacher was a male and 'madam' if the teacher was a female.

Fatuma also preceded her request for help by excusing herself, and by using hedging, probably to weaken the performative character of her intention. Instead of saying "*Tunaomba utusaidie*" (We are requesting you to help us), she said "*Tulikwa tunaomba utusaidie*" (We were intending to request you to help us). The latter appears to treat the request for help as a favour rather than an entitlement.

In seeking help from the teacher, the power relations are emphasized in the greetings and in the formality of addressing the teacher. However, if the teacher relaxes the formality of the encounter, the student's strategy may change accordingly. For example, as they were being helped by Teacher1, Fatuma discerned *utani* (jest) in the teacher's tone and so at one point in the conversation, she asked the teacher, "*Mwalimu mbona hapa sijaelewa?*" (Teacher how come I have not understood at this point?) By taking this stance Fatuma seems to be suggesting, albeit subtly, that she is justified to be having trouble with that particular part of the solution because the teacher did not give a clear explanation. She seems to be suggesting that she is entitled to receiving clear explanations from her teacher. This stance casts the teacher as friendly and informal, contrasting sharply with Fatuma's stance earlier on, which seems to suggest that Fatuma's inability to understand was as a result of her own limitations rather than the teacher's failure.

In summary, the significance of seeking help from the teacher is accentuated by the separation between the student and the teacher in terms of perceived expertise, social status, power relations, age difference and situational contexts. By the nature of their situation as students, the students are normally unable to experience the teacher's side in the same way that the teacher is able to experience the student's side. In other words, the teacher's vantage point is unavailable to the students. Normally, students have to seek help from the teacher at a mutually agreed upon time. The teacher-student helping relationship is one in which the teacher guides

the student through a landscape upon which the teacher is enjoying a privileged perspective. For a student, it is a 'big deal' when a teacher is unable to solve a problem, especially when that problem is from a past examination paper. When they seek help from the teacher, students expect that their problem will be solved by the teacher, because the teacher has more years of formal education in mathematics. The *mwali*mu-referencing practice and the formal greetings used by Rukia and Fatuma imply a non-close relationship in which the teacher has a higher status. The students have to mind their language when they seek help from the teacher. The teacher's help, it appears, is outside the normal run of student life. For a student, *seeking* help from the teacher means *seeing* the *king*, the help king. How is this helping encounter different from or similar to a student-student helping encounter?

5.3.2 Seeking a student's help

As Winnie is going through her marked examination paper, she gets to a question where she has only earned partial marks. She decides to check with her classmate, Irene, why she did not get all the marks. Irene sits three rows ahead of Winnie. So Winnie rises and goes over to Irene:

Winnie: <i>Samahani Irene.</i>	Excuse me Irene.
<i>Irene sits up and turns to look at Winnie.</i>	
Irene: <i>Sema</i>	Say
Winnie: <i>Mambo vipi?</i>	How are the issues?
Irene: <i>Safi. Vipi hali?</i>	Clean. How is (your) state?
Winnie: <i>Bomba. Za saa hizi?</i>	'Awesome.' (News) of this time?
Irene: <i>Poa tu</i>	Just cool

The conversation begins with Winnie excusing herself, after which a lengthy exchange of informal greetings ensues. The greetings are informal in the sense that the words used are derived from what one would regard as 'street language'. For example, the word *bomba* in Kiswahili means a water pipe, which would definitely be nonsensical in the context of greetings, yet the teens have appropriated it to mean something close to what the youth in the West would regard as 'awesome'.

After the greetings, Winnie spreads her answer booklet on top of Irene's desk and points to the question that she has been partially marked wrong:

Winnie: <i>Hapa nilitakiwa nifanyeje?</i>	What was I expected to do here?
Irene: <i>Hii ilikuwa rahisi, ulikuwa ufanye hivi. Niandike hapa?</i>	This was easy, you were supposed to have done this. Can I write here?
Winnie: <i>Endelea</i>	Go ahead.

Irene uses her pen to write the solution on the margin of Winnie's exam paper.

Winnie: *Wee mnoma!*

You are tough!

Irene: *Hamna*

No way

Winnie: *Nashukuru*

I'm thankful

Irene: *Haya basi, karibu tena.*

Okay then, welcome again.

As illustrated in the above conversation, when a student is seeking help from another student, the speaking is spontaneous and informal; the correspondence is casual and light-hearted. Winnie found it strange when the researcher asked her whose pen was used when Irene was helping her. She said, "*I did not think about it. But she was holding her pen already, and I think it would have been absurd for her to put it down and ask for mine. We don't do that. So she must have used hers.*" But even more strange to Winnie was when the researcher asked her how she thought of Irene as she was receiving help from her. She said:

I don't really understand your question. In this class, we are so used to each other that issues of how I think of her or how she thinks of me do not arise at all. There is a question I'll find difficult and she will find it easy, and there is a question she will find difficult and I'll find it easy. It is that simple. I mean, it's all about helping one another. Everybody understands that very well.

According to the research participants, seeking help from another student is usually not distinct from the normal run of everyday student interactions. When a student is seeking help from another student, sometimes there are no greetings at all. For example, one participant described her experience this way:

I wasn't sure what the derivative of $\sin x$ is. My friend sits one row ahead of me. So I tapped her back with a pen and when she turned, I said: "Hey! Derivative of $\sin x$. Is it $\cos x$ or negative $\cos x$?" and she replied " $\cos x$, changamka bwana!" (cheer up friend!)

Some participants said that seeking help from another student is easier than seeking help from the teacher. One participant said, "*It is not a big thing to ask for help from a friend.*" Another participant said, "*When I am seeking help from my fellow student, I do not rehearse beforehand what it is I have to say.*" There are no 'appropriate times' to ask for help from another student; you simply ask for help when you need it. However, the amount of help being sought from another student may at times determine the help-seeker's level of perceived indebtedness to the potential helper. In fact, if the amount of help is considered by the help-seeker to be substantial, the help-seeker's experience of seeking help can be characterized

by ambivalence and uncertainty. One female participant described the dilemma she went through as she was choosing on whether or not to seek help from her male classmate:

Before this time, I had on several occasions sought help from him on common mathematics questions. But this time I was asking him to direct me a whole topic. And so I thought, "Maybe if I ask him to help me, he will come back later with his own issues of saying we be friends." But then I said "Away with this thought! If he brings in other issues later, I will know how to deal with them. All I need is help for now. Even he himself has come to me to ask for help."

Being in need can be overwhelming, especially when time seems to be against us, in which case making a decision to seek help may mean having to reconcile two opposing demands. In other words, when one decides to seek help, one may have to cut off one side in favour of the other.

Apart from the face-to-face contacts, there were other means of seeking help among high school students, which had been made possible by the availability of mobile telephones. Winnie described how they used text-messaging with her classmates to seek help from each other. As shown in the following anecdote, the correspondence was highly abbreviated:

During the recent holiday, my friend texted me saying: "Hi! Can u do that qn 4 me: By using trial method, integrate $\cos^5 x \sin x dx$." When I looked at the method she was asking me to use, it was something I had never come across before. So I texted her back: "What's trial method? What r we supposed 2 do? I can use diferent method 2 obtain soln" But she replied insisting "Other methods no good. Only trial method's good!" Then I texted her: "Plz direct me." And she texted back "In da bk where I've obtained that qn, there's related qn: Using trial method, integrate $2^{-x} dx$. If u can solve this 1, then u shud b able 2 solve da other!" It was like she didn't understand that I didn't understand what the trial method was. We were both Tigo subscribers, and during that time there was a Tigo promotion whereby upon buying a voucher, you got free minutes to call within the network. I had 3 free minutes and decided to call her.

Winnie often found it difficult to study at home because of interruptions – noise from her other siblings, household chores, errands and routine visits from her friends and those of her family. However, whenever she received a text message from a friend seeking help with a mathematics problem, she normally found herself drawn to the problem, not just because of the ethical obligation that her friend demanded

of Winnie, but also because of a certain compulsiveness that seems to go with text-messaging among the teens. Mobile phones, it appears, introduced a sense of immediacy in the dynamics of seeking and giving help among the research participants.

As they used electronically-mediated communication, students learnt to be precise in a bid to save on cost. There was a maximum number of characters for a single text message. If one exceeded those characters, one was considered to have sent two or three messages. This necessitated the development of a shorthand language: 'u' stood for 'you', 'qn' for question, 'soln' for solution, 'btwn' for 'between', and so on. Whoever inaugurated the call was charged for the time spent talking on the phone, and this rate was charged per second. As such, every second counted. The caller was always conscious of time, and this forced them to be brief.

In Winnie's high school, students were not allowed to take mobile phones with them, and those who were caught violating this rule usually had their phones confiscated. Although Winnie was a day-scholar, some of her classmates were boarders. Without a mobile phone, these boarders were normally left out of the conversations that went on in the evenings or over the weekend amongst day-scholars.

When a student is seeking help from another student, how the problem for which help is being sought will be solved is an open question that neither the help-seeker nor the person who has promised to help can fully answer in the first stages of their encounter. Normally, there are no surprises when the student who had promised to help is unable to help. Nevertheless, delight in success and frustration at failure play major roles as sources of distinction between being able or being unable to help. One participant described what she noticed with the student from whom she was seeking help once the solution was found:

When he finally solved the problem, he looked relaxed. We were both very happy to have arrived at the solution. The struggles and frustrations that we had encountered were all forgotten.

Both the help-seeker and the helper experience delight when the solution to the problem for which help was being sought is arrived at. Delight is normally brought about by the arrival at the solution rather than the process leading to the solution. If anything, the process is often experienced as painstakingly difficult, and the only motivation for going through this process is arriving at the desired solution. The help-seeker shares in the delight in success because they were part of the process of finding the solution; they were not passive observers. In fact, some research participants reported instances where they had gone to seek help and then somewhere

along the process of finding the solution, the person who had promised to help got stuck, and then the help-seeker intervened and managed to get the solution. This is, of course, expected since there is no specialized knowledge possessed by a student-helper. One participant described mathematics problems as “*certain tricks. It all depends on who is lucky to discover the trick first.*”

5.4 Sensitivity to the subtleties of the other's language

Seeking help may at times make the help-seeker feel exposed and vulnerable to scrutiny by others and to the judgments others might make of the help-seeker (Butler, 1998). The help-seeker may thus be extra-sensitive to any tacit messages from others that would seem to suggest that the help-seeker is seeking help because of a personal weakness. One participant described an experience where he perceived his classmate was sneering at him as he was seeking help. The students in this participant's classroom used to write on the chalkboard any mathematics problem they encountered, and then they would discuss it together. If there was no one in the classroom who could solve the problem, then each one of them would take the responsibility of seeking for the solution from whatever source. This participant said:

During my first days in Form 5, I was a great contributor of mathematics questions on the chalkboard. There were some students who had received private tuition in mathematics, and whatever question I put forward, one of them would always solve it. One day, I walked to the chalkboard and wrote a question. Just as I was returning to my seat, I caught one student wearing a derisive smile on his face. I thought that he felt that the question was too easy, but it is only because he had received private tuition. I felt sweat trickling down my back. I began to feel like I didn't understand mathematics; like I was a real fool. This made me vow that I would put in more effort to show him that I too could understand mathematics. It was an unofficially declared competition.

As a result of being sneered at by his classmate, this participant began to feel as though he were a fool, essentially seeing himself the way he perceived his classmate was seeing him. This discouraged him to the point of disengaging from cooperative learning inside the classroom. He says he used to be a great contributor of mathematics questions on the chalkboard, meaning that he is no longer a great contributor. Instead of engaging in cooperative learning, he began to engage in competition.

Students can also be discouraged by perceived insensitivity of their teachers to the students' affective well-being. For example, Nick described his mathematics teacher as very competent in mathematical content area, on the one hand, but very derisive of students who exhibited difficulties understanding what the teacher was teaching, on the other. The teacher's inability to empathize with students who did not see things the way the teacher did discouraged Nick from engaging in the mathematical discourse inside the classroom. This is what Nick said about his teacher:

I normally don't ask him, because if you ask him a question when he is teaching, he will first look at what you are asking, and if he views it with disdain and feel that what you are asking is something that is not supposed to be asked, he will pose, give you a long gaze, and without uttering a word, continue with what he was doing. He will just dismiss you like that. Or he might tell you "Just stay like that," and then he continues. He will only attend to what you are asking when he himself feels that what you are asking is weighty. And so it is not on the basis of my capability but on his capability that he determines what deserves clarification. That kind of disdain is a stumbling block for me.

Questioning keeps us on the right path. Without questioning, we are at the mercy of chance, which means that there is "an absence of the objective of our lives as a whole" (Hogenová, 2011, p. 75). Students' classroom questions can mediate the students' understanding of the teacher. They can also reveal to teachers the students' interests and thus inform teachers' intervention planning. But what is it like for a student to be ignored by the teacher when the student politely asks a genuine question? In the above anecdote, the teacher's frowning countenance towards students who ask 'easy' questions has inhibited Nick's freedom to ask questions inside the classroom. It seems that in Nick's classroom, to ask an easy question is to be exposed as ineffectual. Nick seems to be interpreting the teacher's gaze as saying something like, "Come on! How can you ask such a trivial question? Be serious, for heaven's sake!" To avoid being humiliated on grounds of stupidity, Nick resolves not to ask the teacher any questions at all. But mathematics learning is a social process (Lerman, 2000), in which interpersonal communication and negotiation of meaning are expected during the teaching-learning process. The teacher's role in this social process is to create environments and possibilities for learning to take place. The teacher's helpfulness derives from their being able to be there when the student is in need of help. To be there for the student is to be in tune with the student; to be on the student's wavelength; to be sensitive to the student's situatedness and feelings. Otherwise, lack of teacher's empathy towards students may inhibit the

students' learning process.

Seeking help from the teacher is sometimes compounded by the attendant linguistic demands. Tanzania's language-in-education policy stipulates that Kiswahili shall be used as the medium of instruction throughout the primary school years, after which the medium of instruction switches to English (URT, 1995). When students transition from primary to secondary schools, they are expected to communicate using English. In many secondary schools, there are notices on office doors saying 'Speak English Only!' and 'No English, No Service!' In schools where this linguistic restriction is enforced, some students experience difficulties expressing themselves adequately during help-seeking. One participant shared a moment in which he sought help from the teacher, only to be punished for inadvertently violating the politeness maxim:

In the beginning, our school was very strict about speaking in English. Being the first time in my life, it was difficult for me to ask the teacher a question. I knew I would face the problem of shame because I would make mistakes. I remember this day when I was in Form 2. I had a question I wanted to ask the teacher. When I entered the staff room, I said to her, "Good afternoon madam" and she replied "Good afternoon Zakayo." Then I directed my exercise book to her and said "Excuse me madam, I want you to solve this mathematics question." She immediately became angry and said, "Na kweli hamna adabu ninyi wanafunzi (You really have no manners you students). You want me to solve this mathematics question!" She thought I was disrespectful but it was just because of my limitations in English. I had rehearsed what to say and I thought that was good English. From that incident, I never sought help from her again.

When we use language to communicate, our hope is that the other will see with us what we are pointing out (Heidegger, 1927/1962, p. 197). The other's response to our inadvertent miscommunication may leave us feeling discouraged and guilty. If we end up blaming ourselves for the breakdown in communication, we may not be inclined to initiate a conversation with the other in the future. Some students may avoid seeking help from the teacher because they feel inadequate to explain their problem to the teacher. Many research participants reported that they were more comfortable using Kiswahili rather than English when seeking help from the teacher. One participant from a private school – where there was more emphasis for students to speak in English – reported that when seeking help from her teacher, she used to speak in Kiswahili when the teacher was alone, otherwise if there were other teachers nearby, she would struggle to use English. This, according to the partici-

pant, is because she knew that on the one hand, their teacher did not want to be seen as the one encouraging the students to break the rules, but on the other hand, “*the teacher does not mind what language we use provided we are comfortable when expressing ourselves.*” Although the teacher may be trained and knowledgeable, what enables the teacher to engage with the student and the student to engage with the teacher is the teacher’s ordinary humanity, intuition and capacity to empathize with the student’s feelings. Without these, the teacher becomes a machine, a highly sophisticated, technologically marvellous machine maybe, but without the necessary ordinary human sensitivity that enables the teacher to fine tune or even grossly modify their practice to the needs of the student (Ashley, 2003, p. 329). Being ordinary, according to Ashley, means using ordinary, everyday language and generally behaving as though one belongs to the human race (p. 330).

5.5 Chapter summary and implications

This chapter has described the phenomenon of seeking help in mathematics from the perspective of the research participants. The findings of this chapter have to a great extent confirmed Nelson-Le Gall’s (1981) model of effective help-seeking. In summary, seeking help in mathematics is an intentional interaction and goal-directed behaviour that flows from one person, who is dissatisfied with his or her inability to attain a desired mathematical goal, to another person who is perceived by the dissatisfied person to have the means towards the achievement of the desired goal. Once the dissatisfied person makes a decision to seek help, he or she becomes a help-seeker, and the person who is the target of this seeking intention becomes a potential helper. An invitation into the life-world of the help-seeker is then advanced to the potential helper by the help-seeker, and if the potential helper agrees to the help-seeker’s invitation, the result is an intersection of two life-worlds. Depending on what happens in this intersection, the help-seeker’s state may change to a helped and, hence, satisfied state, in which case the potential helper becomes a helper. Alternatively, the help-seeker’s state may remain the same. The satisfied state is characterized by delight in the achievement of the originally desired goal. Therefore, to seek help in mathematics is to seek change in one’s existential mode of being in the mathematics life-world, and to exhibit responsive openness to not only that which is being sought but also to the one from whom help is being sought. For the research participants, seeking help in mathematics also meant aligning oneself with the Other’s expectations.

As noted in Section 4.4, some seeking may lack epistemological significance, either because the help-seeker does not know what they are seeking or because the help-seeker does not know how to seek. Nevertheless, a helper's foresight could remedy either of the situation. It is my view that this is what distinguishes a professional helper from an informal helper; namely, the ability to transform a help-seeking moment into a pedagogical moment. By virtue of their specialized knowledge and skills, teachers can envision the possibilities that a particular help-seeking moment holds for the help-seeker. Analysis of the participants' experiential accounts suggests that Tanzanian students often seek help from informal sources. Only a few research participants (six out of twenty-four) recalled a moment of seeking help from the teacher; the rest either recalled a moment with a private tutor or with another student. Although comparison of the frequencies of student-teacher versus student-student helping encounters was not one of the objectives of this study, the research participants were guided towards describing a memorable or an outstanding moment of seeking help in mathematics. Since the teachers are endowed with both content and pedagogical content knowledge in the area of mathematics, one would have expected more research participants to describe a moment they sought and received help from the teacher.

One of the reasons that could account for the small number of research participants recalling a moment of seeking help from the teacher is that, generally, there was a sense of dissatisfaction among the research participants with the teachers' commitment to their professional duties. Although this issue will be discussed at length in the next chapter, it is important to re-emphasize that a student's resonance with the teacher is a necessary condition for the student to seek help from the teacher. In other words, the teacher's empathic attunement to students' affective and cognitive states will determine how potentially helpful the teacher is to the students. When students are seeking help in mathematics, they are seeking change in their mathematics life-world. As such, they are seeking for someone who would create opportunities for them to experience change; someone who is open and receptive. Some research participants indicated that they sought help from a particular person because they were free with that person. Others sought help from a particular person because that person was easily approachable, was easy to understand, or was explaining cheerfully and with dedication. In Section 5.4, there was a participant who said that he does not ask the teacher any question when the teacher is teaching, because of the teacher's disposition towards students' questions. A teacher's positive disposition towards his or her students can motivate students

to seek help from the teacher and thereby enhance the students' achievement and overall learning experiences.

The most important thing for seeking is lingering in self-surrender (Hogenová, 2011, p. 78). Seeking help in mathematics is only present where there is the big question – the 'why' question. Unfortunately, very little of this was evident in the participants' experiential accounts. What dominated the participants' experiential descriptions of seeking help were utilitarian questions: questions from past examination papers, which were aimed at enhancing a help-seeker's chance of succeeding in the examination. We can only speculate that students are not compelled to seek the 'why' questions, meaning that the students are trapped in a horizon that does not rouse questioning. The students seem to be fine where they are since they are not missing anything. To be sure, we know that we are missing something only if something is missing in the context of the phenomena of things around us. To enter a new horizon of seeking, students need to experience a disturbance in the certainty in which they live (Hogenová, 2011, p. 77). They need to be guided on how and what to seek. In seeking, emphasis should be on questions that make a difference in the help-seeker; namely, questions that lead to conceptual understanding, for if mathematics is to be taught as a way of thinking, then conceptual understanding should take priority over knowing or being informed. If students have mastered all the questions in the past examination papers, those students are by no means thinkers. If anything, they are a pool of superficial information which anyone can find in the archives; they are in essence technicians (pp. 77-78). Therefore, the principal task of mathematics teachers should be to awaken the students to 'good' seeking. This would entail provision of suitable environment and opportunities for students' participation in questioning and critical thinking during a mathematics lesson. It would also entail promoting good teacher-student relationship and cooperative learning, scaffolding students' mathematical reasoning, and valuing every student's participation in the classroom discourse. This would undoubtedly enable students become inquiring and reflective learners.

Another possible reason for the students' preference for their peers as helpers could be the number of students a mathematics teacher is responsible for. As noted in Section 3.3.1, one of the challenges to nurturing personalized teacher-student relationships in the classroom is large class sizes. The teacher-to-students ratio in many Tanzanian high schools is high, making it difficult for the teacher to address individual student needs effectively. There is a need, then, for the government to invest more resources in public education so that teachers can work with manageable

class sizes. Moreover, there is a need to ensure that students are not feeling overwhelmed by time. If teachers were to strictly adhere to the recommended instructional time guidelines, then students would begin to enjoy learning mathematics, which would ultimately lead to conceptual understanding of mathematics. Again, this point will become clearer once the content of the next chapter is taken into consideration.

In *Phenomenology of Perception*, Merleau-Ponty (1945/2002) argues that in order for one to understand the words of the other, one must necessarily know the other's vocabulary and syntax. Merleau-Ponty continues: "But that does not mean that words do their work by arousing in me 'representations' associated with them, and which in aggregate eventually reproduce in me the original 'representation' of the speaker" (p. 213). Merleau-Ponty is right on. When students lack fluency and proficiency in the language of seeking and receiving help, they are particularly disadvantaged with respect to their ability to express themselves orally when seeking help, to listen with understanding, and to develop conceptual understanding of mathematics. A student's perceived inability to communicate using the authorized language often brings with it feelings of shame, fear or humiliation. Research studies have shown that Tanzanian teachers in post-primary institutions often switch to Kiswahili to clarify a point to students, most of whom have difficulty following what is taught in English (see, for instance, Halai & Karuku, 2013 and the references therein). Brock-Utne (2004) has very convincingly argued that using Kiswahili as the medium of instruction in Tanzanian secondary schools would be more effective in achieving the learning objectives of most subject areas (including mathematics). Citing other researchers, she demonstrates how the use of Kiswahili in teaching secondary school students the basics of mathematics can help the students better understand mathematics than when the content is taught using English. I want to extend Brock-Utne's argument here and say that restricting students to using a language they are not proficient in when seeking help may discourage them from seeking help from the teacher for fear of 'losing face' with the teacher. This was the case with the participant we encountered in Section 5.4, who made a decision not to seek help from the teacher because of being punished for inadvertently miscommunicating his help-seeking intention. As Ashley (2003) succinctly points out, "[i]t is not the rules that are important, but what the rules are designed to facilitate" (p. 330).

Finally, there is a need to encourage positive student-to-student helping relationships. As evidenced from the experiential accounts of the research participants,

these student-to-student helping relationships can provide opportunities for students to consolidate their own understanding, as well as to improve their interpersonal, communication and problem-solving skills. There is a need to create a classroom environment in which students are cooperating rather than competing. In Section 5.4, we encountered a student who resolved to engage in competition after perceiving that he was being sneered at by his colleague on account of his seeking help. If all students could appreciate the value of seeking help, then the students' fears of seeking help as well as the boundaries between students would dissolve. This way, a student would be free to seek help from any other student in their classroom. This is a sure way of mitigating the challenge of large class sizes. One way of enhancing the existing student-to-student helping relationships is to provide group-based assignments, with the teacher's role being that of ensuring that the questions in the assignments are promoting critical thinking and creative reasoning. As they work on these well-thought-out questions, the students would undoubtedly begin to seek the help that helps.

Chapter 6

On Giving, Gifting and Exchanging

In Jacques Derrida's *Given Time* (1992), a distinction is drawn between an exchange and a gift. According to Derrida, an exchange is conditional on receiving something in return, while a gift is freely given with no expectation of anything in return. One of the emergent questions from this research study is whether a mathematics lesson is an exchange or a gift. Based on Derrida's analysis of gifting, it can be argued, on the one hand, that no gift actually takes place when a teacher gives a lesson to a student, because the teacher gives a lesson in expectation of something in return – at the very least, the teacher gives a lesson with an expectation that the student will give attention to what the teacher is giving in the lesson (Derrida, 1992, p. 11). But on the other hand, it can be argued that a mathematics lesson is a gift in so far as the given may be something that was unpremeditated. For example, during the course of the lesson, teachers almost always convey things that they did not intend and, thus, this fits the notion of a gift as described by Derrida. This chapter draws from the participants' experiential accounts to demonstrate how a mathematics lesson may come to be seen by students as an 'exchange' rather than a 'gift', and how this perception can alter the pedagogic relation between the teacher and the students.

As Spiegelberg (1964) pointed out, no experience is sharply circumscribed by precise contours (p. 327). In other words, the experiences we encounter in the world are never encountered in isolation. As such, in the course of researching a particular phenomenon, the researcher will inevitably encounter other related – and at times unrelated – phenomena. Although the intent of this study was to explore and describe the essence of the meaning of seeking and giving help in mathematics for the research participants, some of the participants' experiences pointed to classroom environments that were paradigmatic of unjust pedagogical practices. This revelation emerged during the natural course of the conversations with the research

participants. Sometimes it was during the conversation when a participant went outside the limits of a singular experience. At other times, it was after the researcher noted a contradiction between a participant's experiential account of a moment of seeking or giving help, on the one hand, and the attributes the participant ascribed to the phenomenon of help, on the other. For example, although Hussein defined help as “*that which is given to the one in need without the giver expecting any thing in return,*” his memorable moment of seeking help was when he sought ‘help’ from a private tutor. When the researcher sought clarification on how private tutoring could be considered ‘help’, Hussein had this to say:

Because of the environment in which we are studying, private tuition is help for me. You see, my classroom teacher has been paid to teach us but he does not, and when he does, he does not do it with all his heart. The good thing about the street teacher (private tutor) is that once I pay him, he develops a helping heart. He carefully explains the content to me in such a way that it becomes easy for me to understand. And he even gives me tips on how to answer examination questions. So what I receive is much more than what I have paid for.

At times, the participants' experiential accounts of classroom injustice emerged at the end of the interview when a participant responded to the question “Is there anything else you would like to add?” For example, at the end of an interview, one participant was asked whether he had anything else to add and he began this way:

Since you have told us that you are doing research, I see you as our ambassador. All I would request is that you be a good ambassador. Represent us well out there. Since mathematics is difficult, teachers need perseverance and patience when dealing with students. Most of our mathematics teachers are disdainful. They look down upon students who are struggling in mathematics. When a student fails in a test, you find the mathematics teacher really scolding the student as though the student had some choice whether or not to fail.

Due to these experiences of classroom injustice, many participants expressed feelings of helplessness from the realization that they were not only unable to get help from their teachers, but were also unable to realize justice within their classrooms and schools due to skewed power relations in favour of their teachers. This chapter will first describe the participants' experiential accounts of classroom injustice, after which Derrida's notion of gifting will be used to expound on what it means to give help in the mathematics classroom. Drawing from the participants' experiential accounts of their learning environment, the chapter will demonstrate how students'

decisions to seek help from the teacher may be affected by the students' perceptions of their learning environment. By 'learning environment' is meant the conditions and practices that are likely to facilitate or hinder student learning, including (based on the experiences of this study's participants) the teacher's personality and professional competence, the school's organizational structure, and the school's policies, practices, and procedures.

6.1 Being at home in school

For many of us, home is a place of privacy, warmth and comfort; a refuge from the outside world and a place where one can be with oneself. But for those who are vulnerable, home may be the site for loneliness and rejection. Vulnerable children will often seek to obtain aspects of a home life from their classroom and school experiences. To meet the needs of these children, it is imperative for the school to provide an environment that allows the children to live out their potentialities and abilities.

As a way of focusing the research participants' attention to the phenomena that were being investigated, some participants were asked to recall and describe an incident in their lives when they received help from someone. One participant described an experience of being provided with accommodation during her final days in O-level. She said:

There were family quarrels between mum and dad. The situation deteriorated, because he was my step-dad – he was not my blood-related father. And so I had to be moved from that place and taken to a distant aunt's home. I used to suffer a lot at this aunt's home. Two weeks to my final exam, I had a squabble with her and she told me to leave. So I talked to my mum, and because they had not yet reconciled with my step-dad, she looked for someone else, and this one really helped me until I completed all the exams.

Some other participants described home situations in which they were deprived of the basic necessities for physical and emotional well-being. For example, one participant described how she was being mistreated by her father after she converted from Islam to Christianity. This participant narrated her ordeal as she was trying to describe how she received spiritual help from her pastor. Another participant, while describing how he was helped by a 'good Samaritan', indicated that he preferred being at school to being at home because of the discrimination he used to suffer

at the hands of his uncle. These participants' experiential accounts suggest that there are students whose only hope for a tranquil and promising environment is the school.

Students spend a significant amount of their time at school, where many of their social skills are formed and developed. In Tanzania, for example, a typical school year in secondary education is about 270 days (UNESCO, 2010), which translate to almost three-quarters of a calendar year. Thus the school experience is a significant one for the students, since it impacts their immediate and future life situations. Positive classroom experiences have been associated with positive academic outcomes. According to Wang, Haertel and Walberg (1990), a positive classroom environment is characterized by a strong sense of community with considerable cooperation and interaction between the teacher and the students and between the students themselves. In this positive classroom environment, the teacher and the students share common interests and values, and pursue cooperative goals. The students are actively engaged in learning and are involved in making classroom decisions (p. 36).

How would life look like for those students who consider themselves homeless if the classroom turned out to be an arena for injustice? The following section describes the phenomenon of classroom injustice as re-lived and described by the research participants.

6.2 The phenomenon of classroom injustice

In the course of our everyday lives, we sometimes experience a sense of injustice when we encounter a situation that is at odds with our expectations on the basis of our personal characteristics or performance-related behaviours. For example, we may experience an injustice when we feel unappreciated for a contribution we have made, or when we feel that we have not been treated with respect.

What is it like to suffer an injustice? How do we respond to an experience of an injustice? For many of us, our feelings get hurt. For some of us, an experience of an injustice will alter the way we relate with the perpetrator of the injustice. Some of us retaliate an injustice by 'giving' the perpetrator a 'piece of our mind'. And yet others will respond by seeking justice.

Injustice may be defined as the failure to meet the requirements of the rationally acceptable rules of justice; that is, the failure to render to the other what is due to them or rendering to them what is not due to them. Injustice is a relational phenomenon, in the sense that it is concerned with interaction among individuals in

a community. Thus, this phenomenon is of great relevance in the social context of the classroom community, where students from diverse backgrounds learn to live and work together as equals.

The phenomenon of injustice is highly subjective; what one person perceives as an injustice may be perceived by another person as perfectly just. This means that it is possible for one to unintentionally inflict an injustice on another. Teachers may think that they are interacting with all the students equitably when, in fact, they are not. One day, my 6-year-old nephew, Derrick, asked me what the difference was between ‘good’ and ‘excellent’, to which I explained that ‘excellent’ is “really good, more than good, very very good.” Then he asked me, “Why is the nose excellent while the eye is only good?” “What do you mean Derrick?” I asked him curiously. “You see,” he said, “the teacher asked us to name parts of the human body. When I said “eye,” the teacher said “good,” when James said “nose,” the teacher said “excellent”.” I had a hard time explaining to Derrick that the teacher was not being unfair to him, but rather, the teacher sometimes tries to break the monotony of giving the same response to every correct answer. When I now reflect on Derrick’s experience, I cannot help but wonder how often we as teachers – wittingly or unwittingly – do injustice to the students in the course of our teaching. For example, it now seems to me that when a student seeks help with a particular mathematics problem from his/her teacher, and the said problem is – in the teacher’s assessment – novel, then the teacher has a pedagogical obligation to bring the mathematics problem to the attention of all the students, otherwise if the teacher gives help to the student without sharing this help with the other students, then the teacher will be giving an unfair advantage to the student over the other students.

What happens when a student experiences an injustice? How do teachers and school administrators respond to students’ expressed concerns about some perceived injustices in the classroom? Analysis of the participants’ experiences revealed that when confronted with a classroom injustice, some students are likely to indulge in wishful thinking.

6.2.1 Inducing wishful thinking

In our everyday lives, we often find ourselves wishing that certain aspects of our lives were different. We say “I wish I had this,” “I wish I could do that,” or “I wish it were this way.” Sometimes we utter a wish to express regret: “I wish I had not written that letter.” At times we even wish for what we know to be objectively im-

possible, such as wishing there were more hours in a day. However, it is oftentimes the case that when we utter a wish, we are expressing a sense of dissatisfaction with an aspect of our life, emanating from a realization that we lack what we consider vital or important for our existential well-being. This is especially common when we are in a situation that we cannot handle on our own, as was the case with a number of research participants in this study.

Some of the participants described a problem of shirking by teachers, which affected the timely completion of the prescribed mathematics curriculum. To compensate for the resultant deficiencies, students who could afford it enrolled for private tutoring. In a clear conflict of interest, some teachers were involved in providing this private tutoring to their own students. Furthermore, although teachers have been prohibited from using school premises for private tutoring (URT, 2005, p. 39), some of the research participants reported that their teachers were violating this directive. One of these participants was Phineas, who described his experience this way:

After my dad passed away unexpectedly in the middle of my first year in A-level, I transferred to a new school in the city so I could stay with my brother. When I reported to the new school, I was shocked to find that the mathematics teacher was charging additional tuition fee for some of the lessons. The teacher was teaching two topics simultaneously, one of which was to be paid for. Unfortunately, my brother could not afford to pay for it for me. It pained me to see the teacher kick me out of class for lack of money when he was being paid by the government to teach me. But even more painful was the fact that he would not be repeating this topic during the regular class time. I began to foresee mathematics becoming difficult for me, and yet it was too late to change my program. I wished in my heart that my father was alive to help me.

It is not uncommon for siblings who are born of the same mother and father to be so closely bound to each other that when one is in need of help, the other responds. On the basis of the 'sameness' of their blood, Phineas and his brother have voluntarily entered into a helping relationship. But although Phineas' brother has undertaken to help, he can only do so to the best of his ability. He is unable to provide Phineas with the extra tuition fee being levied by the teacher. And since Phineas is wholly dependent on his brother, Phineas is unable to sufficiently meet his mathematics learning needs. This sense of helplessness prompts Phineas to project himself forward in time, imaginatively anticipating the possible future consequences of his

unmet needs. For example, he begins to foresee mathematics becoming difficult for him. He also begins to foresee the possibility of not performing as well as he would have liked in the final A-level examination. These temporal projections seem to disrupt his way of being in the world, and he begins to live as though the consequences of failing to meet his learning needs are immediate. In the midst of his dissatisfaction with his mathematics learning experiences, Phineas plunges into wishful thinking, wishing that his life-world was so reconstituted that things would appear to him as they used to at an earlier point in time when his father was alive.

Even though Phineas may be wishing for something that is objectively impossible (a living father), there is no uncertainty in what exactly he is wishing for. He is wishing for a helper, someone who would, as it were, step into the shoes of his late father. If his father were alive, Phineas would possibly not have transferred to a new school. But even if he had transferred and his father was still alive, Phineas would possibly have the money to pay for the extra tuition fee being levied by the teacher, thus allowing him access to the two topics the teacher is simultaneously teaching. But is money what Phineas really needs? Perhaps what he needs is someone who could hold the teacher accountable for the lessons he is obliged to teach.

Phineas is wishing that the teacher would render to him that which is his due; namely, the support with the content that Phineas is expected to learn. Phineas is aware that his teacher, as a representative of the custodian of the right to education, is prohibited from acting unjustly towards students. In other words, Phineas has expectations, because he knows that his teacher is contractually obligated to follow the terms of the contract between the teacher and the government, which in part reads something like this:

*Your duties will include preparing and using instructional materials effectively, following up the progress and difficulties of individual students, and following the curriculum guide as stipulated by the Ministry of Education and Vocational Training. As a teacher you will be accountable to the head-teacher, who may in turn delegate responsibility for particular aspects of your work to the deputy head-teacher, or your head of department. You are expected to at all times provide a model of good practice. You are appointed on the salary scale **TGTS D.1** at a commencing salary of **Tshs. 325,000** per month. Your incremental date will be **15TH JULY**.*

Like many contracts, this contract is an agreement between two parties, outlining the rights and responsibilities of each party. The contract binds the teacher to a commitment to teach students mathematics following the approved curriculum doc-

uments, and to address students' learning difficulties in a fair manner. The teacher is required to make maximum use of the allocated instructional time. Furthermore, the teacher is expected to make arrangements with the school authorities to compensate for any lost instructional time (URT, 2009, p. vii). In exchange, the government guarantees the teacher a salary with annual increments. But it seems that the teacher has been left unrestrained and has failed to abide by the contract. He is not doing what he promised to do when he appended his signature to the contract. This inaction by the teacher is causing Phineas to experience feelings of regret, imagining that his present situation could have been avoided if he had acted differently at some earlier point in time. For example, he says it is too late for him to change his program. He is feeling as though he made the wrong decision. He seems to be suggesting that had he prior knowledge that things would be the way they currently are, he would have chosen a program that does not include mathematics. In that way, he thinks, he could have avoided his current predicaments.

6.2.2 Reorienting one's way of being with the other

An awareness of a need may draw our attention to the fact that we do, or do not, have a right to the thing we are in need of; and this is something we may have taken for granted all along. For example, as long as meaningful learning is taking place in the classroom, students may take it for granted that they have the right to the teacher's instruction. But when the learning process is disrupted – as it was in Phineas' case – the students may become aware of what they are entitled to receive. Phineas' inability to pay for the extra tuition fee being levied by the teacher has drawn his attention to his entitlement to the teacher's instruction. This awareness of entitlement has altered Phineas' way of being with the teacher. He has begun to question the teacher's indifference to his contractual obligations. This questioning has given rise to perceptions of injustice, which are being manifested as feelings of pain. The experience of pain is unpleasant and hurtful; it is a punishing affliction. It is no wonder that the word pain is derived from the Latin *poena*, meaning punishment or penalty (Harper, 2001). Punishment is normally administered when discipline is not heeded, and according to Davis (1986, p. 384):

If someone needs your help in particular because of what you have done to him, and what you did was not [in] self-defence against him, a lawful punishment, or some other exception to the general prohibition of harming others, he has a right to your help until you can leave him in at least as good a position as you found him.

Phineas is in pain because of what the teacher has done to him, and what the teacher has done to him is not in self-defence against Phineas. Neither is it a punishment for Phineas' misconduct. Phineas thus feels that he is being subjected to an injustice of an undeserved and unjustifiable punishment.

Another example of how classroom injustice can strain the teacher-student relationship was provided by Nick, who like many of his classmates, was enrolled in private tutoring in physics. The physics tutor used to offer numerous weekly tests to assess the students' achievement of the learning outcomes. Nick's mathematics teacher was also offering supplementary tests, for which each student paid five hundred shillings per test. Towards the end of the mathematics lesson, Nick's mathematics teacher announced that there would be a mathematics test the following day, but forgot to specify the exact time when the test would be done. Nick described what happened when he requested the teacher for clarification:

We had had a number of previous experiences with this teacher where he said the test would be on a Saturday morning, only for him to come at noon. And there was a time he didn't come at all. So I raised my hand and when allowed to speak, I said "Excuse me sir, I am requesting you to tell us when we will do the test. And if it is possible with you, we would prefer to do the test at 8 in the morning, at least for tomorrow, because later in the day, we will be having another test." Right away, the teacher said "Okay, if it is like that, I have postponed it. The test will not be there." He then began to utter denigrating comments: "Do you think I don't have any other work to do? Which other teacher in this school cares to give you tests?" Yet he was not giving us the tests free of charge. I don't know whether he thought I had despised him. He just disregarded my request. What is affecting me now is the feeling that the teacher has treated me with disdain. I think those mathematics teachers who have attained a university degree are disdainful.

Nick has requested for time specificity from the teacher so that he can plan his schedule accordingly. But the teacher has failed to communicate decisively on the basis of Nick's request, choosing instead to utter comments that Nick considers disdainful. As a result, Nick is blaming the teacher, and attributing the injustice to the teacher's qualification. He is placing a generalized blame on all mathematics teachers who are degree-holders. Some research participants blamed the school management for the injustices they were facing in their classrooms; for example, one participant attributed the apathy in her head-teacher to the fact that the head-teacher had been promoted from among the teachers, making it difficult for the head-teacher to be strict with the teachers who were not doing their work effectively.

Several participants blamed the government for the challenges they were facing in their classrooms. For example, one participant said, “*The government contributes to this situation, because if it had provided a good environment for these teachers, I believe they would be doing their job well.*” Some participants blamed the inspectorate unit in the Ministry of Education and Vocational Training, arguing that it was not holding the teachers accountable. There was a participant who blamed the teachers’ pre-service education and training programme, saying:

A high percentage of the teachers that I encounter are the ones whose conduct does not vouch for their profession. They don’t seem to know what their obligations to the students are. I think the kind of student psychology they study during their training in college is not the right one. I think they only study it merely to pass their exams and get employed. Because if they were studying and understanding student psychology, we would not be experiencing the kind of mistreatment we are experiencing in this classroom, and mathematics would not be this hard. I came with a very good background in mathematics from O-level, but now this is where I am with this teacher. Right now if you ask me, I don’t like him. Unfortunately, I have no option but to hang on. The Swahili people say “Mtumikie kafiri upate mradi wako.”

It seems that an explanation for culpability is an antidote for an injustice, since such an explanation can issue in perseverance. The Kiswahili word *kafiri* is an adaptation of the Arabic word *kaffir*, meaning an ‘unbeliever’; that is, someone who is ungrateful to God for His gifts (from the Islamic point of view). The proverb “*Mtumikie kafiri upate mradi wako*” (serve even an unbeliever to attain your ends) is usually invoked to remind us that during difficult times, we are ready to receive help from any quarter; we do not choose whose help we need. By invoking this proverb, this participant is implying that he is finding himself in a difficult situation – between a rock and a hard place, as it were. He does not like the way his teacher is treating him, but at the same time, he is both financially and time-constrained. He would rather persevere and gain whatever he can in readiness for the final examination. The next section will demonstrate that although a student may try to suppress phenomenological manifestations of classroom injustice, these manifestations linger on and exercise influence over other contents of consciousness, thereby affecting the student’s engagement with the classroom environment.

6.2.3 An unsettling reminder

During the final year of A-level education, many students experience time as fleeting. The stakes tend to be high since performance in the end-of-year national examination largely determines students' admissibility to various programs in institutions of higher education. As a result, students become extra-sensitive to the subtleties of the teacher's time management skills. Teachers who fail to live up to their students' expectations are perceived by the students as insensitive to the students' time constraints. Nick described how his mathematics teacher would often miss or arrive late for his lessons. This caused the students to lag behind in the prescribed curriculum. At one point, the teacher arranged with the students to have them stay behind during the holiday so that they could try and 'catch up'. Therefore, Nick called his family to let them know that he would not be going home, and requested his father to send him money to cater for his upkeep during that holiday.

As they had agreed with the teacher, the students came to class on the first day but the teacher did not turn up. After waiting for about two hours, the students left and came back the following day. Again, the teacher did not turn up. This time the students went to the school secretary, who then called the teacher. The teacher informed the students that he was 'tied up' somewhere and he would be coming the following day. The students dispersed and came back the following day at 8am. The teacher arrived at 9am, and at the end of the lesson, he informed the students that he would not be able to make it the following day. After several of those impromptu cancellations and postponements, Nick and some other students decided to stay at their hostels "to do something productive." Nick lamented:

We kept calling each other enquiring when the teacher would be coming. I felt bad because I wasted my money on text messages, bus fare and meals. From then on, that bitterness has always been a barrier for me during his lessons, and it is just because we have very few days left; otherwise I would have looked for a private tutor.

As a result of the teacher's erratic time-keeping habits, Nick is deficient of the expected mathematical competencies. The experience of mispending his time and money has become an unsettling reminder of the teacher's indifference to the students' constraints. This experience has become disruptive to Nick's present learning experiences in the mathematics classroom. Nick is unable to enjoy the teacher's lessons as fully as he would have wanted. He is passively suffering an injustice of time and money. He is wishing he had more time to compensate for his teacher's

shortcomings through private tutoring.

One question we may wish to ask at this point is: How come there is nobody to monitor and hold the teachers accountable for the lessons they are obliged to teach? Does not the responsibility rest with the head-teacher or the person to whom the head-teacher has delegated responsibility? But then, how would the person responsible know that the students are being unfairly treated if the students do not speak out against their teachers' unfair practices? The next section describes some of the difficulties that the participants encountered when they attempted to speak out against perceived classroom injustices.

6.2.4 Speaking to the possibilities for justice

When students experience an injustice in the classroom, one option at their disposal to seek justice is to speak directly with the perpetrator of the perceived injustice. However, what the conversations with some of the research participants revealed is that when the perpetrator of the perceived injustice happens to be the classroom teacher, the students' act of speaking out may fail to achieve the intended outcome. Nick perceived his mathematics teacher's assessment procedure as inconsistent and biased. According to Nick, the teacher would be careful when assessing the examination papers of those that the teacher recognized as mathematically endowed. But when it came to other students who were not so endowed, the teacher would cancel a whole question when the answer is wrong without checking where the student had erred. Nick gave his own lived experience of the teacher's biased assessment procedure:

On Monday I got back my examination paper, and there was this question on hyperbolic functions that I had gotten zero. When I went to my friend to see how I was supposed to answer that question, I realized that I actually deserved a three. I no longer go to complain to the teacher because I have done so a couple of times. I feel that he has made up his mind about who is a maths person and who is not.

The equality principle of distributive justice demands that equals be treated equally and 'unequals' be treated unequally in direct proportion to their equality or inequality (Tata, 1999). In this sense, injustice occurs when equals are treated unequally or when unequals are treated equally. Teachers may interact differentially with different students in the same classroom to attend to the students' diverse needs, capabilities and preferences. In this case, it can be argued that the teacher discriminates

fairly. But when a teacher assesses subjectively on the basis of the teacher's impression of the students, the teacher is likely to deny some students an opportunity to construct their own mathematics identity. In the above anecdote, Nick perceives his mathematics teacher to be unfairly discriminative. From his friend's examination paper, Nick feels that he could have received a better grade than what he got if only the teacher had paid the same amount of attention to Nick's examination paper as the teacher did to that of Nick's classmate. Nick is thus experiencing an injustice. He feels that by the teacher giving preferential treatment to some of the students, the teacher is denying Nick a fair evaluation of his capabilities. Through the teacher's act of glossing over Nick's examination paper, Nick feels that his image as a 'maths person' has been put to question by the teacher, and although he has previously raised his concerns with the teacher, his concerns appear to have been ignored. As such, Nick has unwillingly agreed to live with the imposed identity of a 'non-maths' person.

When it becomes impossible to secure justice from the teacher, some students may decide to seek audience with the person whom they believe can influence the teacher to restore justice; namely, the school administrator. However, what emerged from the analysis of the participants' experiences is that unless the teacher appeals to their own moral conscience, any external imposition of ethical responsibility cannot guarantee the authenticity of a pedagogical undertaking. One participant (Jacinta) described how she experienced classroom injustice when she compared her mathematics learning experiences at two different points in time; one during her O-level education in a private school, and the other during her A-level education in a public school. In the private school, she noted that "*teachers were dedicated to their work.*" She described her experience in the public school this way:

I could not believe what I found when I joined this school for my A-level education. Our teacher would be in the school compound but would comfortably miss a lesson. And this was not a one-time thing. It was the trendy thing. If you checked the attendance register outside the Academic Master's office, you would find that the teacher signed in at 9am, for example, and indeed you would see him in the school compound. But you would find that this teacher would not come to teach his mathematics lesson at 10am. He would not even bother to let us know that he would not be coming. At times this teacher would come in and ask, "Who has studied this topic?" and some students would raise their hands, from among whom the teacher would appoint one to teach the entire class that topic. The student, who is not trained as a teacher, would teach the topic based on how he was taught by a

private tutor, who in turn may not have trained as a teacher. And instead of the teacher staying in the class to monitor how the students are being taught, he would be gone! He would only come in occasionally and remark “Oh my! I can see you are progressing well!”

It reached a point where I was very dissatisfied with how I was learning mathematics, and I decided to report the matter to the deputy head-teacher. Now the class monitor has an attendance register. When a lesson is taught, the monitor remarks “Taught” and appends his signature against the remark. When the teacher assigns someone to copy notes for the class, the monitor remarks “Notes Written” and appends his signature. The teacher is then expected to countersign against each of the class monitor’s signatures. But I have several experiences where the teacher comes to class, gives us questions, hangs around for a few minutes, and then leaves. The questions will neither be assessed nor discussed. Of course the teacher will not agree to sign if the monitor remarks “Untaught.” And so when the deputy head-teacher delves through the attendance register, he will find that the teacher’s signature is there, almost everywhere. And the game is over. But it is we the students who really know what goes on inside the classroom.

Students’ perceptions of classroom injustice can arise from perceived incongruities between expectations and reality. Because of her past experiences in a private school, Jacinta has expectations of what mathematics learning inside the classroom should look like. She is thus dissatisfied with her progress in mathematics. She feels that she is capable of learning much more mathematics than she is learning at present. She also feels that she is not learning as much mathematics as her counterparts in private schools. The criteria to be used to assess her competencies in mathematics at the end of A-level will be the same criteria as those used to assess the competencies of her counterparts in private schools, and their demonstrated competencies in mathematics will to a great extent determine their prospects for job opportunities and admissibility to various programs in institutions of higher education.

Jacinta is experiencing disbelief at her teacher’s indifference to his obligations and responsibilities to students. The teacher is not adhering to the recommended instructional time guidelines for the mathematics curriculum, and although the attendance register outside the Academic Master’s office is meant to enforce adherence to time schedule by the teacher, the teacher is somehow managing to get around the attendance register. The teacher is not monitoring the students’ learning progress as required by the government. And contrary to his professional ethics, he is sanctioning an unqualified person to perform the duties of a mathematics teacher, and with-

out compensating this person accordingly. Overwhelmed by the disbelief, Jacinta decides to speak out. She reports her teacher's unjust practices to the deputy head-teacher, who then vests some powers in the class monitor to monitor the teacher's adherence to his contractual obligations. But in spite of the class monitor's 'watchful' eye, the teacher is somehow managing to get away with the attendance obligations. Wittingly, the class monitor is representing the presence in its absence, creating the illusion that the teacher is present. Eventually, a scenario is established where a masquerade of adherence to the teacher's contractual obligations is going unchallenged by the class monitor or the students, such that Jacinta's teacher is there but in the mode of absence.

Who, then, is to blame for the injustice in Jacinta's classroom? The deputy head-teacher, to whom Jacinta's teacher is subordinate, may have done his job by putting checks in place to curb the teacher's unfair practices. The deputy head-teacher may actually be assuming that Jacinta's classroom is running smoothly. The ball, as it were, is in the students' court. But then there is a problem: The playing ground is not levelled for a fair play. Since the power relations between the teacher and the students are skewed in the teacher's favour, any pedagogy that is based on other-rather-than-self-monitoring is bound to break down even under the other's keen and watchful eye.

6.2.5 Intimidating into silence

Jacinta and her classmates had, albeit unwillingly, resolved to live with their mathematics teacher's unjust practices. However, an opportunity arose for the students to name these injustices. The head-teacher passed by Jacinta's classroom and prompted the students to open up. Jacinta explained:

One day, the head-teacher came to our class and, in a very friendly manner, he asked "Is everything going all right in this class?" Now I just said to myself, "This is our administrator. If we do not tell him what we are going through, whom shall we tell?" So I decided to be honest. And it was as if everyone else was waiting for someone to initiate. We said we had this and that problem in mathematics. The head-teacher promised to look into the matter. But then, I do not know how the issue was presented to the mathematics teacher, because the next time he came to class, he was very angry with us. Thereafter we became the marked group. Anytime you went to the staff room, a teacher would ask you "Which class do you come from?" If you happened to be from our class, the teachers would always find something to punish you for

– your blouse, tie, shoes, socks, finger nails, hair, et cetera. Consequently, there was enmity between us, the bad class, and the teachers. From that incident, I learnt to persevere. If someone now comes to our class and ask how we are doing, I will just look at them. And so people are just dying like that, each one on their own; quietly but surely.

It takes a great deal of courage for a student to speak out against an injustice in the classroom when the perpetrator of that injustice is the student's classroom teacher. Speaking, however, relieves the speaker, for it 'translates' into the general. According to Derrida (1995), the first effect of language – the medium through which speaking takes place – is to deliver the speaker from their singularity: "Once I speak I am never and no longer myself, alone and unique" (p. 60). But what happens when one's speaking turns out to be merely an act of losing their ideas 'out there'? Jacinta is speaking in response to what she perceives to be unfair classroom practices by her mathematics teacher. She is thus voicing a desire to be listened to and to be heard. Unfortunately, Jacinta's act of seeking justice seems to have produced in her mathematics teacher a disinterest in Jacinta's welfare. The teacher manages to mobilize his colleagues in the mathematics department office and together they wittingly adopt a hostile 'we-against-them' attitude towards the students.

Because of seeking justice, Jacinta is unfairly victimized by the teacher. To whom can she now turn for justice? Or has she been consigned to silence? Has her need been rendered a taboo, something not to be spoken off? Re-reporting the matter to the head-teacher may lead to an escalation of the reprisals against the students. Consequently, Jacinta resorts to inaction; she simply complies with what she perceives to be unjust classroom practices. In other words, she begins to suffer injustice passively. This passive suffering is accompanied by a general feeling of insignificance and powerlessness, contributing to a sense of helplessness in Jacinta. She feels powerless to fix that which she feels needs fixing. She says that "people are just dying like that." Jacinta is, of course, not talking about the physical death of the body. Rather, she is referring to the death of the self that says "I am and therefore I can." She is finding herself in a situation where her will to assert herself on others is silenced. Prior to appealing to the head-teacher for help with her teacher's unfair practices, Jacinta had said to herself, "This is our administrator. If we do not tell him what we are going through, whom shall we tell?" Now that she has told the administrator what they are going through and nothing has happened (actually something unintended has happened), she knows that it may be too much to hope for justice. The next section will show that when students have no hope for

justice in the classroom, their only option may sometimes turn out to be withdrawal from the unjust situation.

6.2.6 Inducing withdrawal

When the teacher-student relationship is strained due to perceived classroom injustices, students may at times experience a sense of insignificance and alienation in the classroom. This may, in turn, influence the students' reorganization of their classroom lives in such a way that the students are physically absent from situations they perceive to be potentially unjust. For example, one research participant described how she would fake a sickness so as to avoid being in class during mathematics lessons. Another participant described how his mathematics teacher's act of embarrassing students who were experiencing difficulties in their mathematics learning led to his classmate's complete withdrawal from school:

One of the greatest problems with our mathematics teacher is lack of perseverance. He is very scornful of weak students. I remember this particular student who used to fail in mathematics. Anytime the teacher returned our examination papers, he would humiliate this student. It reached a point where the student could not take it any more. He just dropped out of school.

Humiliation stigmatizes its victims. When a student is humiliated by the teacher, the student may experience a feeling of shame. Shame is antagonistic to self-esteem and motivation, for it leads to perceived lessening of self-value and self-worth. When one is ashamed of oneself, one may begin to imaginatively see oneself through the eyes of the other, at which point one may begin to see an 'other' within oneself. Often, there is a fear of the possible social consequences of 'losing' face; the fear of being seen as a shamed person. This fear may induce a student's withdrawal from the community of those that are privy to the student's potential shame.

6.3 Being there for each other

In summary, there was a general sense of dissatisfaction amongst the research participants with the teachers' commitment to their contractual obligations. The participants also felt that fidelity to just principles was lacking among those who were entrusted with the responsibilities of school leadership. One participant, who was

a class monitor in a private school described her head-teacher as complacent. She complained of the very issues that students in public schools were complaining about – teacher tardiness and absenteeism. She narrated an experience where students were forced to go on strike to force the head-teacher to act:

Our economics teacher did not come to class the second week of the school term. When she failed to show up the following week, I went to the head-teacher. The head-teacher informed me that the teacher was attending to her ailing mother. Initially, we persevered, hoping that she would be coming soon. But when we got into the sixth week without learning economics, the students sent me to the head-teacher. The head-teacher informed me that the school was looking into the issue. We got into the ninth week without any change, and the class requested me to go back to the head-teacher. The head-teacher gave me the same reply. We completed the term without learning economics. When we resumed the following term, the situation had not changed. So I went to the head-teacher and he promised to look into the matter. We lost patience and we decided to go on strike. Only then did the head-teacher hire a part-time economics teacher.

These kinds of situations made students turn away from the hope of getting any help from their teachers and school leaders. A good number of participants felt that the teachers' apathy stemmed from the teachers' dissatisfaction with their living and working conditions. The participants argued that the teachers' remuneration was too low to act as an incentive or to attract the kind of teachers that would be dedicated to helping students succeed. In fact, some of the participants empathetically argued that if they (the participants) were in the teachers' shoes, they would behave in a very similar manner. Winnie, for example, put it this way:

To be honest with you, I cannot wholly blame the teachers for what we are going through. They are also human beings. My brother is a teacher, and sometimes he cannot even afford bus fare to go to work. And it is not that he is imprudent. He doesn't drink. He doesn't smoke. He is very faithful to his family. And he tries as hard as he can to make ends meet. But his months always seem longer than his money.

The desperate situation among the participants appears to have acted as an impulse for them to seek help in the sphere of peer group relationships. During the interviews, almost every research participant made reference to a discussion group they were in. The participants themselves initiated most of the discussion groups. In these groups, there was no specialized knowledge possessed by the helper. It was

the case of the proverbial birds of the same feathers flocking together. The principle that bound the helping relationships was friendship. In other words, being friends was the context within which helping took place among the participants. Of course this friendship often emanated from the need for help. Nevertheless, the glue that made these participants stick together as friends went above and beyond any immediate need for help, for as the philosopher Epicurus observed, “It is not so much our friends’ help that helps us as the confidence of their help” (cited in Turner, 1947, p. 353). In other words, what actually helps is the being there-ness of the other, the assurance that help is within reach at all times. One participant described their helping relationship this way:

Normally, we learn through cooperation in this class. If a student has a problem, they write it on the chalkboard, and whoever amongst us is able, leads the discussion of how to solve it for the benefit of all of us. If there is none amongst us who can solve it, then each one of us takes the responsibility of seeking for the solution from whatever source.

There was a lot of collective learning that went on among the participants. As they shared information and insight, the peers helped each other solve the problem at hand. There was inclusiveness and cooperative interplay between and among the peers. The peers actively listened to one another, shared their views, built on each other’s ideas, considered a variety of perspectives, and worked out their points of disagreements amiably. Within the discussion groups, members continuously changed roles; helping at one moment and being helped in the next moment. Most research participants gave their experiential accounts of giving help juxtaposed with those of receiving help. As such, there was no distinction between the helper and the helped. All were problem-posers; all were problem-sufferers; and all were problem-solvers. It was truly a case of learning together as equals. One participant said, “None of us is an expert in everything. I will be good in this topic and poor in the next.” Another participant described how in the course of helping her friend she benefited not only academically but also spiritually. She said:

I have a friend in Form 5 who stays in the same hostel with me. We are so used to each other that I usually see her like my younger sister. Two weeks ago, she requested me to teach her the topic of Integration since she had not received any private tuition on that topic and she wanted to be ahead of the teacher. This is something most of us are used to; we like being ahead of the teacher so that when the topic is being taught in class by the teacher, it does not appear difficult to us. So we started meeting with this friend for at least one hour each day. What I realized

is that as I was helping her, the content continued to stick in my mind. I found that I was actually revising. Areas that were initially difficult to me became clearer and clearer. Now this topic is one of my favourites. So she was actually helping me as well, and I told her as much. Besides, I was receiving God's blessings for doing His will, for I knew that God recognizes when I sacrifice my time for others' sake. So when at the end of a session she used to say to me "May God bless you abundantly," I believed in my heart that God had blessed me, or He will bless me at His own appointed time. So for me, helping her was like sowing a seed that in due course would multiply.

It appears that in the life-world of the research participants, giving help was not a one-way relationship. On the contrary, it benefited both the help-seeker and the help-giver. It not only enhanced students' interpersonal skills, but it also led to deeper understanding, challenging of existing ideas and development of new perspectives. It also helped in building the help-giver's self-esteem and confidence. Thus one was helped in the course of helping. Because of this integration of helping and being helped, helping merged into the everyday life of the research participants.

One of the things that dominated the participants' descriptions of giving help is a feeling of hope for the other. Even in situations where the one being helped showed no signs of understanding what they were being helped with, the helper seemed not to lose hope on them. One participant described an experience of giving help to her classmate, which could be likened to how prompters feed actors their lines during rehearsals. The prompter will be at the backstage telling the actor who has trouble learning their part what to say at one point or another. Wittingly or unwittingly, the very act of prompting speaks of the prompter's hope for the forgetful actor, the hope that the actor will eventually master their parts. This is what the participant said:

My classmate was much older than the normal secondary school age. After the class, she used to come to me, and I would try my best to explain to her. I had a habit of explaining with examples. What frustrated me when helping her was that I would go through the materials with her, ask her if she had understood to which she would say "yes," but when I covered my work and asked her to repeat what I had done, or to solve a question that was similar to the one I had given as an example, she would be unable to do so. Or she would get started and then after a minute or so, she would be stuck. So then I would ask her "Do you have mawazo (pressing issues)? If you have mawazo, please let me know so that I can find another time when you don't have mawazo." But even when she admitted that she had mawazo, she would still plead with me: "Oh Dorris, please teach me, I'll exert myself!" Since I had learnt

that she is a bit slow in understanding, I would endeavour to repeat the explanation, because if I didn't, she would have felt like I didn't help her, and I would then have wasted all my time and effort. But even after re-explaining, I often found myself filling in every other line in her thinking when she was solving the problem.

In mathematics, one normally gives help to the other with the hope of making a difference in the other. One also gives help to the other with an expectation that the other has the ability to co-see what one is pointing out. One indicator of how helpful the helper is to the other is the other's ability to understand what the helper is trying to convey. In longing for the other and the other's understanding, the helper may appeal to an example. However, this does not guarantee that the other will seize the examplehood of the example, in which case the helper may give another example. But even after several examples, the other may still not see the relationship between the examples and the generality being exemplified. Sooner or later, the helper may experience a general sense of frustration at the other's failure to understand. The helper may then begin to question the object of the other's attention. Having spent a substantial amount of time with the other, it may be foolhardy to lose all hope for the other. To be sure, the act of having hope for the other is much more a way of being there for the other than a kind of doing. It is to affirm to the other that the helper is not yet ready to give up on them; that the helper still sees their possibilities and potentialities for becoming (van Manen, 1997). And so hope allows the helper to exercise patience in the face of frustration and disappointment with the other. Hope graces the helper with a certain sense of affective pregnancy for the other, affording the helper an opportunity to relate themselves to the possibility of that which frustration and disappointment would otherwise rule out. In short, hope opens up possibilities for the other.

In the above anecdote, it is worth noting that there is an ongoing shift between the helper and the one being helped:

*Since **I** had learnt that she was a bit slow in understanding, **I** would endeavour to repeat the explanation, because if **I** didn't, she would have felt like **I** didn't help her, and **I** would then have wasted **my** time and effort. But even after re-explaining, **I** often found **myself** filling in every other line in her thinking when she was solving the problem.*

This dual awareness of oneself and the other was evident in most of the participants' experiential accounts of giving help, emphasizing the helper's integration of his/her own experience with the experience of the one being helped.

Although it is difficult to ascribe the helping values among the participants to the participants' collectivistic orientation (due to the confounding of the participants' classroom experiences), it is noteworthy that the communal consciousness among the participants transcended the sphere of mathematics learning. One participant described how when one of the students lacked bus fare to come to school, the class monitor would announce to the class, take up as much as he can from among the classmates, and send the contributions to the student in need. This participant recalled going without lunch so he could make a contribution towards a classmate's financial needs.

While the research participants were not alone in the sense that they had a network of peers to consult with, the sense of being alone emanated from the fact that the profession from which the participants expected to find help was as good as non-existent. In other words, many participants appeared to have no professional helper to talk to. Analysis of the participants' experiential accounts of classroom injustice demonstrated that the participants had many expectations of their teachers with regards to the participants' mathematics learning experiences. Some of these expectations were explicitly voiced, while others were implicitly implied in the participants' experiential accounts. In particular, the participants longed for the teacher's time, presence, attention, concern and care. But these longings were not satisfied. Consequently, the participants felt the need to bridge the chasm between the teacher – the professional helper – and the peer. This chasm appears to have been partially filled up, thanks to the new type of 'helping' relationship known as private tutoring. The distinctive forms of private tutoring were organized and executed by active and retired professional teachers, current and former university and college students, current and former high school students, as well as active and retired university and college lecturers. The private tutoring was normally organized around topics, with the fee for a single topic ranging from three to fifteen U.S. dollars depending on the private tutor as well as on the length and complexity of the topic. Some students normally agreed among themselves on who would take what topic, after which the one who took a particular topic came back and led the discussion in that topic. This way, the students saved on costs; a case of 'buy one, get so many free!' It is noteworthy, however, that none of the participants indicated that they ever charged a fee to their peers when helping them on a topic they had covered through private tutoring – say as a way of recovering or sharing expenses. They always taught their peers for free.

Perhaps the students' desperate situation could explain why some research participants re-defined the meaning of help to account for the helpfulness of the private tutors. For example, although we normally define help as that which is given freely, Kalunde defined it as:

Any thing that is given out to someone else who did not have the thing, free of charge or even for a price. Because even when you are ready to pay or are paying for the thing, someone might decide not to help you. For example, someone might have an exercise book with no intention of selling it. And then you ask her to sell it to you because you need it urgently. If she sells it to you, she will have given you help because she will have responded to your urgency.

Kalunde's definition demonstrates that "the 'text' of the given cannot be isolated from its larger context" (Spiegelberg, 1984, p. 70). In other words, a phenomenon is always experienced within a particular socio-cultural milieu. The research participants were very appreciative of the private tutors, notwithstanding the colossal sums of money they had to part with in exchange for the private tutoring. Kalunde's definition also speaks to the need to encourage the teachers to assume their responsibility towards their students so as not to let the students alone. This way, there will be no need for the students to pay a private tutor.

Some research participants were also involved in offering private tutoring to students in O-level. As they offered the private tutoring, the participants were sometimes moved by a fellow-feelingness for the other. For example, Hussein used to charge a fee to some of his tutees, depending on the degree of well-offness of the tutee's family. Hussein explained how he was deciding on whom to help and whom to charge a fee:

I have pursued my studies through hardships. My father died a long time ago, and my mother sells fried yams for a living. I am nevertheless renowned for my academic excellence, and so when I completed O-level, there were a number of parents who came to me requesting that I help their children in studies. I needed to find and save money for my A-Level. I also wanted to help my mother with minor expenditures in the home, so that she could also feel good. I therefore decided to charge a fee to those students whose families were not as badly off economically as our family. But for those whose financial situation at home was as difficult as ours, I decided to help them free of charge, because I have been endowed with intellect, and instead of letting it rot in the head, it was good to disseminate it to those who needed it.

Giving help entails making a meaningful connection with the other. It involves taking the perspective of the other, through an active consideration of the situation that the other faces. Although the one giving help may be privileged in relation to the one receiving the help, the act of giving help dissolves the boundaries of the self and merges the self with the other. Hussein knows all too well what it is like to live in a poor family. He knows what it is like to not have enough money. It is thus easy for him to imagine himself in the poor student's situation.

6.4 Chapter summary and implications

When students transition from formal schooling into the wider community, they carry with them classroom experiences accumulated as a result of living in a particular classroom environment. Undoubtedly, these experiences shape students' ways of being in the community. This chapter has described the participants' experiences of their classroom learning environment. In particular, the chapter has described the phenomenon of classroom injustice, as re-lived and described by the research participants. Aspects of classroom injustice that the participants described include: teacher tardiness and absenteeism without explanation; imposition of additional fees for lessons to which students were entitled; denial of access to classroom space during normal school hours; and using an unfair assessment procedure when assessing students' written examinations.

The participants' experiences of classroom injustice were variously characterized by dissatisfaction, disbelief, wishful thinking, pain, regret, blame and an unsettling reminder. Although some students predictably responded to perceptions of injustice by seeking corrective justice from the perpetrator of the injustice or from the perpetrator's superiors, the unequal classroom power relations suppressed the students' voices. The students' inability to find justice within the school system caused them to experience a sense of helplessness and, as a result, the pedagogic relation between the teacher and the students was negatively impacted. In some cases, students withdrew from the mathematics learning process, either physically or psychologically. Other students accepted and learnt to live with the injustices.

As a compensatory strategy, some students sought help in the sphere of peer-group relationships. But since the peers had no specialized skills in helping, they could only help up to a certain extent, beyond which their help could not extend. This is where the private tutors came in, and it appears that a number of private tutors were equal to the challenge. Let us return to Hussein's anecdote which we

met on page 98, to understand how private tutors were perceived by the research participants:

Because of the environment in which we are studying, private tuition is help for me. You see my classroom teacher has been paid to teach us but he does not, and when he does, he does not do it with all his heart. The good thing about the street teacher (private tutor) is that once I pay him, he develops a helping heart. He carefully explains the content to me in such a way that it becomes easy for me to understand. And he even gives me tips on how to answer examination questions. So what I receive is much more than what I have paid for.

Both Hussein's classroom teacher and the private tutor are under a contractual agreement to teach Hussein mathematics, in return for which they receive some payments; the former from the government, and the latter from Hussein. But whereas the private tutor is teaching "with all his heart," the classroom teacher has failed to live up to his contractual obligations with the government. A common question that was posed to many research participants in this study was, "*In your opinion, what percentage of your final grade in mathematics in the NECTA examination will be contributed by your own personal effort, by your classroom teacher, by your friends, and by private tuition?*" The participants painted a rather dismal picture of the situation in their classrooms. None of the participants gave the classroom teacher's contribution anything above 30 percent. Private tutoring's contribution ranged between 30 and 50 percent, while individual contribution (which included peer-group discussion) ranged between 40 and 60 percent. Those who could not afford to pay for private tutoring said that they were counting on their friends and on themselves to succeed.

Earlier on, Winnie alluded to the fact that the teachers were dissatisfied with the living and working conditions under which they performed their duties as teachers. This seems to suggest that the teachers were struggling to be 'there' not only for the students but also for themselves. In his study of Tanzanian teachers' perceptions about their living and working conditions, Sumra (2004) observed that teachers were not only receiving a pay that was incommensurate with the prevailing cost of living, but they also had to work under unfavourable working conditions. He argued that "working conditions should be such that they enable teachers to concentrate on their professional task [so as to] promote effective learning by students" (p. 43). Sumra's argument is corroborated by Harris (1964), who notes that teachers who mean the most to students are not necessarily the ones who know the most, but

rather those who give out the fullness of themselves. Harris continues:

Such persons, of course, are extremely rare, and they are worth more than we can ever pay them. It should be the prime task of a good society to recruit and develop these personalities for safeguarding our children's futures; and our failure to do so is our most monstrous sin of omission (p. 362).

Through the participants' experiential accounts of the classroom learning environment, we have seen how a mathematics lesson may be perceived as an entitlement rather than help, and how this perception can alter the student's way of relating with the teacher.

In view of these observations, we must now re-pose the question with which we began this chapter: *Is a mathematics lesson an exchange or a gift?* Rather than attempting a direct answer to this question, let us appeal to Derrida's (1992) notion of a 'gift'. According to Derrida, a gift is only a gift when nothing is given back in return:

For there to be a gift, there must be no reciprocity, return, exchange, counter-gift, or debt. If the other *gives me back* or *owes me* or has to give me back what I give him or her, there will not have been a gift, whether this restitution is immediate or whether it is programmed by a complex calculation of a long-term deferral (p. 12).

For Derrida, a gift is that which can never be recognized as such, because even the simple recognition of a gift is to destroy it: "If there is a gift, the given of the gift (that which one gives, that which is given, the gift as given thing or as act of donation) must not come back to the giving" (p. 7). Thus, if in the process of giving something to the other one knows that one is giving it, then that which one is giving ceases to be a gift; it is annulled, because in exchange for the thing, one gains the psychological satisfaction of having given:

But the one who gives it must not see it or know it either; otherwise he begins, at the threshold, as soon as he intends to give, to pay himself with a symbolic recognition, to praise himself, to approve of himself, to gratify himself, to congratulate himself, to give back to himself symbolically the value of what he thinks he has given or what he is preparing to give [, thereby setting] in motion the process of a destruction of the gift (p. 14).

Even the slightest sign of gratitude on the part of the recipient of the gift annihilates the gift. The gift must not present itself as a gift; it must not be acknowledged as a

gift; there must be obliviousness not only on the part of the giver, but on the part of the recipient as well, so that acknowledgement does not reciprocate for the gift.

Can we, then, equate giving a mathematics lesson to gifting? Can we claim that any gift ever takes place in the lesson? In the Derridian sense, a gift has to do with *the* impossible. “Not impossible but the impossible. The very figure of the impossible” (p. 7). The gift has to do with what does not present itself. It seems, then, that there is no such a thing as the ‘gift’ of teaching; no gift is ever given, because to give a lesson actually means to exchange. A teacher gives a lesson to a student in exchange for a pay, either by the institution, the government, the student’s sponsor or the student him/herself. Even a teacher who gives a lesson ‘for free’ – as in volunteering – does so in expectation of some thing in return; namely, attention:

This is an unsigned but effective contract between [me, the teacher, and you, the student], indispensable to what is happening here, namely, that you accord, lend, or give some attention and some meaning to what I myself am doing by giving [a lesson] (Derrida, 1992, p. 11).

The act of teaching, however else defined, is an effort to induce learning (Smith & Ennis, 1961, p. 113). This means that in giving a lesson, the teacher expects that the student will have learnt something from the lesson. In other words, the teacher expects that the student will learn a lesson from the lesson and, in effect, acknowledge the teacher’s authoritativeness. That is why the teacher is expected to plan for the lesson, articulating what it is that the student is expected to have learnt by the end of the lesson.

Giving a lesson is always already calculating, consciously or unconsciously. Sometimes a teacher gives a ‘free’ lesson in anticipation of gaining an ‘added advantage’, fulfilling a requirement of ‘community service’ or ‘social responsibility’, accruing some experience in teaching, partially fulfilling the requirements for professional accreditation, or in the hope of earning some compliments.

If one really gives something, it must be something of oneself. One cannot give something that does not belong to them. Now, the teacher gives a lesson in accordance with the requirements set out in a prescribed curriculum. If the teacher gives a lesson because they are required to do so, then what they give is no longer a pure gift; it is no longer purely generous; it is stipulated rather than optional, predetermined rather than spontaneous, obligated rather than free; in other words, it is duty-bound. Yet a gift must be freely given; it must not be bound (p. 137).

So what should giving a lesson be if it does not seem to be a gift? In attempting to answer this question, one encounters a paradox: Although on the one hand the

teacher's giving of a lesson is regulated by an Other, on the other hand, the dissemination of the texts of the lesson is beyond the teacher's control. Legend has it that in the 1780s, an elementary school teacher gave his class the tedious task of summing the first 100 integers, with the aim of keeping the children busy for half an hour (Hayes, 2006). To the teacher's surprise, one of the pupils, Carl Freidrich Gauss, arrived at the answer almost immediately:

$$\begin{aligned}
 1 + 2 + 3 + \cdots + 98 + 99 + 100 &= 1 + 100 + 2 + 99 + 3 + 98 + \cdots + 50 + 51 \\
 &= \underbrace{101 + 101 + 101 + \cdots + 101}_{50 \text{ terms}} \\
 &= 101 \times 50 \\
 &= 5050
 \end{aligned}$$

This anecdote points to a fact in many teachers' everyday experiences in the mathematics classroom; namely, that the texts of a mathematics lesson almost always have multiple meanings. These meanings often surpass the teacher's intentions or imaginations. This is at least one sense in which the possibility of conceptualizing a mathematics lesson as a gift is plausible. In this sense, the teacher does not give something determinate – a thing. Rather he or she merely gives the condition for the possibility of the presence of a gift. That is why teaching is considered a vocation. The word 'vocation' comes from the Latin word *vocare*, meaning 'to call' (Harper, 2001). Teachers worth their salt are 'called' rather than 'hired' to teach, and it is in the act of teaching that the teacher's being is expressed. In other words, in giving a lesson, the teacher gives something which the teacher is, and which the student is not. The fact that the teacher is able to be there for the student, and, more specifically and particularly, that the teacher is able to be there when the student is in need of help, makes a mathematics lesson a gift. In this sense, the teacher gives without taking back; without expecting anything in return. As Harris (1964) pointed out, true teachers are worth more than they can ever be paid. It is thus impossible to put a price tag on the worth of a pedagogical moment. Of course there are implications for this viewpoint. If a lesson is considered a gift, then there is a danger that the teacher may be seen to be the holder of the gift who gives the gift to the student, raising the question of whether or not the teacher could be entrusted with the responsibility of being just to the student. To be sure, Glaucon aptly observed that "men are inherently unjust and are only restrained from unjust behaviour by the fetters of law and society" (cited in Rousseau, 1782/1992, p. 118).

In the previous section, Winnie reminded us that teachers “*are also human beings.*” This proposition can be looked at from two perspectives. First, like all human beings, teachers are inherently unjust, who need to be restrained from unjust behaviour. The onus, then, is on the school leaders. The strength of school leaders lies not in their concessions to injustice but, rather, in their unswerving fidelity to justice in the discharge of their duties. As Sokolowski (2002, p. 463) points out, “justice always involves a certain moral distance between the one who acts and the ones who are affected.” The school leader should have the courage to exercise formal justice in regard to his or her relatives and friends, even though this may well lead to a loss of friendship (cf. Sokolowski, 2002, p. 463). Perhaps one way of monitoring the teachers is to have an evaluation form that students complete at the end of the school term to assess various aspects of the course. If done anonymously, students are less likely to experience the kind of reprisals that some of the participants experienced when they reported cases of classroom injustice to the school administration.

The other perspective of looking at Winnie’s proposition is to say that like all human beings, teachers have needs, and if a mathematics lesson is considered a gift, then there is a possibility that the society (which is composed of human beings) may neglect its responsibility of nurturing these teachers, meaning that the teachers would be struggling to be there for the students. Admittedly, the notion of the teacher ‘being there’ for the student implies a rather unequal partnership: the teacher is there for the student, in some way taking responsibility for that with which the student is concerning him/herself. At that moment of being there, the needs of the teacher who is ‘there’ are secondary to the needs of the student. In other words, at the moment of being there for the student, the teacher must forget him/herself. But, surely, does this mean that the teacher forgets him/herself indefinitely? Perhaps yes, for the teacher-student relationship must exist, even if or when the teacher is indifferent, burned out and uncaring – and even when the teacher does not believe in the relationship. The relationship cannot be renounced; it is there whether the teacher wants it to be or not. But it is one thing for a teacher-student relationship to be there and quite another for that relationship to be meaningful to the student. According to Buber (1923/1970):

The teacher who wants to help the pupil to realize his best potentialities must ... know him not as a mere sum of qualities, aspirations, and inhibitions; he must apprehend him, and affirm him, as a whole. But this he can only do if he encounters him as a partner in a bipolar situa-

tion. And to give his influence unity and meaning, he must live through this situation in all its aspects not only from his point of view but also that of his partner. He must practice the kind of realization that I call embracing (p. 178).

The partnership envisaged by Buber can only be realized through the teacher's responsive openness to the student; namely, being open to the student's presence in such a way that the student's presence is apprehended as a gift that enriches the teacher (Dalferth, 2006). For this reason, it is incumbent upon a good society to explore the possibility of conceptualizing a mathematics lesson as an exchange, with a view to establishing what would constitute a fair exchange for the lesson. It is precisely in the 'in-between-ness' of exchange and gift that the possibilities of the teacher being truly there for the student are enmeshed.

Chapter 7

Conclusions and Suggestions for Further Research

The aim of this study was to explore and describe the essence of the meaning of seeking and giving help in mathematics from the perspective of high school mathematics students. This thesis has provided a description of the lived-through quality of the research participants' experiences, the pedagogical significance of the meanings that the participants ascribed to those experiences, and the implications that the research findings may have for educational policy and practice.

According to the research participants, seeking help in mathematics means seeking change in one's existential mode of being in the mathematics life-world, and exhibiting responsive openness to not only that which is being sought but also to the one who is the target of the seeking intention. This means that when students are seeking help in mathematics, they are looking for someone who would help them experience change in the mathematical task with which they are seeking help. In other words, they are looking for someone who is open and receptive. As such, the participants conceptualized giving help in mathematics as more a way of being there for the recipient than a kind of doing.

Contrary to what is predominantly reported in the existing literature on academic help-seeking, most of the participants in this research study appeared to conceptualize seeking help as a sign of strength and maturity rather than a sign of weakness or failure. This finding appears to be in line with the achievement goal theory, which posits that goals provide an individual a motivation for seeking help. Nonetheless, most of the participants' attitudes towards help-seeking appear to have been rather utilitarian, in the sense that they seem to have been motivated by a desire to pass national examinations. For this reason, this thesis has under-

scored the need for the seeking that has epistemological significance; namely, the seeking that is aimed at promoting conceptual understanding of mathematics. Students will never lose agency by engaging in this kind of seeking, since they will only ask for the type of help that enables them to complete the task on their own. Students need to be encouraged to seek help with not just ‘how’ and ‘what’ questions, but also with ‘why’ questions. In this regard, there is a need to enhance the existing student-to-student helping relationships by, say, providing group-based assignments in which authentic questions that lead to conceptual understanding of mathematics are provided. The utility of student-to-student helping relationships was clearly evident in the participants’ experiential accounts. These peer-to-peer helping networks transcended the sphere of mathematics learning, and could thus be seen as the participants’ way of actualizing their background cultural commitment to the *ujamaa* ideology. Since the students are able to relate with each other easily, student-to-student helping relationships are one sure way of mitigating the effects of large class sizes in educational contexts such as the one considered in this study.

Analysis of the participants’ experiential accounts demonstrated that a student’s decision to seek help from a particular person will necessarily be determined by the student’s resonance with that particular person. As such, a teacher’s ordinary humanity, intuition and ability to understand students’ feelings will to a great extent determine a student’s motivation to seek help from the teacher. Restricting students to using a language they are not proficient in when seeking help from the teacher may discourage them from seeking help.

Also described in this thesis is the phenomenon of classroom injustice, which emerged fortuitously in many of the participants’ experiences. In their experiential descriptions, many participants expressed feelings of being neglected and disobliged by their teachers. Some participants also felt that fidelity to just principles was lacking among those who were entrusted with the responsibility of school leadership. These experiences led to feelings of aloneness among the participants, which appear to have acted as an impulse for the participants to seek help in the sphere of peer-group relationships. Within these relationships, the participants managed to create helping values and practices that they deemed necessary for their academic survival and advancement. However, due to the peers’ limitations in their abilities to help each other, the participants felt the need to turn to private tutors to compensate for those limitations.

Based on these research findings, a number of challenges have been raised;

some to policy-makers, others to teacher educators, and others to researchers. For the policy-makers, one of the challenges raised regards the means of rekindling the teachers' morale so that they can provide a supportive and caring classroom environment to students. I have argued that professional ethics in teaching can only thrive in the space between teachers' well-being and teachers' embodied enactment of pedagogical helpfulness.

It is true that for teachers to effectively teach their students mathematics, the teachers need to be well grounded in subject matter knowledge. But that is just half the story. In essence, it is those teachers who have been called to teaching that will express their being in and through the act of teaching. The participants' accounts seem to suggest that teaching in Tanzanian high schools may be suffering from a diminution of passion. A challenge has thus been raised to teacher educators to explore ways of recovering the notion of teaching as a vocation. It is hoped that teacher educators will become alert to the contribution that the inculcation of the notion of teaching as a vocation in pre- and in-service teachers can make in ameliorating those teacher dispositions that are considered helpful to students and weakening those that are unhelpful. Admittedly, some teacher candidates possess certain innate dispositions that are essential to teacher effectiveness. Possession of such dispositions could be used as a selection criterion in the teacher education program. In other words, during the recruitment process, emphasis could be placed on the extent to which a candidate has a 'calling' for teaching. Furthermore, there is a need for teacher educators to explore ways of promoting teachers' professional identity and integrity, for as Palmer (1998) aptly puts it "good teaching cannot be reduced to technique; good teaching comes from the identity and integrity of the teacher" (p. 10).

This thesis has also argued for the need to re-examine the role of school leadership in the teaching-learning process. I have argued that the strength of school leaders lies not in their concessions to injustice but, rather, in their unswerving fidelity to justice in the discharge of their duties.

The goal I had set at the beginning of this study was rather ambitious. I had hoped that by the end of the study, I would bring the reader face-to-face with the phenomena of seeking and giving help in mathematics. But as one must admit, only a comprehensive phenomenology of seeking and giving help in mathematics can do some justice to these phenomena. The phenomenology of seeking and giving help in mathematics as described in this thesis is based on only one descriptive text and is therefore tentative. It would need corroboration and fine-tuning, grounded in

other contexts and situations. One potential avenue would be high school mathematics students in contexts where the teacher-student interaction is more robust than was the case in this study. Another avenue would be mathematics students at the primary school level. To my knowledge, such phenomenologies have not been sufficiently considered and explored. It would also be interesting to explore teachers' experiences of giving help to mathematics students, so as to understand the pedagogical strategies that teachers use when giving help to students, and to further inform our understanding of what 'help' is in mathematics teaching and learning. There is also a need to explore the phenomenology of seeking and giving help with other school-related issues such as bullying. This thesis has at least offered some clues as to how these other forms of seeking and giving help might look like.

A study of students' experiences of the mathematics classroom has the potential to further our understanding of the nature of teacher-student interactions and their impact on the students' mathematics achievement. Some work in this direction has been done by Brown (1996), who described the mathematics classroom from the perspective of social phenomenology, and argued that mathematical understanding is a function of an evolving social frame within which that understanding is immersed. More work needs to be done to gain further insight into how the learning environment facilitates or hinders students' mathematical meaning-making process.

Another question that needs to be investigated is whether 'institutionalized' private tutoring is a blessing or a curse. It would be interesting, for example, to investigate the effects of private tutoring on the social fabric of a country that professes the values of familyhood. In Tanzania, as in many other African countries, students are required to wear school uniforms at all times during school hours. This requirement eliminates, or at least mitigates, perceptible disparities amongst students. It also reduces the students' desire to own. Unfortunately, the phenomenon of private tutoring appears to be counteracting this noble idea. Based on some of the participants' experiential descriptions, private tutoring seems to be putting pressure on those students who cannot afford to pay for it. For example, in Section 5.4, we encountered a situation where one student felt that the other student was doing well in mathematics merely because of private tutoring. If some students cannot afford to pay for private tutoring, then their affective well-being may be negatively affected, particularly in situations where there are perceptible deficiencies in the classroom learning experiences. This was the case in Section 6.2.1, where a student who was solely dependent on his elder brother wished that his father was alive since his elder brother could not afford to pay for the private tutoring for him.

A dysfunctional education system can only serve to undermine the goals of education. There may be many capable and talented students who are not getting an opportunity to realize their potential simply because the playing field is not even. If the education system is too much pro-examination, and private tutoring is facilitating students' ability to pass examinations, then there are students who will fall short of the benchmark not because they are not working hard, but simply because of their economic realities. As an ethical compromise, there is a need to make public education more equitable by ensuring that students can achieve the intended goals of education within the parameters of public education.

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Appendix A: Letter of Ethics Approval

Notification of Approval

Date:	June 28, 2011	
Study ID:	Pro00023508	
Principal Investigator:	Simon Karuku	
Study Supervisor:	Elaine Simmt	
Study Title:	Lived Experiences of High School Students when Seeking, Receiving and Giving Help in Mathematics	
Approval Expiry Date:	June 26, 2012	
Approved Consent Form:	Approval Date	Approved Document
	6/28/2011	Student's Informed Assent
	6/28/2011	Parent/Guardian Informed Consent
	6/28/2011	Student's Informed Consent

Thank you for submitting the above study to the Research Ethics Board 1. Your application has been reviewed and approved on behalf of the committee.

A renewal report must be submitted next year prior to the expiry of this approval if your study still requires ethics approval. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application.

Approval by the Research Ethics Board does not encompass authorization to access the staff, students, facilities or resources of local institutions for the purposes of the research.

Sincerely,

NOT FOR PUBLIC RELEASE

Chair, Research Ethics Board 1

Note: This correspondence includes an electronic signature (validation and approval via an online system).

Appendix B: Research Permit

The United Republic of Tanzania

Prime Ministers' Office

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

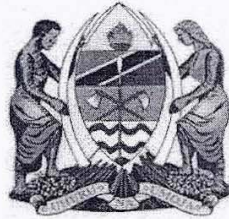
NOT FOR PUBLIC RELEASE DISTRICT

Phone Address:

Phone No: NOT FOR PUBLIC RELEASE

In reply quote:

Ref. No: AB. Ab.65/209/



DISTRICT COMMISSIONER'S OFFICE

NOT FOR PUBLIC RELEASE DISTRICT

P. O. Box NOT FOR PUBLIC RELEASE

NOT FOR PUBLIC RELEASE

Date: 4/2/011

THE PRINCIPAL

NOT FOR PUBLIC RELEASE HIGH SCHOOL

NOT FOR PUBLIC RELEASE ?

RE: RESEARCH PERMIT FOR MR. SIMON KARUKU

Please make reference to the captioned subject.

The name above is a researcher from the UNIVERSITY OF ALBERTA
CANADA

Has been permitted to undertake a researcher on PHENOMENOLOGY OF
SEEKING AND GIVING HELP IN MATHEMATICS IN TANZANIA
"LIVED EXPERIENCES OF TANZANIA HIGH SCHOOL STUDENT"

You kindly asked to give the required assistance cooperation to this researcher.

NOT FOR PUBLIC RELEASE

For: DISTRICT ADMINISTRATIVE SECRETARY

NOT FOR PUBLIC RELEASE

Appendix C: Student's Informed Consent

Dear Student,

My name is Simon Karuku, and I am a Ph.D. student in the Department of Secondary Education at the University of Alberta in Canada. I am conducting a research study titled "*Lived Experiences of High School Students when Seeking and Giving Help in Mathematics.*" The purpose of this study is to explore and understand the meaning of help from the viewpoint of high school mathematics students in Tanzania. I would like to invite you to take part in this study. Your contribution is very important. The outcome of this study will help mathematics teachers improve students' mathematics learning experiences, which may be beneficial to you as well as other students in Tanzania. If you agree to participate in the study:

1. You will be interviewed and/or asked to write of your experiences regarding seeking and/or giving help in mathematics. The interview may be audio-recorded, and will take about 35 minutes to complete. The interview and writing activity will take place outside the class time in a quiet place within the school compound, or any other convenient place where you feel comfortable.
2. All the information you provide will be confidential and kept in a safe place. The information will not be used in any way that can identify you individually or your school or location. All identifying features such as your name and location will be replaced with pseudonyms.
3. Only I and my supervisor (Dr. Elaine Simmt) will have access to your data. The information you provide may be used in the writing of my Ph.D. dissertation, in research presentations, or in other scholarly manuscripts for publications, but identifying features such as your name and location will not be used.
4. The risks involved in this study are minimal, and should not exceed the risks faced in your everyday activities. You may, in fact, benefit from reflecting upon your experiences.
5. Your participation in the study is voluntary. Even after agreeing to participate, you may choose to discontinue participation without penalty at any time. You may withdraw information already collected up to 3 months after the interview is conducted. You may opt out simply by informing me or The Head-teacher, _____ Secondary School or my supervisor (Dr. Elaine Simmt) orally or in writing that you do not wish to participate. Your decision not to participate or your decision to withdraw from the study will not affect any relationship you might have with _____ Secondary School.

If you have any further questions regarding this research study, or would like further information please do not hesitate to contact either of the following:

Simon Karuku (Researcher)	Phone: 0778 462 818
	Email: karuku@ualberta.ca
Dr. Elaine Simmt (Supervisor)	Phone: +1780 492 0881
	Email: esimmt@ualberta.ca

Thank you for your support.

Yours sincerely,

Simon Karuku

The plan for this study has been reviewed for its adherence to ethical guidelines and approved by the Research Ethics Board (REB) at the University of Alberta in Canada, and the Research Desk at the Ministry of Education and Vocational Training (MEVT) in Tanzania. For any questions regarding participant rights and ethical conduct of research, please contact the Director of Research, MEVT at 022 220 3185, or the Chair of REB, University of Alberta in Canada at +1 780 492 3751.

INFORMED CONSENT FORM

Lived Experiences of High School Students when Seeking and Giving Help in Mathematics

I have been asked to participate in this research study, the purpose of which is to explore and describe the meaning of seeking and giving help from the viewpoint of high school mathematics students in Tanzania. I was selected to be a possible participant because I take mathematics in high school and have had a moment when I sought or gave help in mathematics.

1. If I agree to participate in this study, I will be interviewed and/or asked to write of my experiences regarding seeking and/or giving help in mathematics. The interview may be audio-recorded, and will take about 35 minutes to complete.
2. The risks involved in this study are minimal, and should not exceed the risks faced in my everyday activities. I may, in fact, benefit from reflecting upon my experiences. The outcome of this study will help mathematics teachers improve students' mathematics learning experiences, which may be beneficial to me as well as other students in Tanzania.
3. I will not receive any compensation for participating in this study.
4. Only Simon Karuku and his supervisor (Dr. Elaine Simmt) will have access to the content of the audio-recording and written materials shared by me.
5. The information I provide may be used in the writing of Simon Karuku's Ph.D. dissertation, in research presentations, or in other scholarly manuscripts for publications, but the information will not be used in any way that can identify me.
6. The audio-recording and written materials shared by me will be kept in a secure place for a maximum of five years following completion of this research study, and only Simon Karuku will have access to them.
7. The interview notes will be shared with me to clarify insights drawn from the interview.
8. My decision whether or not to participate will not affect my current or future relations with _____ Secondary School.

9. If I agree to participate, I am free to withdraw from the study, to refuse to answer specific questions, and/or to withdraw my participation at any time up to 3 months after the interview/writing activity, without any negative consequences. To withdraw, I can either tell

Simon Karuku (0778 462 818; karuku@ualberta.ca), or
The Head-teacher, _____ Secondary School, or
Dr. Elaine Simmt (Simon Karuku's supervisor: +1780 492 0881;
esimmt@ualberta.ca).

I have read, understood and have had the opportunity to ask questions. I have had all of my questions answered to my satisfaction. I have been given a copy of this document for my records. By signing this document, I voluntarily agree to participate in the study.

Name: _____

Signature: _____

Date: _____

The plan for this study has been reviewed for its adherence to ethical guidelines and approved by the Research Ethics Board (REB) at the University of Alberta in Canada, and the Research Desk at the Ministry of Education and Vocational Training (MEVT) in Tanzania. For any questions regarding participant rights and ethical conduct of research, please contact the Director of Research, MEVT at 022 220 3185, or the Chair of REB, University of Alberta in Canada at +1 780 492 3751.

Appendix D: Student's Informed Consent (in Kiswahili)

Mwanafunzi Mpendwa,

Jina langu ni Simon Karuku, mwanafunzi wa shahada ya uzamifu (Ph.D.) katika Idara ya Elimu ya Sekondari, Chuo Kikuu cha Alberta nchini Kanada. Ninafanya utafiti kuhusu jinsi wanafunzi wa shule za sekondari hutafuta na hutoa msaada kwenye somo la hisabati ("*Lived Experiences of High School Students when Seeking and Giving Help in Mathematics*"). Lengo la utafiti huu ni kuchunguza na kuelewa maana ya msaada kwa mujibu wa wanafunzi wa hisabati katika shule za sekondari nchini Tanzania. Ningependa kukualika ushiriki kwenye utafiti huu. Mchango wako ni muhimu sana. Maelezo nitakayokusanya yatatumika kuimarisha mafunzo ya hisabati, kwa manufaa yako pamoja na wanafunzi wengine nchini Tanzania. Ukikubali kushiriki kwenye utafiti huu:

1. Utahojiwa na/au utaombwa uandike kuhusu kisa kimoja ulipokuwa ukitafuta au ukitoa msaada kwenye somo la hisabati. Kwa sababu siyo rahisi kwangu kunukuu neno hadi neno litakalotajwa, mahojiano yaweza kurekodiwa kwenye kinasa sauti, na yatachukua muda wa dakika 35 kukamilika. Mahojiano na shughuli za kuandika yatafanyiwa mahali patulivu katika majengo ya shule wakati wa mapumziko, au wakati na mahali mwafaka kwako wewe.
2. Nitachukua hatua kuhakikisha kuwa habari zozote utakazotoa, na ambazo huenda zikatambulika au kudhaniwa kuwa ni zako, zitabaki kuwa siri na hazitatumika kwa kazi nyingine yoyote. Majina bandia yatachukua nafasi ya majina yanayoweza kukutambulisha.
3. Ni mimi pamoja na msimamizi wangu (Dkt. Elaine Simmt) pekee tutakaoweza kuyafikia ama yaliyorekodiwa kwenye kinasa sauti au habari zingine zozote utakazotoa na ambazo huenda zikakutambulisha au kudhaniwa kuwa ni zako. Maandishi yote yatakayotolewa nawe yatahifadhiwa mahali salama. Matokeo ya utafiti huu yaweza kuchapishwa kwenye tasnifu ya uzamifu yangu na kwenye majarida mbalimbali. Katika kila chapisho, taarifa zitatolewa bila kutaja jina lako.
4. Madhara yanayoambatana na kushiriki kwenye utafiti huu ni haba mno, na hayazidi madhara yanayowakabili wanafunzi kwenye shughuli zao za kila siku. Kwa kweli, unaweza kunufaika unapotafakari jinsi unavyotafuta au unavyotoa msaada kwenye somo la hisabati.

5. Kushiriki kwako ni kwa hiari. Hata baada ya kukubali kushiriki, unayo haki ya kuhatimisha ushiriki wako wakati wowote bila madhara yoyote. Una haki ya kunizuia kutumia taarifa zozote ulizonipa kwenye utafiti huu ndani ya muda wa miezi mitatu tangu mahojiano yatakapofanyika. Unaweza kunizuia kwa kuniarifu, au kwa kumuarifu mwalimu mkuu, Shule ya Sekondari ya _____, au kwa kumuarifu msimamizi wangu (Dkt. Elaine Simmt). Uamuzi wa kutoshiriki, kujitoa au kunizuia kuzitumia taarifa zako hauwezi kuathiri uhusiano uliopo au wa siku za nyuma kati yako na Shule ya Sekondari ya _____.

Ikiwa una maswali au tashwishi yoyote au ungetaka maelezo zaidi kuhusu utafiti huu, tafadhali wasiliana na mmoja wa watu wafuatao:

Simon Karuku (Mtafiti)	Simu: 0778 462 818
	Barua pepe: karuku@ualberta.ca
Dkt. Elaine Simmt (Msimamizi)	Simu: +1780 492 0881
	Barua pepe: esimmt@ualberta.ca

Ahsante kwa msaada wako.

Wako mwaminifu,

Simon Karuku

Mpango wa utafiti huu umekaguliwa kuhusiana na uzingatiaji wa miongozo ya maadili, na kuidhinishwa na Halmashauri ya Maadili ya Utafiti (Research Ethics Board) ya Chuo Kikuu cha Alberta nchini Kanada, pamoja na Idara ya Utafiti katika Wizara ya Elimu na Mafunzo ya Ufundi nchini Tanzania. Kwa maswali yoyote kuhusu haki za mshiriki na mienendo ya maadili ya utafiti, tafadhali wasiliana na Mkurugenzi wa Utafiti, Wizara ya Elimu na Mafunzo ya Ufundi, kupitia 022 212 0430, au Mwenyekiti wa Halmashauri ya Maadili ya Utafiti (Chair of the Research Ethics Board) kupitia +1 780 492 3751.

FOMU YA IDHINI YA MWANAFUNZI

MADA YA UTAFITI: Jinsi Wanafunzi wa Shule za Sekondari Wanavyotafuta na Wanavyotoa Msaada kwenye Somo la Hisabati

Nimeombwa kushiriki kwenye utafiti huu, wenye lengo la kuchunguza na kuelewa maana ya msaada kwa mujibu wa wanafunzi wa hisabati katika shule za sekondari nchini Tanzania. Nimechaguliwa kama anayeweza kushiriki kwenye utafiti huu kwa sababu mimi ni mwanafunzi wa somo la hisabati, na nina wakati niliwahi kutafuta au kutoa msaada kwenye somo la hisabati.

1. Nikikubali kushiriki kwenye utafiti huu, nitahojiwa na/au nitaombwa niandike kuhusu kisa kimoja nilipokuwa nikitafuta au nikitoa msaada kwenye somo la hisabati. Mahojiano yaweza kurekodiwa kwenye kinasa sauti, na yatachukua muda wa dakika 35 kukamilika.
2. Mahojiano na shughuli za kuandika yatafanyiwa mahali patulivu katika majengo ya shule wakati wa mapumziko, au wakati na mahali mwafaka kwangu.
3. Madhara yanayoambatana na kushiriki kwenye utafiti huu ni haba mno, na hayazidi madhara yanayonikabili kwenye shughuli zangu za kila siku. Kwa kweli, ninaweza kunufaika ninapotafakari jinsi ninavyotafuta au ninavyotoa msaada kwenye somo la hisabati. Maelezo yatakayokusanywa yatumika kuimarisha mafunzo ya hisabati, na yanaweza kuwa na manufaa kwangu pamoja na wanafunzi wengine nchini Tanzania.
4. Sitapokea fidia au malipo yoyote kutokana na kushiriki kwenye utafiti huu.
5. Ni Simon Karuku (mtafiti) pamoja na msimamizi wake (Dkt. Elaine Simmt) pekee watakaoweza kuyafikia ama yaliyorekodiwa kwenye kinasa sauti au habari zingine zozote nitakazotoa na ambazo huenda zikanitambulisha au kudhaniwa kuwa ni zangu.
6. Matokeo ya utafiti huu yaweza kuchapishwa kwenye tasnifu ya uzamifu ya Simon Karuku na kwenye majarida mbalimbali. Katika kila chapisho, majina bandia yatachukua nafasi ya majina yanayoweza kunitambulisha.
7. Taarifa zilizorekodiwa kwenye kinasa sauti pamoja na maandishi yoyote nitakayotoa yatahifadhiwa mahali salama kwa muda wa miaka mitano baada ya utafiti kukamilika, na ni mtafiti Simon Karuku pekee atakayeweza kuvifikia.
8. Nitashirikishwa kwenye maelezo yatakayotokana na majadiliano yetu ili kufafanua zaidi ufahamu uliotokana na majadiliano hayo.
9. Uamuzi wangu wa kushiriki au kutoshiriki hautaathiri uhusiano uliopo au wa siku za nyuma kati yangu na Shule ya Sekondari ya _____.

9. Nikiamua kushiriki, niko huru kujiondoa kwenye utafiti huu wakati wowote, kukataa kujibu maswali fulani, au hata kukataza kutumika kwa taarifa nilizotoa ndani ya muda wa miezi mitatu tangu mahojiano yatakapofanyika, bila madhara yoyote. Nikitaka kujitua au kukataza kutumika kwa taarifa nitakozozitua, ninaweza kumuarifu

Simon Karuku (simu: **0778 462 818**; barua pepe: **karuku@ualberta.ca**),
au Mwalimu mkuu Shule ya Sekondari ya _____,
au Dkt. Elaine Simmt (msimamizi wa Simon Karuku; simu: **+1780 492 0881**;
barua pepe: **esimmt@ualberta.ca**)

Nimesoma, nikaelewa, na nimepata nafasi ya kuuliza maswali. Maswali yangu yote niliyokuwa nayo yamejibiwa kiasi cha kuniridhisha. Nimepatiwa nakala ya fomu hii kwa kumbukumbu yangu. Kwa kuweka sahihi fomu hii, nakubali kwa hiari kushiriki kwenye utafiti huu.

Jina: _____

Sahihi: _____

Tarehe: _____

Mpango wa utafiti huu umekaguliwa kuhusiana na uzingatiaji wa miongozo ya maadili, na kuidhinishwa na Halmashauri ya Maadili ya Utafiti (Research Ethics Board) ya Chuo Kikuu cha Alberta nchini Kanada, pamoja na Idara ya Utafiti katika Wizara ya Elimu na Mafunzo ya Ufundi nchini Tanzania. Kwa maswali yoyote kuhusu haki za mshiriki na mienendo ya maadili ya utafiti, tafadhali wasiliana na Mkurugenzi wa Utafiti, Wizara ya Elimu na Mafunzo ya Ufundi, kupitia 022 212 0430, au Mwenyekiti wa Halmashauri ya Maadili ya Utafiti (Chair of the Research Ethics Board) kupitia +1 780 492 3751.

Appendix E: Parent's Informed Consent (in Kiswahili)

Mzazi/Mwandalizi Mpendwa,

Jina langu ni Simon Karuku, mwanafunzi wa shahada ya uzamifu (Ph.D.) katika Idara ya Elimu ya Sekondari, Chuo Kikuu cha Alberta nchini Kanada. Ninafanya utafiti kuhusu jinsi wanafunzi wa shule za sekondari hutafuta na hutoa msaada kwenye somo la hisabati ("*Lived Experiences of High School Students when Seeking and Giving Help in Mathematics*"). Shule ya Sekondari ya _____ imeniruhusu niwasiliane nawe, kwa sababu **mwanao atapatiwa nafasi ya kushiriki kwenye utafiti huu.**

Lengo la utafiti huu ni kuchunguza na kuelewa maana ya msaada kwa mujibu wa wanafunzi wa hisabati katika shule za sekondari nchini Tanzania. Mchango wa mwanao ni muhimu sana. Maelezo nitakayokusanya yatautumika kuimarisha mafunzo ya hisabati, kwa manufaa ya mwanao pamoja na wanafunzi wengine nchini Tanzania.

1. Watakaoshiriki kwenye utafiti huu watahojiwa na/au wataombwa waandike kuhusu kisa kimoja walipokuwa wakitafuta au wakitoa msaada kwenye somo la hisabati. Kwa sababu siyo rahisi kwangu kunukuu neno hadi neno litakalotajwa, mahojiano yaweza kurekodiwa kwenye kinasa sauti, na yatachukua muda wa dakika 35 kukamilika. Mahojiano na shughuli za kuandika yatafanyiwa mahali patulivu katika majengo ya shule wakati wa mapumziko, au wakati na mahali mwafaka kwa mshiriki.
2. Nitahakikisha kuwa maelezo yote yaliyokusanywa kwenye mahojiano yetu na mshiriki yatakuwa ya siri na hayatumika kwa kazi nyingine yoyote mbali na kwenye utafiti huu. Majina bandia yatachukua nafasi ya majina yanayoweza kumtambulisha mshiriki.
3. Ni mimi pamoja na msimamizi wangu (Dkt. Elaine Simmt) pekee tutakaoweza kuyafikia ama yaliyorekodiwa kwenye kinasa sauti au taarifa zingine zozote zitakazotolewa na mshiriki na ambazo huenda zikamtambulisha mshiriki au kudhaniwa kuwa ni zake. Maandishi yote yatakayotolewa na mshiriki yatahifadhiwa mahali salama. Matokeo ya utafiti huu yaweza kuchapishwa kwenye tasnifu ya uzamifu yangu na kwenye majarida mbalimbali. Katika kila chapisho, taarifa zitatolewa bila kutaja jina la mshiriki.
4. Madhara yanayoambatana na kushiriki kwenye utafiti huu ni haba mno, na hayazidi madhara yanayowakabili wanafunzi kwenye shughuli zao za kila siku. Kwa kweli, mshiriki anaweza kunufaika anapotafakari jinsi anavyotafuta na/au anavyotoa msaada kwenye somo la hisabati.

5. **Wanafunzi walio chini ya umri wa miaka 18 hawawezi kushiriki kwenye utafiti huu bila idhini ya mzazi au mwangalizi.**
6. Nimeambatanisha barua hii na fomu ya kuomba idhini yako. Tafadhali isome, ijaze, kisha umkabidhi mwanao aiwasilishe kwangu. Ukinipa idhini yako, nitampatia mwanao maelezo zaidi kuhusu utafiti huu, na pia nitamuomba idhini yake.
7. Wewe, kama mzazi au mwangalizi, unayo haki ya kukataa mwanao kushiriki kwenye utafiti huu. Kushiriki kwa mwanao ni kwa hiari, na hakuwezi kuathiri uhusiano ulioko kati yako au mwanao na Shule ya Sekondari ya _____

Chuo Kikuu cha Alberta nchini Kanada pamoja na Wizara ya Elimu na Mafunzo ya Ufundi nchini Tanzania zimekagua na kukubalia utafiti huu uendelee. Ruhusa ya kufanya utafiti huu katika Shule ya Sekondari ya _____ imetolewa na Mwalimu Mkuu.

Ikiwa una maswali yoyote au ungetaka maelezo zaidi kuhusu utafiti huu, tafadhali wasiliana na:

Simon Karuku (Mtafiti)	Simu: 0778 462 818
	Barua pepe: karuku@ualberta.ca
Dkt. Elaine Simmt (Msimamizi)	Simu: +1780 492 0881
	Barua pepe: esimmt@ualberta.ca

Ahsante kwa msaada wako.

Wako mwaminifu,

Simon Karuku

Mpango wa utafiti huu umekaguliwa kuhusiana na uzingatiaji wa miongozo ya maadili, na kuidhinishwa na Halmashauri ya Maadili ya Utafiti (Research Ethics Board) ya Chuo Kikuu cha Alberta nchini Kanada, pamoja na Idara ya Utafiti katika Wizara ya Elimu na Mafunzo ya Ufundi nchini Tanzania. Kwa maswali yoyote kuhusu haki za mshiriki na mienendo ya maadili ya utafiti, tafadhali wasiliana na Mkurugenzi wa Utafiti, Wizara ya Elimu na Mafunzo ya Ufundi, kupitia 022 212 0430, au Mwenyekiti wa Halmashauri ya Maadili ya Utafiti (Chair of the Research Ethics Board) kupitia +1 780 492 3751.

FOMU YA IDHINI YA MZAZI/MWANGALIZI

Mada ya utafiti	Jinsi Wanafunzi wa Shule za Sekondari Wanavyotafuta na Wanavyotoa Msaada Kwenye Somo la Hisabati
Mtafiti – Simon Karuku	Simu: 0778 462 818
	Barua pepe: karuku@ualberta.ca
Msimamizi – Dkt. Elaine Simmt	Simu: +1780 492 0881
	Barua pepe: esimmt@ualberta.ca

1. Nimepatiwa maelezo, na nikajadiliana na Simon Karuku masuala na maswali yoyote niliyokuwa nayo kuhusu utafiti huu.
2. Naelewa kuwa nikipatiana idhini, mwanangu atahojiwa na/au ataombwa aandike kuhusu kisa kimoja alipokuwa akitafuta au akitoa msaada kwenye somo la hisabati. Mahojiano yaweza kurekodiwa kwenye kinasa sauti, na yatachukua muda wa dakika 35 kukamilika. Mahojiano na shughuli za kuandika yatafanyiwa mahali patulivu katika majengo ya shule wakati wa mapumziko au wakati na mahali mwafaka kwa mshiriki.
3. Naelewa kuwa nina haki ya kukataa mwanangu kushiriki kwenye utafiti huu, kwamba kushiriki kwa mwanangu ni kwa hiari, kwamba naweza kuiondoa idhini yangu ya kumruhusu mwanangu kushiriki wakati wowote hadi miezi mitatu kutoka wakati mahojiano yatakapofanyika, na kwamba kutoshiriki kwa mwanangu hakuwezi kuathiri uhusiano ulioko kati yangu au mwanangu na Shule ya Sekondari ya _____
4. Nikiwa na maswali yoyote kuhusu utafiti huu, naweza kuwasiliana na Simon Karuku kupitia nambari zilizoko hapo njuu. Nikiwa na malalamiko au wasiwasi kuhusu jinsi utafiti umetokelezwa, naweza kuwasiliana na Mkurugenzi wa Utafiti, Wizara ya Elimu na Mafunzo ya Ufundi (MEVT) nchini Tanzania kupitia 022 220 3185, au Mwenyekiti wa Halmashauri ya Maadili ya Utafiti, Chuo Kikuu cha Alberta (Chair of the Research Ethics Board, University of Alberta) kupitia +1 780 492 3751.

Kwa kuweka sahihi fomu hii, nakubalia kwa hiari mwanangu ashiriki kwenye utafiti huu. Nimepatiwa nakala ya fomu hii kwa kumbukumbu yangu.

Mimi, _____(Tafadhali andika jina lako)

Nakubali

Nakataza

mwanangu _____ (Jina la mtoto)
ashiriki kwenye utafiti huu

Sahihi:.....Tarehe:.....

(Tafadhali mkabidhi mwanao nakala moja ya fomu hii)

Mpango wa utafiti huu umekaguliwa kuhusiana na uzingatiaji wa miongozo ya maadili, na kuidhinishwa na Halmashauri ya Maadili ya Utafiti (Research Ethics Board) ya Chuo Kikuu cha Alberta nchini Kanada, pamoja na Idara ya Utafiti katika Wizara ya Elimu na Mafunzo ya Ufundi nchini Tanzania. Kwa maswali yoyote kuhusu haki za mshiriki na mienendo ya maadili ya utafiti, tafadhali wasiliana na Mkurugenzi wa Utafiti, Wizara ya Elimu na Mafunzo ya Ufundi, kupitia 022 212 0430, au Mwenyekiti wa Halmashauri ya Maadili ya Utafiti (Chair of the Research Ethics Board) kupitia +1 780 492 3751.

Appendix F: Sample Interview Prompts

Lived Experience of Seeking Help

Please recall from your recent or not so recent experiences a particular moment when you – individually, or with others – approached someone for help in mathematics. I would like you to try as much as possible to describe the details of that moment of seeking help as you experienced it. Try not to speculate, imagine or guess; just stick to your personal experience; just tell it as you experienced it. In other words, just describe it as it happened or as you lived through it. Please include concrete details such as where you were, what you saw, what exactly you did, how you felt, what you said, what the person who was helping you said, etc. Please include a description of how they spoke, how they looked, the tone of voice, their face, how it made you feel, etc.

Suggested prompts: “Tell me more”; “Can you explain that to me?”; “Can you give me an example of that/what you mean?”

Prompts you might use

- ◇ How did having a mathematics problem that you could not solve on your own make you feel?
- ◇ What did you notice about the person who was helping you? What did s/he say?
- ◇ What did you think of the person from whom you sought help?
- ◇ How did your body react to the situation?/How did you react physically in the situation?
- ◇ Did you notice time?
- ◇ Did this experience of seeking help change how you thought about yourself? About the person from whom you sought help? How?
- ◇ This study is about understanding students’ experiences of seeking help in mathematics. Is there anything that I have not asked you but it would be useful for me to know?

Lived Experience of Giving Help

Please recall from your recent or not so recent experiences a particular moment when you were approached by someone – or several someones – who needed help in mathematics. I would like you to try as much as possible to describe the details of that moment of giving help as you experienced it – try not to speculate, imagine or guess. Just stick to your personal experience. Just tell it as you experienced it. In other words, just describe it as it happened or as you lived through it. Please include concrete details such as where you were, what you saw, what exactly you did, how you felt, what you said, what the person(s) who sought help from you said, did, etc. Please include a description of how they spoke, how they looked, the tone of voice, their face, how it made you feel, etc.

Suggested prompts: “Tell me more”; “Can you explain that to me?”; “Can you give me an example of that/what you mean?”

Prompts you might use

- ★ What did you notice about the person who sought help from you? What did s/he say?
- ★ What did you think of this person?
- ★ How did your body react to the situation?/How did you react physically in the situation?
- ★ Did you notice time?
- ★ Did this experience of giving help change how you thought about yourself? About the person you were helping? How?
- ★ This study is about understanding students’ experiences of giving help in mathematics. Is there anything that I have not asked you but it would be useful for me to know?

Appendix G: Guide for Writing a Lived Experience Description

Please write a direct account of a personal experience as you lived through it related to seeking or giving help in mathematics. I am looking for descriptions, not explanations or interpretations. The following are some suggestions for producing a lived experience description:

- (1) Focus on a particular example or incident of the experience.
 - (2) Describe the experience as you lived through it. Avoid as much as possible causal explanations, generalizations, or abstract interpretations.
 - (3) Try to focus on an example of the experience that still stands out because of its vividness or the circumstances of its happening (e.g., because it was the first time).
 - (4) Describe the experience from the inside out – the feelings, the mood, the emotions, etc. Attend to how the body felt, how things smelt, how they sounded, etc.
 - (5) Avoid trying to beautify your account with fancy phrases or flowery terminology. Rather, aim at rendering a concise and concrete description of your experience.
-

Mwongozo wa Kuandika Maelezo ya Kisa

Unaombwa kuandika maelezo ya kisa kimoja ulipokuwa ukitafula au ukitoa msaada kwenye somo la hisabati. Tafadhali toa maelezo ya undani kuhusu kisa chako binafsi. Vidokezo vifuatavyo vyaweza kukusaidia kutoa maelezo ya kisa hicho:

- (1) Tafadhali jikite katika mfano mahsusi au tukio fulani la kisa chako.
- (2) Eleza juu ya uhalisi wa kisa chako. Epuka maelezo ya jumla, kadri inavyoweza.
- (3) Jaribu kueleza kuhusu kisa ambacho unakikumbuka vizuri sana kutokana na vitu kama vile uzito wake, mazingira au namna ambavyo kilitokea (mathalan, pengine ilikuwa ndio mara ya kwanza kutokea).
- (4) Toa maelezo ya wazi juu ya mihemuko na hisia za kimwili zilizokupata, ulichokisema, ulichokiona, ulichokisikia, na kadhalika.
- (5) Epuka kutoa maelezo kwa lengo la kukipamba kisa chako au kutumia maneno magumu magumu. Badala yake, lenga kutoa maelezo dhahiri, halisi na wazi.