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DEVELOPING TEACHER-LED PROFESSIONAL LEARNING IN A TANZANIAN SECONDARY SCHOOL

A thesis presented in partial fulfilment of the requirements for the degree of

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ABSTRACT

The competence of Tanzanian teachers, as in other countries, depends on high quality and widely available ongoing professional learning opportunities. Currently, in Tanzania, provision of professional development for secondary teachers is inadequate and sporadic. This study explores the complexities of teacher-led professional learning in the context of a Tanzanian secondary school and as such, provides a nuanced model of how teachers can develop a sense of agency of their own professional learning. Firstly, this study investigated how Tanzanian secondary school teachers perceived and engaged in school based professional learning. Practice changes made by teachers and their understandings of school-based professional learning are then examined as they engaged in an inquiry and knowledge-building cycle. The factors that constrained and enabled teachers to engage in this school-based professional learning are also analysed.

An embedded mixed action research was conducted in two phases. Phase One survey data revealed that teachers were not satisfied with the quality of their existing professional learning and that they wanted to engage in more learning. When four teachers in one secondary school were assisted to engage in a series of inquiry cycles, as a means to engage in effective professional learning, they demonstrated varying degrees of change in their practices. These transformations were primarily related to implementing new pedagogies based on their students' learning needs and reflecting on their professional learning. This shift in practice was associated with the teachers' changes in their understanding and valuing of teacher-led professional learning and distinguishing this from previous external training that lacked relevance to their teaching situations. Lack of learning materials and funds were found to be critical barriers that constrained their engagement in professional learning. Established support systems enabled the teachers to strengthen their collaborative learning practice and their understanding of ways to engage in their own professional learning.

The findings revealed the teachers' developing capacities to carry out professional learning and to own and manage it themselves. The changes shown by teachers in this study suggest that teachers can initiate and collaborate in effective professional learning if they are supported to do so. This study contributes to understanding of Tanzanian teacher engagement in professional learning, especially in poorly resourced schools. Based on these findings, implications and recommendations are made to develop teacher-led professional learning in Tanzania and similar jurisdictions.

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LIST OF ABBREVIATIONS

CAR	Collaborative Action Research
COB	Classroom Observation
CPD	Continuous Professional Development
DOC	Document
EFA	Education for All
ESDP	Education Sector Development Programme
FGD	Focus Group Discussion
HoS	Head of School
ICT	Information Communication and Technology
IKBC	Inquiry and Knowledge-building Cycle
INSET	In-service Teacher Education
INT	Interview
ITE	Initial Teacher Education
MT	Meeting
MoEVT	Ministry of Education and Vocational Training
OECD	Organization for Economic Cooperation and Development
PEDP	Primary Education Development Plan
PL	Professional Learning
PLCs	Professional Learning Communities
PO-RALG	President's Office-Regional Administration and Local Government
PRESET	Pre-service Teacher Education
REF	Reflective journal
RES	Research diary
SBPL	School-based Professional Learning
SEDP	Secondary Education and Development Programme
SPSS	Statistical Package for the Social Sciences
TALIS	Teaching and Learning International Survey
TC	Teachers' Community
TDMS	Teacher Development Management System
TIE	Tanzania Institute of Education
TRCs	Teacher Resource Centers
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization
URT	United Republic of Tanzania
USA	United States of America

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter provides an introduction to the study that focuses on the ways through which Tanzanian teachers can improve their knowledge and skills to engage in effective professional learning. The chapter begins by describing the aims of the study, the context of the study, and the background to the problem. The rationale, problem statement and significance of the study are then presented, followed by a statement of the position of the researcher. Finally, the chapter summary and thesis structure are provided.

1.2 Aims of the study

This study aims to examine the process of enhancing the capacity of Tanzanian secondary school teachers' engagement in school-based professional learning (SBPL). Sociocultural theorists posit that teachers as learners can develop professional knowledge and skills when they interact with each other within the context of their schools (M. Cole, John-Stainer, Scribner, & Souberman, 1978; Gregory & Oliver, 2018; Messmann, Segers, & Dochy, 2018). Drawing on these sociocultural perspectives, this study aims to investigate how Tanzanian secondary school teachers shift their understandings of and practices in SBPL when they engage in an inquiry and knowledge-building cycle (IKBC).

Within a Tanzanian context where SBPL is not structured at the national level, this study started by investigating the available forms of professional learning (PL) for secondary school teachers and the extent to which they participated in them. By assessing the magnitude of the problem, appropriate support for teachers can be determined. In line with this, the study also examined the factors that constrained and enabled Tanzanian teachers' engagement in SBPL. The overall aim of the study is to build the capacity of Tanzanian teachers to engage in regular, adequate and meaningful PL activities, in order to improve their teaching to enhance their students' learning. The

fundamental question guiding this study is "How can Tanzanian secondary school teachers understand and practice SBPL to make it relevant, adequate and sustainable?"

It is important to reconsider the popular ad-hoc in-service training, which is traditionally offered in Tanzania. This training has often been criticized for not providing adequate PL for Tanzanian teachers and sufficient support for their daily classroom practice (Hardman et al., 2015; Ministry of Education and Vocational Training (MoEVT), 2007). If teachers do not have the ability to initiate and maintain their PL activities at the school level, then PL opportunities for Tanzanian teachers will continue to be limited. The absence of regular and effective PL will have an ongoing and detrimental impact on teachers' and students' learning and the overall quality of educational outcomes in Tanzania.

Thus, this study, in part, is intended to provide insights into how teachers can develop and sustain their own PL in a poorly resourced and developing country such as Tanzania. The study aims to use an inquiry and knowledge-building cycle (IKBC) approach based on a sociocultural theoretical background to enhance Tanzanian teachers' understandings and skills for engaging in ongoing PL. For teachers to learn about effective SBPL, they need to experience new practices through the inquiry cycle. This thesis acknowledges that teachers may be resistant to transforming their traditional PL beliefs, even though it requires appropriate support to help them to embrace new PL experiences. The strength of sociocultural learning lies in teachers' potential to learn collectively, and to be agents of change in their own working environments. Teacher inquiry is a relatively new approach to SBPL introduced in New Zealand and Australian schools over the past ten years. This inquiry was introduced to assist teachers to improve their understanding of how their professional practices can impact students' learning outcomes, and also to help them in using research to improve their classroom teaching skills, knowledge and dispositions. Of particular interest, is that while teachers are engaging in inquiry to address classroom teaching challenges, they are also improving the knowledge and ability to conduct their PL.

1.3 Context of the study

This study is conducted in Tanzania, the United Republic, which was formed in 1964 following the political union of two sovereign states of Tanganyika (Tanzania

mainland) and Zanzibar Islands. Tanzania is located in the eastern part of Africa as shown in Figure 1.1.

Figure 1.1. The map of Tanzania by regions

Source: Retrieved from Maps of World (2014)

There are two official languages used in Tanzania, which are English and Kiswahili. However, Kiswahili is the more frequently and fluently spoken language. Recent data indicate that Tanzania has a total population of about 52,554,628 (National Bureau of Statistics, 2018). According to Worldbank (2014) statistics, Tanzania is identified as a country with a poor economy. Tanzania largely depends on an agricultural economy, although the sector is performing poorly due to a lack of technology. Moreover, a recent WorldBank (2017) report indicates that for the year ending 2017, in Tanzania, “the total value of exports of goods and services increased by 5.1 percent, led by strong performance in the export of minerals, traditional crops and tourism receipts” (p. 9). The

latest economic updates highlight the positive efforts of the nation towards achieving a middle-income economy. Like other nations, Tanzania depends on its education for shaping social, economic, political and technological aspects. For instance, Wedgwood (2007) reports that "the low quality of education appears to have had serious consequences in terms of equality and poverty reduction" (p. 386).

In Tanzania, the teacher education sector is responsible for preparing prospective teachers, as well as maintaining their competency through in-service teacher training programmes in order to promote quality education services. Teacher education consists of two main departments, which are initial or pre-service teacher education (PRESET) and in-service teacher education (INSET). Teachers are expected to attend on-the-job training after their initial training in order to have more up-to-date knowledge and skills to address new teaching challenges. In-service teacher education involves teaching courses that upgrade teachers' qualifications at either Diploma or Degree levels, along with short-term learning programmes such as workshops or seminars, which do not lead to formal teacher qualifications. Programmes that are aimed at upgrading teaching qualifications follow an academic formal structure and thus, they are terminal and do not fall under the category of continuing teacher learning (Komba, Nkumbi, & Warioba, 2006; URT & UNESCO, 2014). In-service teacher education is highlighted in the Tanzanian Education and Training Policy of 1995 which states that "in-service training and re-training shall be compulsory in order to ensure teacher quality" (URT, 1995, p. 50). Developing quality in-service teachers in developing countries, such as Tanzania, is critical for achieving their intended policy objectives and education reforms (UNESCO, 2014). Continuous teacher PL is the central interest for this study.

Reforms in Tanzanian teacher education were introduced to ensure that teachers have access to quality and adequate PL. These reforms have a long history and they have been significantly influenced by changes in international and national policies. A significant teacher education reform agenda was introduced in 1981 when the Presidential Commission of Education recommended the establishment of the Teacher Service Commission, to regulate the standards and performance of teachers (MoEVT, 2000). MoEVT (2008) indicates that since 1997, the Education Sector Development Programme proposed a comprehensive change in the provision and management of teacher education. It was revealed in the Tanzanian teacher education that:

> There have been sporadic in-service programmes across the country… the focus of in-service (training) has reached only a small section of teachers leaving many teachers staying up to 10 years without any further training… the output of such training has not significantly been recognized or helped teachers as classroom teachers and/or their professional development (MoEVT, 2007, p. 26).

Therefore, a number of strategies have been employed to improve quality initial teacher education, as well as to reform in-service teacher education, so as to ensure sustainable learning programmes. According to MoEVT (2007), the following are some of the strategies recommended to be put in place:

- Creating a Deputy Director position responsible for in-service programmes.
- Strengthening the Teacher Resource Centers (TRCs).
- Other educational institutions, such as the Tanzania Institute of Education (TIE) were given the task to identify teachers for in-service education, conduct training, organize in-service training programmes in collaboration with other providers, develop learning materials for in-service training, and evaluate the in-service training.
- Introducing in-service training departments in Teachers Colleges, so as to strengthen a link with in-service teachers in schools.
- Empowering a group of super model teachers who can act as mentors, master teachers, and facilitators in in-service programmes
- Setting the annual budget to ensure continuity of in-service teacher training (P. 26).

As one of the means to improve in-service teacher education, it was recommended that teachers be made aware that effective PL could be initiated by themselves and to be assisted to practice it (MoEVT, 2008). According to MoEVT (2007), the Teacher Development Management System (TDMS) was formed as an attempt to ensure highly competent teachers for all education levels. While different strategies were initiated to promote continuous in-service teacher learning, none of them explicitly identified how ongoing teacher-driven SBPL could be attained. URT and UNESCO (2014) point out that TDMS was the best approach for promoting continuous teacher learning, but donor

and government-driven professional training projects continued to remain the popular options.

Many of these professional training projects are provided to a small number of Tanzanian teachers (MoEVT, 2007), but they do not cater for the specific professional needs of all teachers. Failure to delineate in-service teacher education in a broader perspective (Bermeo, Kaunda, & Ngarina, 2013) appears to be an obstacle to effective implementation of reforms. School management and teachers need to be empowered as agents of change, so as to promote these formal traditional trainings alongside informal PL opportunities. Some researchers in Tanzania found that school management had limited ability to support teacher PL (Kaponda, 2007; Komba et al., 2006). Onguko, Abdalla, and Webber (2008) maintain that school leaders lack proper preparation for their leadership roles and they rarely receive training to enhance teachers' pedagogical skills.

In 2008, Professor Hardman and colleagues were commissioned by the Tanzanian government to evaluate and inform the design of effective teacher PL that could be scaled up nationally. Hardman, Abd-Kadir, and Tibuhinda (2012) reported that there was poor teaching in Tanzania primary schools and little in the way of in-service training provided to primary school teachers. In 2011, Hardman and colleagues launched a pilot study where teachers were trained by college tutors and provided with self-study modules to help them to experience a range of SBPL strategies (Hardman et al., 2015). Their work finally provided teachers with an opportunity to reshape their pedagogical practices. Evaluating the implementation of the pilot study, Hardman et al. (2015) reported that:

> One of the main lessons to emerge from the evaluation was that a move away from ad hoc provision to a more systematic, longer-term and sustainable approach, where the teacher is much more involved in his or her ongoing professional development, working with other teachers at the school level… capacity-building and incentives need to be devolved down to those responsible for delivering school-based CPD (continuous professional development), with a clear division of roles (p. 619).

Based on the findings of the pilot study, the Ministry of Education Science and Technology planned to implement a national scale-up of school-based PL to the education sector. However, at the time of writing this thesis, Hardman et al.'s recommendation had still not been implemented in Tanzania.

1.4 Background to the study

International research has shown that teachers who engage in regular quality PL are likely to be more competent in their classroom pedagogical practices. This claim is supported by the Education for All (EFA) global monitoring report of 2013/14 that revealed the value of prioritizing in-service teacher PL to enhance achievement in quality education (UNESCO, 2014). Stallings (1989, cited in Fullan & Hargreaves, 1992) suggests that PL initiatives should be geared towards improving teachers' ways of promoting their professional growth. Thus, to ensure that teachers engage in ongoing and effective PL, they needed to strengthen their ability to practice PL activities. Driel, Beijaard, and Verloop (2001) further argued that "reform efforts in the past have often been unsuccessful because they failed to take teachers' existing knowledge, beliefs, and attitudes into account" (p. 137). This claim is confirmed by the Organization for Economic Cooperation and Development (OECD) (2010) report which stated that in effective school-based PL "teachers take responsibility for their own actions and acquire the necessary knowledge, skills and repertoire of activities to increase their participation… and thus make a significant contribution to improving educational practice" (p. 32).

As the case in similar developing nations, the Tanzanian government is aware of the critical importance of effective teacher learning. The need for ongoing quality PL in Tanzania is documented in the education policy. International scholars also underscore the development of quality teacher PL for improved classroom practices (Akiba, Wang, & Liang, 2015; Darling-Hammond & Richardson, 2009; Zhu & Zeichner, 2013). Some studies in Tanzania indicated that schools do not have well organised PL programmes aimed at promoting opportunities for teachers to engage in PL (Anney, 2013; Hardman et al., 2012; Jidamva, 2012). However, absence of organized PL programmes does not necessarily mean that these teachers are not expected to update their skills. Moeini (2008) clarifies that "in the absence of well-designed professional development

programs, teachers have been expected to learn how to improve their teaching on their own, learn from trial and error" (p. 1).

Extending Moeini's claim, Mushayikwa and Lubben (2009) argue that "researchers… have tended to overlook the fact that teachers are continually engaged in professional development even in the absence of, or in between, supported professional development programmes" (p. 376). Their claim aligns with Ingvarson (2003) who argues that PL is something that teachers do every day, and sometimes unconsciously. However, Tanzania currently lacks the systemic structures at a national level to develop and to implement SBPL programmes for its teachers. In this sense, teachers' engagement in their SBPL cannot guarantee significant improvement in their classroom pedagogical practices. Moreover, there are complex and multifaceted issues around in-service teachers' work that require teachers to build their capacity of engaging in ongoing quality SBPL to address them. The following sections explore these complexities that surround the background of this study.

1.4.1 Increasing enrolments

The increase in student enrolments in Tanzanian schools has led to significant increases in class sizes as well as diversity in terms of student academic abilities and behavior. The Primary Education Development Plan (PEDP) which was launched in 2002, led to an increase in enrolment of primary school pupils from 65.5% to 96.1% between the years 2002 and 2006, respectively (MoEVT, 2006). As a result, student enrolments in secondary education has increased significantly (MoEVT, 2008). Increasing student enrolments means expanding class sizes and therefore, teachers can no longer rely on traditional approaches to teaching. Teachers need to have greater range of opportunities to learn how to apply more innovative teaching approaches to larger classes. In addition, due to increased enrolments, Tanzanian classes increasingly include students with different behavioral and academic needs. Currently, some secondary schools are enrolling high numbers of students who have performed poorly in their primary school leaving examinations (King, 2013; Sumra & Katabaro, 2014). In light of these challenges, teachers need a wider repertoire of teaching strategies to help students with their diverse academic learning needs. Many teachers in Tanzanian secondary schools

lack the essential skills required for teaching classes with such diverse characteristics (Bermeo et al., 2013).

1.4.2 Poor student examination performance

Another significant reason underpinning the need for teacher PL is to help students to improve their academic achievement. Poor teaching is claimed to be one of the primary factors for the declining student performance in certificate secondary education examinations in Tanzania (Sumra & Katabaro, 2014; Towse, Kent, Osaki, & Kirua, 2002). The pass rate of Form Four national examination results has declined from 90% in 2007 to 43% in 2012 (PO-RALG, 2016b; URT, 2014), as shown in Table 1.1

Table 1.1

Pass Rate in Certificate of Secondary Education Examinations in Tanzania by Division, Years and Percentage, (2003-2015)

Grades	Years												
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Division I	7.2	4.8	5.2	4.5	5.1	3.5	1.9	1.5	1.1	0.9	2.2	3.1	2.8
Division II	7.3	8.4	6.5	6.9	8.6	6.4	4.4	2.8	2.4	2.8	6.2	10.5	9.0
Division III	23.6	24.6	21.9	24.3	21.9	16.8	11.6	7.1	6.5	5.9	12.8	17.2	13.6
Division IV	50.0	53.7	55.7	53.4	54.7	56.9	54.7	38.9	43.6	33.5	36.0	39.0	42.6
Failed	12.0	8.5	10.7	10.9	9.7	16.4	27.5	49.6	46.4	56.9	42.8	30.2	32.0

Source: Data compiled from National Examination Council of Tanzania (PO-RALG, 2016b; Sumra & Katabaro, 2014).

The above table indicates the summary of examination results according to divisions. Tanzania uses the division system to describe student performance in secondary schools. Divisions I, II, III and IV represent excellent, very good, average and fair respectively. Division IV is a marginal pass while Failed is represented by division zero and that defines a weak candidate who has performed poorly in almost all examinations. The results above show that since 2008 the student pass rate at Division I has been declining, while the percentage of failed students has continued to increase. Since 2008, the final examination results of secondary students, indicates poor examination

outcomes compared to previous years. Poor teacher quality and lack of professional training are claimed to be among the leading factors contributing to student failure in examinations (Bhalalusesa et al., 2011; Laddunuri, 2012).

In response to the decreasing poor performance in secondary schools, the Tanzanian government launched a programme in 2014 known as "Big Results Now" to improve student performance in national examinations. Big Results Now is a strategy aimed at improving teaching skills and strategies. As suggested by scholars, when a country is introducing reforms to its education system it also needs to ensure that its teachers have more opportunities for PL (Ingvarson, 2003; Robinson, 2014; Wei, Darling-Hammond, & Adamson, 2010). Similarly, this Big Results Now programme could have a marked effect on teaching practices if the majority of teachers could be assisted to refresh their pedagogical knowledge and skills.

1.4.3 Challenges of curriculum reform

Tanzanian teachers also need to engage in regular PL activities in order to facilitate effective implementation of curriculum reforms in secondary education. Since the introduction of Competence Based Curriculum in secondary schools in 2005, many teachers have not been implementing it properly, partly due to their lack of involvement in its development (URT & UNESCO, 2014) and their misunderstandings of its intent. Bermeo et al. (2013) insist that the learner-centered approach emphasized in Competence Based Curriculum requires teachers to learn how to teach and to adjust their teaching practices accordingly. Many teachers in Tanzania are not familiar with methods such as learner-centered teaching nor are they applying the curriculum appropriately (Mtitu, 2014; Tilya & Mafumiko, 2010). Teaching approaches are predominantly teacher-centered with students relying heavily on the teacher notes (MoEVT, 2010), instead of positioning students at the heart of learning.

1.4.4 Inadequate initial teacher education

Poor quality teacher preparation inevitably affects the teaching quality of secondary schools in Tanzania. H. J. Mosha (2006) claims that in Tanzania, the teaching profession recruits some candidates who have not performed well themselves in their examinations and consequently sometimes it is difficult for them to comprehend the

content knowledge that needs to be taught. Unfortunately, initial teacher education (ITE) in Africa, including Tanzania, does not always adequately prepare teachers to undertake their roles effectively (Akyeampong, Lussier, Pryor, & Westbrook, 2013; Kitta & Fussy, 2013) that includes participation in PL. Anangisye (2011) argues that there is an "urgent need for quality teacher professional development programmes" due to an increase of Tanzanian teachers who entered the profession unprepared to engage in effective teaching activities in Tanzania (p. 139). Therefore, strengthening PL opportunities at the school level may help teachers to acquire greater pedagogical content knowledge and skills. In particular, newly employed teachers require SBPL programmes to induct them into their new experiences at work. Dagen and Bean (2014) highlight that these beginning teachers need to engage in ongoing PL to carry out their new job responsibilities.

1.4.5 Inability to use educational technology

It is also critical that teachers participate in ongoing PL so as to keep up with the rapidly changing technologies in education. While technology has significantly widened the opportunities for improving teaching and opportunities for teachers' PL, Kafyulilo (2014) found in his small scale Tanzanian study that teachers had significant difficulties using mobile phones and other technological tools to facilitate teaching and learning practices. Similarly, in another study in Tanzania, Mwalongo (2011) found that teachers did not know how to use information communication and technology (ICT) to improve their traditional classroom practices. Some international studies show that the current technology has significantly broadened the scope of teacher professional practices in the school context through mobile learning (Baran, 2014; Feng & Ha, 2016; Gregory & Oliver, 2018). However, it has been indicated that Tanzanian teachers' use of technology is quite limited (Harrison, 2010; Kafyulilo, 2014; Mwalongo, 2011). While the use of teaching media technology is quite limited in Tanzania, globally, "there are many examples of ICT, particularly internet and Web-based communication technologies, being used to support teachers' ongoing professional development and networking" (Harrison, 2010, p. 88). In other words, digital technology could be readily incorporated by Tanzanian teachers to facilitate their PL and teaching, but they need to be supported to make the most effective use of it.

1.5 Rationale for the study

The above background information underscores the need for strengthening Tanzanian teachers' PL skills, in order to build the country's capacity for engaging its teachers in regular and meaningful PL practices. In Tanzanian schools, it is common to hear complaints from some teachers that they have never participated in PL since graduating from their ITE programmes. This claim might have multiple interpretations; maybe teachers are not aware that there are opportunities in the workplace where they can engage in PL?; or schools do not have proper arrangements for supporting teachers' PL apart from depending on the externally initiated training programmes? As argued by Kryvonis (2013), teachers' perceptions of what constitutes PL are generally limited to attendance in traditional workshops and seminars. As professionals, Tanzanian teachers need to be aware of their professional responsibilities (Anangisye, 2013) that includes knowledge of and engagement in PL. However, in reality, it is difficult to conduct regular and structured PL in Tanzania, because it is poorly coordinated and rarely budgeted for at both local and national levels (Komba & Nkumbi, 2008). This lack of coordination tends to affect both PL initiatives in schools and teachers' perceptions of it. Thus, teachers need to be supported to make extensive changes to their traditional PL practices and to experience the empowering and transformative effects of a learner-driven and cost-effective model of PL.

There is a pressing demand for quality teacher education in Tanzania in order to promote effective teaching at all education levels. In particular, the secondary education sector has been rapidly expanding, which has increased the need to improve quality teaching in the drive for more educated and highly skilled workforce. The greater implication is that "if higher quality secondary schooling is not obtained, then increased foreign (and local) investment in African countries will not stimulate as much economic growth as possible because of human capital limitations" (Vavrus, 2009, p. 304). It is for this reason that there has been a growing interest in in-service teacher education in Tanzania to promote the overall capabilities of its people for future economic growth.

1.6 Problem statement and significance of the study

The Tanzanian government has declared that participation in PL should be a continuous process by all in-service teachers. However, despite several strategies and reforms

intended to improve teacher PL, little attention has been paid to the role of teachers and schools in developing effective PL practices. Indeed, in-service teacher education across Tanzania has remained sporadic for a number of years. Promoting teacher PL skills in other countries has provided opportunities for teachers to develop much needed ownership over their PL (Hargreaves, 1994; Loucks-Horsley, Stiles, Mundry, Love, & Hewson, 2009). Similarly, Lieberman (1995) in the USA commented that “we do have a growing body of evidence from some schools that have discovered the power and critical importance of professional development when viewed as an integral part of the life of the school” (p. 68). A number of macro and micro studies have been undertaken in Tanzania in the area of in-service teacher PL and related teacher quality issues. However, no studies have explored the teachers’ competency to carry out their SBPL and how their engagement could be improved, nor is there an understanding of how to develop the capacity of teachers to improve their PL in schools. This study aims to address this research gap by investigating how teachers improve their understandings and practices of PL based on a teacher inquiry and knowledge-building cycle within their own school.

The study is also expected to contribute knowledge to school leaders, teacher educators, policy makers, educational planners and researchers by suggesting ways in which Tanzanian teachers can be supported to develop and own their PL activities. This study was therefore undertaken with the aim of providing a deeper understanding of the PL opportunities available in Tanzanian schools and how Tanzanian teachers can improve their engagement in a variety of PL activities to help enhance their practice. In addition, this study hopes to contribute to the body of literature regarding school-based teacher PL globally, particularly, from the perspective of a third world economy, such as Tanzania.

1.7 The researcher

This study has been shaped to some degree by my own background experiences and beliefs. As explained by Ormston, Spencer, Barnard, and Snape (2014), the development of one’s research work is influenced by different factors especially, the researcher’s beliefs, experiences, understandings and expectations. Similarly, McMillan (2008) points out that when qualitative methods are used, the researcher’s role is

brought close to the context of the study. My interest in the topic was developed during my early teaching career.

This study arose from my interest in supporting teachers to engage in continuous PL in a school setting. I started developing an interest in teachers' learning some years ago when I was a secondary school teacher in Tanzania. My first teaching experience at school was not easy. I worked at a school located in a rural area with a serious shortage of teachers and teaching resources. Due to the teacher shortages, the school expected the teachers to assist students by teaching more than their assigned load. I encountered some topics that were difficult for me and there was no support mechanism in place to assist me with my teaching. Sometimes, I had to use my notes from when I was a student in secondary school or at College in order to understand difficult topics. The other option was to ask one of my colleagues who appeared knowledgeable to explain new concepts to me. I also realised that it was not only me, but other teachers as well, who had so much to learn. Unfortunately, when we met as teachers, we discussed general issues relating to the students, but we never shared our own PL needs.

Some years later, I was employed as a tutorial assistant at University College of Education. I started supervising student-teacher tutorials in the *Pedagogy of Teacher Education* course. I was interested to find that one of the modules in this course was related to teaching student-teachers about a range of PL programmes that could be arranged by the school. Although I attended a similar course when I was a student, I could not recall learning about school-based teacher PL. It was this module in particular that prompted my interest in SBPL.

1.8 Chapter summary

This chapter has presented the key issues in teacher education in Tanzania. It has described the context of the study and briefly described reforms that have influenced in-service teacher education. The argument was made that in-service teacher training in Tanzania is not well-organised and there is not adequate and continuous PL for teachers. However, sociocultural theorists and other scholars in the field of teacher professional development have highlighted that these teachers are engaging in PL in their workplaces, despite the lack of a national-wide framework for SBPL. Therefore, teachers need support to build their capacity of engaging in meaningful SBPL. This

chapter also, discussed the complexities of factors around teachers' pedagogical practice in Tanzania that require teachers to develop effective knowledge and skills of their SBPL, so as to engage in frequent, more relevant and wider PL opportunities. The rationale of the study and problem statement have then been described. The following chapter reviews literature related to the study.

1.9 Thesis structure

This thesis is organised into eight chapters. Chapter One has established the overall aim, context, background and rationale for this study. Chapter Two will review the relevant literature related to improving teachers' capacity to engage in adequate and meaningful SBPL. Chapter Three will discuss the methodology for the data collection, analysis and the research process. Chapter Four presents the baseline findings in relation to the first research question that helps to understand the nature of teachers' participation in SBPL and to determine the kinds of support that would be helpful for teachers. Chapter Five reports detailed findings from one teacher to understand the nature of the changes she made in PL, as she collaborated with her teaching peers. Chapter Six reports on the findings from three teachers and their understandings and collaborative engagement in SBPL. Chapter Seven discusses findings from both phases of the research. The overall conclusions, implications and recommendations are outlined in Chapter Eight.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The previous chapter discussed the background to the research problem. This chapter reviews the literature related to improving teacher engagement in effective school-based professional learning (SBPL). The review first provides an overview of the Tanzanian education structure, before the theories underpinning teacher engagement in PL are explored further. Then, the concepts of teacher PL and teacher change are discussed, followed by a description of models of teacher PL. Different strategies for building meaningful PL in schools and promoting teachers' capacity to participate are then briefly discussed. Finally, the conceptual framework of the inquiry and knowledge-building cycle (IKBC) for the SBPL, research questions and summary of the literature review are presented.

2.2 An overview of education trend and structure in Tanzania

The Tanzanian efforts to improve the quality of its education can be traced back to 1961 when the nation declared its independence. The country inherited a colonial education system from both German and British colonial rules. Traditionally, education was provided for a few privileged individuals and designed to serve the needs of colonialists and not the general population (MoEVT, 2000; Tanzania Institute of Education, 2013). After independence, the Education Act of 1962 was passed to standardize the provision of education in Tanzania, which replaced the 1927 Education Ordinance (URT, 1995). The National Education Act of 1962 aimed at providing a quality education system relevant to the Tanzanian context. One of the first changes made was the introduction of Kiswahili as a medium of instruction to be used together with the English language. URT (1995) reports that the Education for Self-Reliance (*Elimu ya Kujitegemea*) was introduced in 1967, as the major education philosophy in the country, which also serves as the educational policy. The Education for Self-Reliance aimed at the universalization of primary education and incorporating theory and practice, was popularly known as Education and Work (*Elimu na Kazi*) (MoEVT, 2000). Thereafter, several enacted laws and short term plans guided the education provision in the country up to 1978, when the

National Education Act No. 25 was passed to review the provision of education (MoEVT, 2000; URT, 1995). This Education Act was revised in 1995 and led to the formulation of Tanzania Education and Training Policy.

In 1997, the Education Sector Development Program (ESDP) was launched as a comprehensive approach to realize the implementation of the Education Policy of 1995 and achieve the National Development Vision of 2025. The Tanzania Education and Training Policy of 1995 has been the main tool guiding the education system, although, recently, the new Education Policy of 2014 has been proposed in Tanzania. Under the ESDP, the master plans were formulated to harmonize the governance of the education sub-sectors that include the Basic Education Master Plan, the Secondary Education Master Plan, the Teacher Education Master Plan and the Higher Education Master Plan (MoEVT, 2000, p. 18). At all levels, education is provided by both government and private sectors. However, the Ministry of Education, Science, Technology and Vocational Training has the overall responsibility for formulating and overseeing the implementation of policies and education plans in Tanzania.

2.2.1 Education structure in Tanzania

Tanzania provides a formal education structure alongside a non-formal education structure that includes informal and adult education (MoEVT, 2008). The proposed Education Policy of 2014 suggests certain modifications in the formal education structure in Tanzania. However, these changes are not yet implemented. Table 2.1 indicates the current formal structure of education in Tanzania according to the Educational and Training Policy of 1995.

Table 2.1

Tanzania Formal Education Structure according to the Educational Policy of 1995

Level of education	Years of study	Age (in years)	Classes/Grades
Pre-primary	2	5-6	
Primary	7	7	Standard one
		8	Standard two
		9	Standard three
		10	Standard four
		11	Standard five
		12	Standard six
		13	Standard seven
Ordinary secondary	4	14	Form one
		15	Form two
		16	Form three
		17	Form four
Advanced secondary	2	18	Form five
		19	Form six
Tertiary and higher education	3+	20	First year
		21	Second year
		22+	Third year+

As indicated in Table 2.1, the current education and schooling structure in Tanzania is *2+7+4+2+3+* (2 stands for two years of pre-primary school, 7 for seven years of primary school, 4 for four years of ordinary secondary school, 2 for two years of advanced secondary school and 3+ represents at least three years of higher education) (URT, 1995). According to the recent proposed changes made in the educational policy, the education structure will be *1+6+4+2+3+* (1 stands for one year of pre-primary school, 6 for six years of primary school, 4 for four years of ordinary secondary school, 2 for two years of advanced secondary school and 3+ for at least three years of higher education) (URT, 2014). In particular, the same levels of education are maintained in the new policy proposal. However, the primary school enrolment age is reduced from seven to six and the years of study for pre-primary and primary education are reduced to one and six, respectively. Students have to pass a special examination in order to qualify for the next level of education. Moreover, with the exception of pre-primary education, a school leaver from any level of education can enroll in any vocational and technical training.

2.2.1.1 Pre-primary education

Pre-primary education is offered to children between ages five and six for one to two years and is currently managed by the President's Office-Regional Administration and Local Government (PO-RALG). Pre-primary education in Tanzania was formalized in 1995. This education sector provides an important foundation for pupils for their primary education. The focus of pre-primary education is to teach pupils writing, arithmetic and reading skills, besides at this level there are no national examinations for promotion.

Enrolment of pupils in pre-primary education has increased in both public and private schools "by 46.1% from 1,069,823 in 2015 to 1,562,770 pupils in 2016" (PO-RALG, 2016a, p. 27). Although this sector has expanded, it has been hampered by a shortage of trained teachers (Mghasse & William, 2016; Mtahabwa & Rao, 2010). The national data reported in 2016, show that 79.7% of qualified teachers were teaching in pre-primary education, with the pupil teacher ratio of 1:131, against the standard ratio of 1:25 (PO-RALG, 2016a). This poor pupil-qualified teacher ratio was common in public owned schools. However, shortage of qualified teachers at this education level indicates that the numbers of applicants for pre-primary teacher training are too low to meet the growing demand. More effective teacher training is therefore absolutely essential for providing quality education services.

2.2.1.2 Primary education

Primary education is a compulsory fee-free public service provided for all pupils in Tanzania. This education is also under the PO-RALG administration and is offered to pupils aged between 6 to 13 years. The National Primary School Leaving Examination is administered to all pupils during their final year and the results are used to promote them for ordinary secondary education level. With the exception of a few privately owned English medium schools, Kiswahili is a medium of instruction and English is taught as a subject.

In 2002, the Primary Education Development Programme (PEDP) was introduced as a government response to the Millennium Development Goals of expanding access to primary education. Introduction of this fee-free public service resulted in increasing pupil enrolment. Between the years 2014 to 2016, enrolment in primary schools has

increased by five percent (PO-RALG, 2016a). With the expansion of primary education, there is an increasing demand for quality teaching and education in general.

2.2.1.3 Secondary education

Secondary education is provided within the Tanzanian education structure at two main levels: ordinary and advanced. The medium of instruction at this level of education is English, while Kiswahili is taught as a compulsory subject (URT, 1995). The ordinary secondary level enrolls primary school leavers, while the advanced secondary education, which is a high school, enrolls candidates who have successfully completed their ordinary secondary education examination. High performing high-school students generally go on to different fields of professional training at tertiary level. However, the ordinary secondary education level is one of the exit points for students, especially those who do not continue with high school or tertiary education. The secondary education sector has expanded since the introduction of Secondary Education and Development Programme (SEDP) in 2004. For example, the number of secondary schools has increased by 254.5% from 1291 to 4576 between 2004 and 2013 years, respectively (URT, 2014).

2.2.1.4 Tertiary and higher education

Tertiary and higher education in Tanzania includes Colleges and Universities. This level enrolls graduates from primary and secondary education for diverse qualifications which comprise certificates, diplomas, advanced diplomas and degrees in a range of fields of professions. Tertiary and higher education is primarily managed by the Ministry of Education, Science, Technology and Vocational Training, yet is offered in partnership with private institutions. The National Council for Technical Education and the Tanzania Commission for Universities are the two main accreditation bodies that coordinate and oversee the quality and provision of technical education and training and universities respectively.

Teacher education in the Tanzanian education structure falls under tertiary and higher education. According to URT (1995), Teachers' Colleges are responsible for preparing teachers for Certificate and Diploma qualifications, while a Degree level teaching qualification is offered by Universities. URT (1995) states that a teacher with a Certificate is qualified to teach in primary education, while a Diploma qualification

entitles a graduate to teach secondary school levels (Form I and II classes). A university graduate teacher can teach upper secondary school levels, (Form III to VI classes). However, in some circumstance, teachers do not teach the levels equivalent to the qualifications they possess.

Two of the major challenges affecting the provision of secondary education in Tanzania could be associated with poor teaching (Bhalalusesa et al., 2011; Laddunuri, 2012) and the shortage of highly qualified teachers. It is well recognized in Tanzania that the quality of education mainly rests on the quality of knowledge and skills of teachers. Therefore, Tanzania like other African countries needs a considerable investment in teacher PL to promote quality teaching (Moon, 2007). Bold et al. (2017) stress that continuous PL is the most effective way through which a crew of competent teachers can be created. The subsequent section discusses ways through which the capacity of teachers to engage in meaningful PL could be enhanced particularly, in Tanzanian schools. The section starts with the theories underpinning teacher engagement in SBPL.

2.3 Theoretical stance of the study

This section presents selected theories related to teacher PL within school contexts. The present study largely draws on a combination of three interrelated sociocultural theoretical perspectives that include: social constructivist; situated learning theory; and social cognitive theory. These theories are grounded in sociocultural perspectives, which posit that learning is created as the result of people interacting with the social environment. For instance, Liem, Walker, and McInerney (2011) write that sociocultural theories of learning are increasingly used in social science fields of studies. The earliest psychologists such as Vygotsky, Luria, Dewey, Piaget, Leontiev and Rubinstein provided a profound contribution to understanding human learning in the social, cultural and historical aspects (Liem et al., 2011). Some scholars, however, present contradicting views about what constitutes sociocultural theories. Reflecting on diverse arguments, Raphael, Vasquez, Fortune, Gavelek, and Au (2014) conclude that "sociocultural theories of mind can be interpreted narrowly (i.e., referring only to Vygotsky [1978] original theory) or more broadly to include other theories" (p. 146). Vygotsky (1896-1934) is indeed one of the most prominent sociocultural theorists whose work provides enduring ideas to educators and researchers (C. H. Liu & Matthews, 2005; Turuk, 2008; L. Wang, 2007; L. Wang, Bruce, & Hughes, 2011).

2.3.1 Social constructivist theory

Social constructivist theory largely draws on the constructivist philosophical paradigm, namely in underscoring the power of individuals in constructing learning. Several scholars hold different views about constructivism (Harlow, Cummings, & Aberasturi, 2007). However, constructivism can best be described as a philosophy that attempts to explain human learning (Schunk, 2012). Basically, Schunk (2012) claims that Piaget's and Vygotsky's theories "form a cornerstone of the constructivist movement" (p. 229). The two main divisions of constructivism are cognitive and social. Cognitive constructivism was propounded by Piaget in 1950s and followed by the works of Brunner and Ausbel. Piaget (1973) argues that intellectual development occurs when individuals [such as teachers] construct their own knowledge and social environment motivates individual cognition.

In contrast, social constructivist theory focuses on how social interaction, culture and language contribute to knowledge construction. Vygotsky is the chief theorist of social constructivism and he rejected the assumption that intellectual maturity is the main function of learning. For Vygotsky, learning is enhanced when there is a combination of resources and activities around the social context. Since the 1980s, the Vygotskian idea of sociocultural influence has been a leading metaphor to help understand human learning in the social sciences (Lantolf, Thorne, & Poehner, 2015; C. H. Liu & Matthews, 2005; Rogoff, 1990; Turuk, 2008; L. Wang et al., 2011). Moll (1990) sees that Vygotsky's work is informed by an historical analysis of science and psychological theories, in which he analysed the main ideas such as culture, mediation, practice and psychological processes.

Vygotsky's theory has been described with regard to three central concepts that underpin the sociocultural learning process. The concepts include language, zone of proximal development and scaffolding (M. Cole et al., 1978; Turuk, 2008). Vygotsky believes that the use of language aspects such as speech, writing, symbols is a cultural tool that helps to facilitate the development of cognitive ability of an individual. The notion of language implies that functioning of human cognition depends on communication and interaction with others which cannot be separated from the social/cultural/historical context. Also, Vygotsky posits that human cognitive development and learning occur through the zone of proximal development, which is

the gap between what an individual is capable of achieving alone compared to what he/she can perform in collaboration with peers (M. Cole et al., 1978). Clancey (1995) indicates that the zone of proximal development implies that learning is enhanced in shared experiences.

According to social constructivism, learning is also a scaffolding process. Through scaffolding, learners are highly supported at the initial point of learning and as they start mastering the task, the assistance is gradually reduced. During the learning process, Vygotsky explains that learning modifications occur both between individuals and within an individual. Generally, in relation to teacher PL approaches, social constructivism provides an appropriate learning paradigm in the current era (Gregory & Oliver, 2018).

2.3.2 Situated learning theory

Situated learning theory underlines the role of the situation as a circumstance, thus reinforcing the idea that individuals gain more knowledge and skills when they interact in everyday activities. This theory of learning emerged as a response to poor teaching in American schools in 1929, when was demonstrated that teaching tended to detach students from their real social life. Although situated learning theory seemed to emerge recently, the situated approach to learning is the old idea put forward by early theorists from different fields such as sociology, psychology, philosophy and ecology like Marx, Durkheim, Vygotsky, Dewy and Baker. The theory was developed in the 1980s by anthropologists Lave, Wenger, Cole and Hutchins. In 1991, Lave and Wenger provided an alternative theory that emphasizes learning through social engagement against isolated individual cognitive processes (C. Taylor, 2014). Lave and Wenger challenge the traditional perceptions that exclude situations in which learning is taking place. They proposed situated learning theory to explain the role of social learning that views knowledge as contextualized matter. Hence, situated learning theory considers the mind as creating knowledge in interaction with social aspects (Fox, 1997). Clancey (1995) indicates that in situated theory, learning appears to be positively related to the environmental conditions within which it occurs.

Situated learning theory corresponds closely with other theoretical aspects, such as understandings, knowledge, agency and social interrelationships. However, the theory

clearly stresses three different genres as approaches to learning: cognition, interpretation and communities of practice. According to situated learning, acquisition of knowledge and skills occurs at any time (Lave, 1991) and can be developed when individuals engage more in social activities (Rogoff, 1990; L. Wang et al., 2011). In addition, intellectual functioning depends greatly on wider social circumstances. In other words, individuals tend to learn by doing, as they reflect on their day-to-day professional practices (Yendol-Hoppey & Dana, 2010). While cognition is developed continuously through constant changes in social experiences, the interpretive view is the one that shapes cognition through shared understanding. Therefore, meaning is often created and interpreted according to circumstances.

Communities of practice is a keystone idea of situated learning theory (Lave & Wenger, 1991; Wenger, 1998), particularly when groups of professionals share expertise on a topic or problem on a regular basis. The concept of communities of practice, which was first coined by Lave and Wenger (1991), stresses that learning should be conducted in communities of learners to make a significant impact (Fox, 1997; Stewart, 2014). Lave and Wenger (1991) insist on developing sustained membership in communities of learners, where the behavior of individuals is often developed through day-to-day social interactions.

With respect to the communities of practice, the idea of transfer of learning roles between individuals is identified and synthesized as "legitimate peripheral participation" (Lave & Wenger, 1991). In legitimate peripheral participation, newcomers such as novice teachers engage in learning activities as peripheral participants with less contribution in knowledge, whereas experts participate as legitimate because they have a wide scope of knowledge and responsibilities. However, individual roles change as the newcomers start to master important skills. In general, Borko (2004) argues that situated learning perspectives enable "researchers to focus attention on individual teachers as learners and on their participation in professional learning communities" (p. 4).

2.3.3 Social cognitive theory

Another theory that shares some sociocultural perspectives is social cognitive theory. This theory was first championed by Albert Bandura in 1969. Bandura challenged

cognitivist learning theories for overlooking the influence of human actions in a social learning environment. Schunk (2012) explains that the principle assumption in social cognitive theory is that learning occurs by "observing others, people acquire knowledge, rules, skills, strategies, beliefs, and attitudes. Individuals also learn from models… and they act in accordance with beliefs about their capabilities" (p. 118). According to social cognitive theory, an individual's behaviour is either deliberately or unconsciously learned by modifying actions observed from the people or things they observe (Bandura, 2006). Generally, the theory acknowledges the influence of personal factors and social environmental actions in "triadic of reciprocal causation"(Bandura, 1989). This triadic causation implies that human practices influence and then are influenced by individual elements, which could be internal, such as intellectual, moral and physical, or any other external factors from the environment.

In social cognitive theory, human agency functions within a triadic of reciprocal causation. In this agentic causation, people are likely to exert influence over their practices (Bandura, 1997). Therefore, people seem to be the main determinants of their experiences, actions, perceptions and change in the social world (Bandura, 1977, 1989). Self-efficacy is identified as "a key to promoting a sense of *agency* in people" (Schunk, 2012 p. 146). Bandura (1998) clarifies that "in social cognitive theory, perceived efficacy is embedded in a theory of human agency" (p. 52). In other word, self-efficacy is the perceived ability that a person is capable of doing or learning something. Although beliefs of individual efficacy might be different from actual capabilities (Zimmerman, 1990), once people believe they have ability to influence over what they practice, they will try to make changes (Bandura, 1997). Furthermore, sense of agency is socially developed through interaction within the influence of a broad sociocultural environment, in which people can increase understanding of their existing practices and make changes (Bandura, 1997, 1999). This human agency, according to Bandura (2006), operates in both personal and collective shared beliefs and responsibilities. The sharing aspect of agency is due to the fact that "people do not live their lives in individual autonomy. Many of the things they seek are achievable only by working together through interdependent effort" (Bandura, 2006, p. 165).

The concept of agency in social cognitive theory contributes to our understanding of how professionals, such as teachers acquire knowledge and skills in their workplaces (Evans, 2017; Goller & Paloniemi, 2017). With regard to teacher-led PL, social cognitive theory posits that teachers need to be actively involved in designing and implementing their PL programmes and see themselves as agents of change.

2.4 Implications of sociocultural theories perspective in the study

Sociocultural theories have been used in diverse ways to explain the phenomenon of human learning in general, and teacher learning in particular. Although these theories have been criticized on various grounds (Miettinen, 2000; C. Taylor, 2014), Huber, and Moallem (2001, cited in Nuthall, 2009) argue that these all hinge on the common idea that knowledge is constructed through interaction with the social environment. Pella (2011), however, suggests that sociocultural theories need to be applied appropriately to understand the broad concept of teacher PL. Likewise, contemporary sociocultural theorists like Rogoff (1995) caution that "without an understanding of such mutually constituting processes, a sociocultural approach is at times assimilated to other approaches that examine only part of the package" (P. 58). Therefore, sociocultural theories can possibly guide the investigation of teacher PL in the school context depending upon the successful application of their guiding principles. Taken together, these theories indicate how the approaches to teacher PL have shifted from traditional to more sociocultural practices (Pitsoe & Maila, 2012; Richards & Farrell, 2005; Vescio, Ross, & Adams, 2008).

This present study did not intend to prove the theories, but to use them: to conceptualise the research problem; identify appropriate data collection methods; guide PL intervention; and guide interpretation of findings (Biesta, Edwards, & Allan, 2014). Generally, sociocultural theories explain how teachers can construct skills and understandings of their school-based professional learning on the basis of interactions within their social and cultural work contexts. Table 2.2 shows the main implications of the interdependent identified aspects in the sociocultural theories that guided teacher PL in this study.

Table 2.2

Key Implications of Sociocultural Theoretical Perspectives in Teacher SBPL

PL opportunities within the school environment

- Schools provide a forum for teacher PL
- Skills obtained through formal and informal interactions in schools
- Teachers learn at their workplaces on a daily basis
- School as a social environment is a circumstance, than a physical building
- Sustainable PL is determined by individuals and institutional cultural practices

Developing teacher PL knowledge and practices

- Teachers are potential learners
- Knowledge of SBPL is co-constructed and discovered through teacher practices
- Scaffolding facilitate teacher development of skills and understanding of SBPL
- Effective SBPL can be achieved through teacher collaborative learning
- Self-efficacy determines teacher practices in SBPL
- Effective PL occurs when learning activities and resources are combined
- Teachers learn by reflecting in and on their own experiences

Supporting teacher engagement in SBPL

- Teacher PL experiences need to be deliberately organised for effective learning
- Teachers need a range of internal and external support to own their PL
- Expertise support helps novice teachers to engage in effective SBPL

Teachers are agents of change in PL

- SBPL is sustained when teachers develop ownership of it
- PL is self-regulated and collectively constructed
- Teachers have autonomy over their PL practices
- PL requires active involvement of teachers

Therefore, the practical interconnection of various social aspects, as indicated in Table 2.2, can provide the basis for designing and implementing effective teacher SBPL. The next section presents an overview of the broad conceptualisations of teacher PL and change.

2.5 Teacher professional learning and change

This section briefly describes how the concept of teacher professional learning is perceived by various scholars. In addition, teacher learning and the change process are briefly explained as they form important aspects of teacher professional learning.

2.5.1 The concept of teacher professional learning

Scholars contest the concept of teacher *professional learning (PL)*, and therefore developing a conceptual understanding of its meaning is crucial. Traditionally, terms such as *professional learning*, *in-service training* and *professional development* have been used synonymously to refer to continuous teachers' professional development after initial education (Craft, 2000). PL is generally conceived as the basis for effective teaching and improved student achievement through teacher professional growth (Webster-Wright, 2010; Wei, Darling-Hammond, Andree, Richardson, & Orphanos, 2009). However, the general argument is that the common use of the phrases *teacher training* or *professional development* gives the general assumption that teachers are recipients of knowledge rather than being active learners. Similarly, Easton (2008) claims that professional *learning* refers to what teachers undertook throughout their career, during and after the college studies, but *training* is essential for specific skill acquisition. In this sense, *learning* refers to a more comprehensive process that requires an individual's active studying (Hornby & Turnbull, 2010; Postholm, 2012), while *training* is associated more with inculcating certain principles and skills in teachers. the term *learning*, rather than *training*, has been endorsed by many researchers as it refers to a change in professional growth (Dagen & Bean, 2014; Rohlwing & Spelman, 2014).

The term *development*, which refers to a process of growth that results from creating something new (Hornby & Turnbull, 2010), is also viewed by Easton (2008) as something that is essentially done to teachers. Likewise, Webster-Wright (2010) suggests that professional development focuses on the delivery of content, and thus, teachers are considered passive recipients of knowledge. In addition, Mizell, Hord, Killion, and Hirsh (2011) suggest that in building teacher capacity, the use of *professional learning* makes more sense because it "signals the importance of educators taking an active role in their continuous improvement" (p. 11). However, in line with sociocultural perspectives, learning is not restricted to circumstances, but rather occurs

whenever there are interactions between individuals. In this study, therefore, the term PL refers to the knowledge and skills gained by practising teachers after their initial teacher education period.

2.5.2 Teacher learning and change

The concept of teacher professional learning is associated with the notion of transformations in knowledge, beliefs, attitudes and skills that occurs in conjunction with the process of knowing. Easton (2008) argues that teachers engage in PL in order to become more knowledgeable and thus experiences are often transformed in the learning process to achieve high-sustained performance. Although change in teacher learning has been viewed in diverse ways (Richards, 2008; Russ, Sherin, & Sherin, 2016), several models of teacher change show that it is usually associated with learning, growth and improvement in teacher professional practices (Nguyen, 2013; Voogt et al., 2015). In this regard, teacher change is generally regarded as an improvement. Fullan (1985) underscores the idea that "change at the individual level is a process whereby individuals (teachers) alter their ways of *thinking* and *doing*" (p. 396). Therefore, a well-designed teacher PL focuses on changing teachers' understandings and practices. For example, Sun, Looi, Wu, and Xie (2016) posit that teacher change is likely to occur if teachers are engaged in effective PL.

While change is considered an important component of teacher PL, literature shows that many teachers tend to resist new reforms (McDonald, 2011; M. Taylor, Yates, Meyer, & Kinsella, 2011). In his analysis of teachers' widespread resistance to reform, Richards (2008) stresses that there are several personal and environmental factors that may impede teachers from applying new innovations when engaging in their PL. Since research has shown that teacher learning might be constrained by several factors, understanding the change process is crucial.

A few circumstances outlined by Fullan (1985) help to describe the conditions in which teacher change might occur. Fullan explains that "change takes place over time; the initial stages of any significant change *always* involve anxiety and uncertainty; ongoing technical assistance and psychological support are crucial; change involves learning new skills through practice and feedback…; and organisational conditions within the school" determine success of change (p. 396). These conditions indicate that teachers'

shift of beliefs, attitudes and practices might be a gradual process that requires proper arrangements to support teachers to adapt to new experiences. Furthermore, for teachers to change traditional teaching methods or PL experiences they need to understand and practice new knowledge. In the same vein, Ahn (2016) commented that "transforming a school into a place of continuous inquiry is never an easy project because it takes not only structural changes but also cultural changes, including a fundamental shift in the habits of mind of teachers" (p. 83). Thus, it is interesting to note that teacher learning and change seem to be central to the transformation of the school learning culture. Initiating such change of teacher PL can either be chronological, following a linear path from shifting practices to beliefs and attitudes (Guskey, 2002), or it may be indirect as claimed by other scholars (Meirink, Meijer, & Verloop, 2007; Opfer & Pedder, 2011; Opfer, Pedder, & Lavicza, 2011). In summary, different strategies have to be employed to facilitate change during teacher PL.

When teachers engage in PL they not only change their classroom practices, but also improve knowledge and skills regarding ways for undertaking their PL. Indeed, teachers need to be able to transfer what they gain from PL into classroom teaching and assessment (Desimone, Porter, Garet, Yoon, & Birman, 2002; Krolak-Schwerdt, Glock, & Böhmer, 2014). As a result, improving teacher classroom practices is an increasingly important area of concern for researchers (Hardman et al., 2012; Hardman & Dachi, 2012). More specifically, tracing teachers' path to change their PL practices and how to conduct their learning should be strongly emphasized (Bakkenes, Vermunt, & Wubbels, 2010; Borko, 2004; Putnam & Borko, 2000).

Knowing how teachers learn to engage in high standard PL is important. According to Cheng and Wu (2016), "studies of how teachers learn and develop are also essential to ensure sustainable teacher professional development" (p. 54). Recent research suggests that teachers can transform poor PL practices and gain competencies for improving students' learning if they are assisted to carry out their PL (Hiebert & Stigler, 2017; McDonald, 2011). Therefore, it is important that change in PL is generally understood, by looking at different models of how teachers learn to teach and carry out their PL (K. E. Johnson, 2006). The section below presents models of teacher PL.

2.6 Models of teacher professional learning

Included under this section is a broad overview of the common models of how teachers undertake their PL. It is noteworthy that these models are not guided by universal principles, but are common approaches employed by different countries, including Tanzania. For example, Gaible and Burns (2005) provide three main approaches to teacher PL that include: standardized model (training-based), site-based (resource-centre) and individual (self-centred). Nine PL models, according to Kennedy (2005), fall into two main categories of transmission and collaboration based on their capacity to give teachers opportunities to control their own PL. According to Hargreaves (2000), there are different models that reflect the developmental phases of teacher PL. Thus, literature shows that there are numerous teacher PL models based on factor analysis (Craft, 2000; Guskey & Sparks, 2002). This review focuses on common PL processes, particularly, how teacher ability to engage in PL is promoted and maintained. The PL models may be classified into: traditional training, teacher resource centres, self-directed; and collaborative or communities of practice.

2.6.1 Traditional teacher training model

Traditional training is the most common form of in-service teacher learning across the world. Training programmes in this model usually include workshops, conferences, seminars and short courses. This training approach could be regarded as traditional because it has served the purpose of training teachers for many years (Gaible & Burns, 2005; Lieberman, 1995) through episodic programmes in their assigned roles (Joyce & Calhoun, 2010). According to Hargreaves (2000), this traditional approach could be categorised as the *pre-professional age* of PL in which teaching is regarded as a simple activity that requires just a little training to help teachers master their skills. Literature shows that this traditional paradigm was emphasised in Western countries and the USA in the late 1980s to early 1990s (OECD, 2010; Richter, Kunter, Klusmann, Lüdtke, & Baumert, 2011) and it is still the most common form of PL in many African countries, including Tanzania (HakiElimu, 2009; Ono & Ferreira, 2010).

Cascading is an approach commonly employed in traditional training to facilitate the delivery of new knowledge and skills to teachers. In the cascade model, a few teachers are equipped with specific knowledge and skills, through workshops or conferences, so

as to become trainers of other teachers. MacNeil (2004) claims that most countries "have relied on large-scale "cascading" or "multiplier" workshops as their primary means of in-service teacher PL" (p. 2). Joyce and Calhoun (2010) hold that this model can be a possible simplification of training because the trained individuals are expected to train their fellow teachers in the future. Furthermore, Craft (2000) clarifies that through cascade approach the in-school training could be linked to off-site training because trained teacher experts could train their colleagues. Similarly, Villegas-Reimers (2003) identifies cascade training as a simple strategy used to help the majority of teachers to embrace major education reforms, such as curriculum change. However, it has been suggested that in most PL that occurs through one-stop training such as seminars, "minimal opportunities exist for teachers to collaborate, plan and put into practice new knowledge and skills" (Worsham, 2018, p. 16). As a result, this traditional model continues to be challenged for not guaranteeing relevant, sustainable, adequate and affordable PL to the majority of teachers, as discussed below.

While it is common for teachers in Tanzania and elsewhere to engage in these traditional models, few gains are made in terms of teacher learning. Scholars show that traditional workshops and other methods of training may not introduce significant changes in teachers' classroom practices (Lawless & Pellegrino, 2007; Steyn, 2008; Wineburg & Grossman, 1998). A significant challenge to this traditional method of training is that teachers themselves are not usually offered a chance to act as learners who work together to modify and enhance pedagogical practices. For instance, Clarke and Hollingsworth (2002) suggest that PL "is something that is done to teachers; that is, teachers are 'changed'" (p. 948). Similarly, Zepeda (2018) underlines that teacher PL "is not a 'fix-it' programme" but an intensive learning process focusing on classroom teaching. It can thus be suggested that imposing new knowledge on teachers by using prescribed training programmes might not result in improved classroom practices because teachers may not apply the acquired skills appropriately. However, school-initiated training such as seminars are usually more relevant and more cost-effective, especially if they are organized by the teachers themselves and are directly connected to classroom needs (Desta, Chalchisa, & Lemma, 2013; Múñez, Bautista, Khiu, Keh, & Bull, 2017). In such situations, Grosemans, Boon, Verclairen, Dochy, and Kyndt (2015) suggest that teachers need to be assisted to participate in a broad range of PL in their own contexts.

Traditional PL patterns also tend to use a top-down style which often fails to encourage teachers to maintain their own PL. In most cases, teachers in this model do not have an opportunity to select their own tailored learning because the content is usually predetermined (Darling-Hammond & Richardson, 2009; Selemani-Meke, 2013). Consequently, the knowledge and skills presented by experts from outside the school context rarely reflect individual teachers' PL needs or their students' learning needs (Duncan-Howell, 2010; McLaughlin & Talbert, 2006). This observation may support the hypothesis that PL programmes may not fully influence students' learning if the greater involvement of teachers is not welcomed (Colbert, Brown, SunHee, & Thomas, 2008). Failure to involve teachers in professional training may weaken teacher agency and thus undermine teachers' ability to direct authentic PL initiatives (Smardon & Charteris, 2017). Consequently, not being able to apply newly acquired knowledge to their own classroom environments, teachers may revert to their old familiar approaches.

In most low income countries, in Tanzania in particular, teachers have limited opportunities to engage in professional training programmes. In most cases these traditional training sessions are expensive and therefore the majority of teachers or schools cannot afford them. For example, some studies in neighboring Kenya reported that in-service teacher training is mostly inadequate and only the few teachers enjoy the opportunity to attend PL and training due to the unaffordable fees (David & Bwisa, 2013; Kosgei, 2015). Similarly, in Tanzania, many schools and teacher education colleges cannot afford to provide seminars to their teachers and educators unless they receive donor funding (Filipatali, 2013; Kitta, 2015; Namamba & Rao, 2017a; URT & UNESCO, 2014). In general, studies conducted in Tanzania (Kafyulilo, Fisser, & Voogt, 2016; Mtebe, Mbwilo, & Kissaka, 2016; Mtitu, 2014; Namamba & Rao, 2017b) and other parts of Africa such as in Ghana (Donkor & Banki, 2017) indicate that these traditional training programmes are occasionally provided to only a few teachers due to inadequate resources.

2.6.2 Teacher resource centres and clusters PL model

Teacher resource centres (TRCs) and clusters were introduced as an alternative PL model to challenge the traditional training approach. TRCs were introduced in Great Britain in the 1960s to improve teachers' competencies and access to teaching facilities (Brown & Halliday, 1995; Fairhurst et al., 1999). Giordano (2008) explains that since

the 1960s, the cluster model "has developed everywhere under different names and can be found in... Latin America, Asia, Africa, and even in industrialised countries" (p. 11). TRCs were intended to help teachers reflect on local professional needs and share meagre resources. Teachers usually meet at a particular school, at a popular centre or at a Teacher College to address their professional needs (Gaible & Burns, 2005; Giordano, 2008). These clusters could be regarded as the foundations of professional learning communities (PLCs) (Linder, Post, & Calabrese, 2012).

In Tanzania, the Ministry of Education and Culture directed regional officers to establish TRCs in every district in the 1980s, following the successful establishment of the first TRC in 1972 at Kleruu Teachers' College in the country. According to Binde (1999, cited in M. A. Mosha, 2015), about 292 TRCs were established in the Tanzania mainland and islands. Clusters had knowledgeable facilitators who received support from universities and college mentors in order to facilitate the professional activities for teachers. Mushi (2003) explains that the TRCs were also responsible for monitoring the academic achievement of schools in Tanzania and linked schoolteachers with colleges of education. Generally, TRCs have not helped teachers to engage in meaningful and ongoing PL, as further highlighted in the next paragraph.

The major shortcoming of the TRCs model is that it has not been well coordinated in many places to allow teachers to engage in collaborative PL and reduce over-reliance on expert support. In Tanzania, M. A. Mosha (2015) indicated that teachers did not gain relevant knowledge by going to the TRCs, as in most cases they have not engaged in dialogue with their colleagues nor have they interacted with various reading sources. Such practice is unsatisfactory because it does not enhance teachers' capacity to control and maintain their participation in PL. In this regard, Koda (2012) claims that TRCs could be an effective PL approach if teachers and facilitators could work collaboratively in their clusters. Furthermore, URT and UNESCO (2014) report that teachers in Tanzania lacked access to workshops and other learning opportunities in their TRCs, or clusters. Other researchers have also shown that these centres have been overloaded with multitasks which are complicated to undertake due to limited financial support (Clercq & Phiri, 2013; Giordano, 2008). Eventually, most of the TRCs in Tanzania lost their effectiveness due to lack of funds for resources, facilitators and other services that teachers may need. Clercq and Phiri (2013) comment that effective TRCs, or clusters,

"need quality teacher-led interactions" (p. 79) so that teachers can learn collaboratively, creatively and sustainably to address classroom teaching issues.

2.6.3 Self-directed teacher PL model

Self-directed learning is another approach for teacher PL which can occur alongside other models. Adult learning theories postulate that when adults encounter problems in accomplishing tasks, they are motivated to engage in self-learning even if no organized strategies are employed (Sparks & Loucks-Horsley, 1989). Teachers, as self-regulated learners, can also "plan, organize, self-instruct, self-monitor, and self-evaluate at various stages during the learning process" (Zimmerman, 1986, p. 308). Teachers also may feel more confident when they engage in learning something of their interest that satisfies their goals. In reviewing the PL literature, quite a comprehensive list of learning practices has been published. These practices are associated with individual or self-directed PL, which includes, but is not restricted to: reading books, reflecting on a job, seeking assistance, classroom observations, and dialogues with colleagues about their work (Desimone, 2009; Grosemans et al., 2015). Jovanova-Mitkovska (2010) further adds that some teachers engage in this form of personalized learning by using online resources. Therefore, teachers can gain professional knowledge and skills through various sources. Similarly, researchers such as Mushayikwa and Lubben (2009) and Jurasaite-Harbison and Rex (2010), argue that self-directed PL provides a forum for teachers' long lasting learning because they have a greater chance of controlling their own learning process.

Self-directed PL can be formally organized, although it happens more commonly within unstructured environments. As the case in other parts of the world, Tanzanian teachers are already participating in unstructured ad hoc self-directed PL. These teachers are unconsciously engaging in self-learning when attempting to address immediate pedagogical challenges they might be facing. In the same vein, Anangisye (2011) explains that the Tanzanian education system has not created an environment that can encourage individual teachers to participate in meaningful PL. Furthermore, most of teachers' self-directed learning experiences are probably unstructured in terms of content, learning objectives, support from school and colleagues, or time to learn (Kyndt, Govaerts, Verbeek, & Dochy, 2014). As a result, many teachers may accidentally engage in PL without having specific goals. Lack of clear PL goals can

lead to unpredictable outcomes since teachers' self-learning often occurs spontaneously (Kyndt et al., 2014). Therefore, individual learning needs to be fully endorsed to avoid acquiring irrelevant knowledge and skills. This view is supported by Dewey (1938, cited in Kolb & Kolb, 2005) who points out that not all learning done by teachers in unstructured environment may necessarily promote development.

2.6.4 Collaborative or community of practice teacher PL model

Due to the increasing challenges in teacher education in the late 19th century, many countries sought to encourage teachers to engage in collaborative PL. This period is regarded by Hargreaves (2000) as the *collegial* to *post-modern* PL era, in which there was an increase in the complexities of teaching, and thus many teachers needed to adopt innovative teaching strategies. Hargreaves further argues that "there are increasing efforts to build strong professional cultures of collaboration… to develop stronger senses of teacher efficacy, and to create ongoing professional learning cultures for teachers" (p. 165). The collaborative model of PL, which is commonly referred as professional learning communities (PLCs), usually occurs in a variety of formats based on how it is being implemented. In this model, teachers are given autonomy to organise their study groups or community of learners and determine what and how to conduct their own learning to address common problems in practice.

Inspired by sociocultural learning theories of situated learning and constructivists, the OECD (2010) shows that in the 1990s many countries in the USA and Europe started to focus more attention on PLCs. Wong (2010) also shows that since the mid-1990s, PLC has been a model for teachers' PL in China. In recent years, a number of studies have concluded widespread agreement in the use of collaborative teacher PLCs across the world (Croft, Coggshall, Dolan, & Powers, 2010; Kiss, 2016; Robinson, 2014; Timperley, Wilson, Barrar, & Fung, 2007; van den Bergh, Ros, & Beijaard, 2015). PLCs are considered by some researchers as relatively new approach to teacher PL departing from the traditional training paradigm (Darling-Hammond & McLaughlin, 2011; DuFour & Eaker, 1998; Lieberman, 2000). For instance, Watson (2014) notes that PLCs "have become almost de rigueur in schools as a means to overcome the shortcomings associated with episodic, decontextualized professional development" (p. 18).

It is also important to highlight that PLCs, or collaborative PL, can be either confined to a school or extended to a wider level of operation. For example, "Kâhui Ako" community is a wider voluntary PLC in New Zealand that includes parents and other members across all levels of education. Joyce and Calhoun (2010) also elucidate that "a group of teachers can form a learning community. A school staff can decide to generate learning communities. A district can do so. Even a state can develop learning communities…" (p. 63). Moreover, whether a PLC is implemented at the school or system levels, it has to reflect and focus on the professional needs of teachers and students in specific schools. While the meaning of PLC varies considerably among places and by scholars (DuFour, 2004; Pella, 2015), learning in communities of practice involves teachers as learners with shared interests and understandings, vision and values on how to engage in mutual PL to improve students' learning (Hord, 1986, 1997; Kennedy, 2005; Little, 2012; Stoll & Louis, 2007; Wenger, 1998). A number of scholars, such as Little (2012) and Moon (2007), underscore the idea that the school environment offers a suitable context for teachers to enter into genuine dialogue with their colleagues about the challenges they are facing and see the relevance of changing PL experiences. Furthermore, other scholars emphasise that teacher PL occurs best alongside work (Hoekstra, Korthagen, Brekelmans, Beijaard, & Imants, 2009; Lieberman & Miller, 2008) because effective PL often involves teachers in job-embedded learning and is usually directed to their classroom instructions (Hunzicker, 2011).

Indeed, the culture and physical environment of a school can often determine the effectiveness of teacher PL (Avalos, 2011; Parlar, Cansoy, & Kılınç, 2017). These scholars suggest that teachers learn best in school-based PLCs or *school-based professional learning* (SBPL), than in off-site programmes. This SBPL is not restricted to school premises (Lieberman & Miller, 2014), however, encompasses all PL practices on the basis of collaboration and according to the students' specific needs. Sargent and Hannum (2009) also add that when teachers participate in SBPL they improve ownership, creativity and leadership in their PL. Taken together, SBPL is a holistic approach that allows teachers to inquire into their practices and embrace all formal and informal types of PL.

Formal types of SBPL communities involve structured learning activities that can be implemented by teachers within or outside the school with the support of their school management. SBPL as a workplace learning is usually 'considered to be comprised of formal learning, which is planned or supported by the organization" (Choi & Jacobs, 2011, p. 239). According to the OECD (2009), the more structured teacher PL activities include:

- Short courses (short-term training, not comprehensive as qualification courses)
- Seminars (short time training sessions that can be held for one or two hours)
- Workshops (has follow-up sessions and usually involves hand-on training)
- Educational conferences
- Observation visits to other schools
- Participate in network of teachers
- Conduct research (individual or collaborative classroom research)
- Mentoring, coaching and peer observations (p. 50)

Several studies show that other formal learning activities, such as teacher discussions and dialogues, can occur in subject departments in schools under the supervision of departmental leaders (Garet, Porter, Desimone, Birman, & Yoon, 2001; Jones & Dexter, 2014; Tan & Ng, 2012). A number of authors have found that most teachers practice their SBPL through attending departmental or whole school discussions. For example, Melville and Wallace (2007) maintain that the "subject department operates as both a learning community and an organization" (p. 1193). Highlighting the relevance of the role of departments in teacher PL, Vanblaere and Devos (2018) recommend that departmental leaders need to be supported to facilitate coordination of teacher learning initiatives. Teachers, therefore, can engage in a broad range of formal types of PL as part of their school arrangement (Herbert & Rainford, 2014; Little, 2007; OECD, 2009; Reinhorn, Johnson, & Simon, 2015).

Furthermore, if teacher SBPL experiences are not structured or merely based on teachers' own discretion, they can often be regarded as informal or less formal. However, it is important to note that the informal PL activities that occur alongside formal learning are usually guided by specific PL goals. Literature shows that alongside

formal learning formats there are informal learning opportunities that teachers can participate in such as, reading scholarly works, engaging in informal conversations or conducting an informal classroom inquiry (Beck, 2017; Eraut, 2011; OECD, 2009; Vermunt, Vrikki, Warwick, & Mercer, 2017). Informal learning provides a good example of the social learning community in which teachers initiate their own learning in a natural environment led by their common interests and needs (Marsick & Watkins, 1990; Marsick, Watkins, Callahan, & Volpe, 2006; Wenger, 1998; A. Wilson et al., 2008). Sociocultural theorists posit that teacher learning does not merely occur through formal training, but through in informal daily experiences (Kyndt, Gijbels, Grosemans, & Donche, 2016). In addition, teachers can participate in informal learning experiences as individuals or in collaboration with others (Kennedy, 2011; J. C. Lee, Zhang, & Yin, 2011). Although informal learning is neglected and not regarded as learning in some places, it can offer a meaningful source of PL for teachers in their workplaces (Eraut, 2004; Shanks, 2018).

On the other hand, teacher SBPL activities can be regarded as formal or informal depending on how they are structured at each learning environment. Interpretation of the formal and informal teacher learning trajectories can be largely determined by the situation in which learning is taking place (Choi & Jacobs, 2011) and it often overlaps. For example, Choi and Jacobs (2011) emphasize that "it may be impossible for a learning activity to be regarded as either entirely formal or entirely informal" (p. 241).

In summary, SBPL, or contextual teacher-driven PL, is a widely recommended approach for teacher PL in many countries. In Tanzania, where SBPL is not yet formalized nationally (Hardman et al., 2015), some micro studies by Anderson and Sumra (2002), Kafyulilo (2013), Anney (2013) and Kyaruzi (2014) signaled that teachers might have been already engaging in some kind of SBPL. The concept of an SBPL community in particular is increasingly becoming a significant area for teacher PL across different educational systems such as South Korea, Singapore, China and the USA (M. Lee & Kim, 2016; Olivier & Huffman, 2016; Pang & Wang, 2018; J. Zhang & Sun-Keung Pang, 2016). In India for example, a recent study by Subitha (2018) proposes an alternative teacher PL that "encourages teacher agency, positions teacher learning within the schools' socio-cultural settings" (p. 76). Thus, several scholars across the world agree on the effectiveness of SBPL communities. However, the

implementation of quality SBPL needs the attention of policy makers and practitioners. As commented by Ahn (2016) and pointed out by MacNeil (2004), there "is less disagreement about what constitutes a good professional development program than there is about *how to actually implement one*" (p. 4). Therefore, the challenge to educators is how to implement effective SBPL as discussed in the section 2.8.

2.7 Overall status of teacher PL models in Tanzanian context

Drawing on the extensive range of approaches to teacher PL presented in sections above, countries, such as Tanzania, have a lot of improvements to be made for a systemic teacher-driven and sustainable SBPL be promoted. Drawing on Hargreaves's (2000) analysis of teacher PL and development, Msonde (2011) argued that Tanzania is still in the *pre-professional* and *autonomous* professional ages in which in-service teacher education is narrow, expert-led and generally inadequate. Reflecting on teacher PL approaches analysed by Cochran-Smith and Lytle (2001), Tanzania is probably employing knowledge *for* and *in* practices in large part. These approaches are used to maintain the relationship that exists between knowledgeable and novice teacher, rather than to encourage teachers to work together to inquire on their PL practice and critically construct their own knowledge. As Feiman-Nemser (2008) argues, "besides knowledge *for* teaching which can be learned outside the practice, teachers need knowledge *of* teaching which can only be gained in the context of their work" (p. 699).

It is possible for Tanzanian teachers to transform their professional practices if new opportunities are offered to explore new experiences (Juma, Lehtomäki, & Naukkarinen, 2017) by enabling them to be agents of change (Darling-Hammond & McLaughlin, 1995). While it is a widely held view that there is no single effective model of PL (Lawless & Pellegrino, 2007), the challenge motivating this research is to advance PL in Tanzania to *collegial* and *postmodern* stages in which teachers can employ the knowledge *of* practice through an inquiry approach. The following section provides the main tenets for building effective teacher-led SBPL.

2.8 Building effective teacher-led SBPL

Developing effective SBPL that promotes teacher ownership and participation in continuous PL incorporates a range of factors. This section briefly presents key aspects that can facilitate the establishment of effective SBPL. These aspects include:

strengthening school leadership support; developing PL policy guidelines; organizing resources needed for SBPL; and encouraging teachers to engage in SBPL.

2.8.1 Strengthening role of school leadership for teacher SBPL

School leadership generally refers to the broad function that encompasses a team of individuals who are in charge of all the teaching and learning activities at a school. According to Pont, Nusche, and Moorman (2008), school leadership can also be referred to as the school management or administration. School leaders can include the principal or Heads of Schools (in Tanzania), deputy administrators, leaders of different departments and the school board or committee. Increasing evidence in the field of teacher education suggests that school leadership makes a significant contribution to teacher engagement in PL activities, both within and beyond the school physical environment. For example, Sargent and Hannum (2009) reported that the most rural and poorly resourced schools in China were able to implement SBPL due to effective school leadership that strongly supported their teachers. In the schools studied in Russia, USA and Lithuania, Jurasaite-Harbison and Rex (2010) also found that leadership determined the teachers' ownership of their PL.

As school management is usually responsible for promoting and organizing teacher engagement in SBPL, it is essential for these leaders to develop an understanding of how quality PL can be both promoted and sustained. A significant number of studies suggest that in order to develop effective PL, school leaders need to work with their teachers to plan, monitor and evaluate PL activities (Hansen & O'Neill, 2010; Hardy, 2016; Huffman, Hipp, Pankake, & Moller, 2001; Mestry, Hendricks, & Bisschoff, 2009). For example, Zheng, Yin, and Li (2018) argue that in order to establish effective PLCs, Heads of Schools need to "shorten the distance between themselves and individual teachers… and commit to deep and meaningful conversations with teachers" (p. 13). Therefore, the success of the SBPL can be determined by the ability of the school leaders to involve teachers to harmonize different strategies and resources in order to maximize their participation in quality SBPL. Other studies show that when school leaders are not so supportive of PL activities, teachers will likely lose focus on their PL participation (Hindeya & Endawoke, 2013; Kuluchumila, 2013; Mukeredzi, 2013; Schaap & de Bruijn, 2017). This argument is confirmed by the Tanzanian studies conducted by Komba et al. (2006) and Kaponda (2007) who found that school

management did not have capacity to organise PL programmes, and as a result, teacher learning was not a priority. Thus, Moswela (2006) argues that school leaders need training to help them become familiar with the appropriate ways that could enhance teacher SBPL.

2.8.2 Developing policy guidelines for SBPL

School policies related to teacher PL are critical in guiding teachers' participation and building sustainable SBPL. Kwakman (2003) underlines the idea that having clear guidance on the implementation of PL activities can improve SBPL. Individual schools cannot establish successful teacher PLCs without support (Dail, Goodsite, & Sanders, 2018), particularly, having robust education policy in place (Monametsi, 2012). Recently, Darling-Hammond (2017) showed that various education policies and effective strategies in countries with developed teacher education systems have successfully contributed to teacher engagement in PL. Therefore, it is crucial to have clearly articulated national education policies related to PL to guide educational stakeholders on effective ways to support ongoing teacher learning in schools. Generally, these policies at national level are associated with strategic plans and campaigns used by governments to encourage teacher PL. For example, from 2007 to 2010, the Swedish government used the campaign "A boost for teachers" to encourage every teacher to take part in PL (OECD, 2010). However, these PL policies need to be undertaken and applied at the school level in order to facilitate their implementation.

In addition, individual schools need to translate the centralized policies into school-based guidelines or policies to ensure their full realization in teachers' own working environment. For example, the OECD (2010) indicated that in countries such as Belgium, UK and Czech, schools have a PL plan or guideline for their teachers. In another example, Pow and Wong (2017) showed that "in Hong Kong, the Government uses a 'soft' approach that allows schools to decide on policies about their own professional development strategies and allows teachers to have professional autonomy" (p. 69). In this sense, teachers are also involved in the creation of these PL guidelines so that a sense of ownership is developed. The OECD (2005, cited in Abdou, 2017) also suggested that teachers should be included in the designing of policies. The OECD (2009) reveals that those schools which had explicit policies better supported teacher participation in PL. Indeed, coordinated PL activities held at schools make teachers

more accountable and encourage a sense of belongingness in a PLC (Bredeson & Johansson, 2000; Schaap & de Bruijn, 2017). Bingimlas (2017) further adds that a school-based plan offers clear guidance on the use of available learning resources.

2.8.3 Organising resources for teacher SBPL

A successful SBPL needs effective organisation and provision of several resources in terms of funds, expertise, materials, and time, in order to facilitate teacher participation. Resources for PL can be organized in many different ways, but the following practices are critical: provision of financial support; utilizing opportunities around to create more resources; and creating time for SBPL activities.

2.8.3.1 Provision of financial support

Funding has long been a critical aspect in the development of quality teacher PL. Governments need to allocate sufficient budgets for PL to support schools. Studies have indicated that many teachers in Africa have been unable to engage in adequate PL due to increasing financial costs and lack of funding (Bermeo et al., 2013; D. K. Cohen & Hill, 2001; Hennessy, Haßler, & Hofmann, 2015; Komba & Nkumbi, 2008; MoEVT, 2007). This situation implies that there have not been sufficient funds allocated to teacher development programmes. Although there is increasing evidence that SBPL is cost-effective (Crichton & Carter, 2017; Oweyo & Umoh, 2016; Wabule, 2016), this does not mean that relevant PL can occur without incurring any costs.

A number of studies have persistently recommended an increase in financial support to help teachers sustain their PL (Akiba et al., 2015; Hardman, Ackers, Abrishamian, & O'Sullivan, 2011). Nations such as Finland, Singapore, New Zealand and Canada have well-established teacher PL systems because they have invested relatively significant amount of funds in PL. In Finland, for example, study grants are available to support PL including individual teacher PL initiatives. In other countries such as Spain teachers are "offered incentives such as salary increases or credits for promotion" as a way of encouraging teacher PL (OECD, 2010, p. 47).

2.8.3.2 Utilizing opportunities around to create more resources

While external financial support is required for sustainable SBPL, schools also need to make effective use of internal opportunities in order to create other resources needed for teacher PL at low cost. Support offered by the school management can help teachers to acquire some resources for their PL (Msonde & Msonde, 2017). For example, the provision of reading resources, improvisation of teaching and learning materials and the use of internal personnel are actions that can be managed by individual schools at a very minimal cost. In addition, professional literature, such as research reports, journals and newsletters, can be easily made available at the school. Indeed, in some places a few copies of these scholarly works may be obtained online or from educational institutions free of charge or at a low cost. Teachers also need to be aware of various sources in which they can access resources for their PL and should be encouraged to search for those. Wen and Wu (2017) recommended that promoting the use of ICT in schools can serve teachers with adequate reading resources they might need for PL practices. However, studies in developing countries indicated that teachers with limited ICT skills find it difficult to access online resources or use other media technology for their PL (Hennessy, Haßler, & Hofmann, 2016; Mwalongo, 2011; Olson et al., 2011).

Another way schools can create PL resources is through the improvisation of teaching and learning materials. Teachers can be assisted to make alternative materials available at school to facilitate their PL. For instance, Mokhele (2013) in South Africa found that teachers do have opportunities to create alternative teaching and learning materials if they managed to improvise using local resources. This observation is supported by Bruce, Esmonde, Ross, Dookie, and Beatty (2010) who claim that in circumstances where teachers are committed to learn or teach, a lack of resources will not be an impediment because they will always look for alternative ways. Charteris and Smardon (2015) confirm that teachers have the ability to manipulate their local environment, so as to act on specific challenges.

The school can also create teacher PL resources by drawing on internal expertise. Teachers themselves have a repertoire of experiences and expertise as an invaluable resource to support one another to learn (Guskey, 2014; Rohlwing & Spelman, 2014). When there is little or no expertise, the school could outsource (Whitford & Wood, 2012) from neighbour institutions. Therefore, generally, making reading resources

available, encouraging teachers to find alternative local resources and maximising the use of internal expertise are just a few examples of how school management can organize PL resources and guarantee teachers' ongoing participation in SBPL.

2.8.3.3 Creating time for SBPL activities

Creating sufficient time allowance for teachers to participate in SBPL is also critical. The OECD (2014) reported that giving financial allowance is not commonly used to increase teacher PL participation in Malaysia, Iceland and Canada. Instead they "focus more on an alternative method of support, such as scheduling time for activities to take place during regular working hours at the school" (P. 108). Therefore, time can be used as PL incentive. Other countries such as Belgium, Japan, South Korea, Australia and USA have formally allocated minimum times of 15 to 20 hours per week for teachers' PL. According to Schleicher (2012), on average, each teacher spends 48 and 100 hours for PL per year, in Shanghai, China and in Singapore, respectively. In Finland, where official PL time is provided, a recent survey has shown that teachers still devoted their own extra time to engage in PL (Darling-Hammond, 2017).

School leaders and teachers can therefore, collaborate to create time for teachers to engage in PL. Some researchers advise that time for PL activities can be created by looking at the possibilities around the school timetable (Boudreaux, 2015; Lohman, 2006; McConnell, Parker, Eberhardt, Koehler, & Lundeberg, 2013). In this regard, Tallerico (2005) suggests that schools could adapt some of the following strategies: adjusting individuals' time to allow a common time for all members; reducing teachers' contact time with students in one of the working days in a week; creating blocks of time within a week to give time for teachers' PL; or buying additional time of teachers from non-working time and compensate them. Similarly, Kennedy (2011), Livingston (2016) and McLaughlin (1997) suggest the use of teacher free time for PL related matters. This suggestion is supported by Nawab (2011) in Pakistan who found that teachers successfully participated in formal PL activities that were scheduled during break time in one school.

2.8.4 Encouraging teachers to engage in SBPL

Creating supportive environments for successful SBPL has to be done along with motivating individual teachers to engage in regular PL. Lack of motivation may affect

teacher engagement and commitment in their profession (Mkumbo, 2011; Sinyangwe, Billingsley, & Dimitriadi, 2016). On the contrary, when encouraged and persuaded, teachers can "feel efficacious' to perform their PL (Moradkhani & Haghi, 2017). Cosgriff (2017) argues that teachers form an important part of a change process in PL. In reality, human agency is crucial in influencing and sustaining changes within and between individuals (Bandura, 1989). Therefore, to facilitate effective teacher participation in SBPL, teachers are to be encouraged to take a positive lead in their PL. The following are some key aspects that can be employed to encourage effective teacher participation in SBPL: creating awareness of teacher PL roles; respecting and trusting teachers' PL initiatives; and promoting teacher collaborative PL.

2.8.4.1 Creating awareness of teacher PL roles

When teachers are aware of their PL roles they can be more motivated to execute them. Historically, literature in the field of teacher education has emphasized that teachers hold dual roles of teaching and learning (Darling-Hammond & McLaughlin, 1995; Darling-Hammond & McLaughlin, 2011; Livingston, 2016) and therefore they need to recognize their increased responsibilities. The OECD (2010) report showed that in countries such as Singapore, Finland, Japan, New Zealand, UK, Italy and Australia, teacher participation in PL is considered to be a professional responsibility. While in some OECD countries teachers are aware of their roles and position in the PL, the expectation for Tanzanian teachers to engage in PL appears to be optional. This situation suggests that teachers' commitments to PL activities are perhaps relegated. Similarly, Joyce and Showers (2002) suggest that the effective PL programme can have better outcomes if teachers are helped to become active learners. Therefore, effective SBPL can be further developed if teachers themselves plan, implement, evaluate and sustain their PL practices. Moreover, teachers' efficacy and agency can be fostered if they managed to understand their roles, engage in effective PL and by make improvements in teaching and student learning (Haßler, Hennessy, Cross, Chileshe, & Machiko, 2015; S. Liu, Hallinger, & Feng, 2016; Tseng & Kuo, 2014).

2.8.4.2 Respecting and trusting teachers' PL initiative

Respect and trust are important aspects that can encourage teachers to take their PL responsibility and maintain participation. İlhan and Erbaş (2017) believe that creating an environment that makes teachers feel respected professionally can stimulate their

understanding and participation in PL. Other scholars also identify the importance of developing trust and respect for teachers as an important condition for encouraging their engagement in PL (Hargreaves & Fullan, 2012; Vangrieken, Meredith, Packer, & Kyndt, 2017).

Recent studies have shown that developing trust can help teachers to feel valued and therefore change their PL practices (Demir, 2015; Greany & Maxwell, 2017; Wahlstrom & Louis, 2008). When teachers are working in safe and trusting environment, they seem to be motivated to engage in PL, learn new techniques (Whitcomb, Borko, & Liston, 2009) and develop leadership skills that can influence colleagues to improve their PL and teaching (Poekert, 2012). Similarly, Fleming and Thompson (2004) argue that if teachers believe that the school will support the new initiatives from their PL efforts, then they will be encouraged to continue learning.

2.8.4.3 Promoting teacher collaborative PL

It is also important for schools to promote collaborative learning to encourage teachers to share competencies and encourage one another in order to sustain their PL. One of the characteristics of teachers as change agents is their understanding of the need of collaboration with other people, particularly colleagues, in order to sustain their PL (van der Heijden, Beijaard, Geldens, & Popeijus, 2018). In recent years, there is increasing evidence that the relevant and sustainable PL occurs when teachers participate in regular collaborative inquiry to embrace useful learning experiences (Caena, 2011; Koellner & Jacobs, 2015; Little, 2002; Ning, Lee, & Lee, 2015; Sinnema, Sewell, & Milligan, 2011). This is due to the fact that teachers who share skills with colleagues can improve their teaching practices more easily than those who tend to work in isolation (J. Cole, 2018; Meirinka, Imants, Meijer, & Verloop, 2010; Park & So, 2014; D. Wang, Wang, Li, & Li, 2017). For example, several scholars have emphasized that successful classroom action research results from collaborative teachers' PL (Burbank & Kauchak, 2003; Chadwick, 2016; Herbert & Rainford, 2014; Mitchell, Reilly, & Logue, 2009). Therefore, the role of others in social interactions influences teacher learning, and encourages them to continue engaging in PL. However, meaningful collaborative teacher PL should not be viewed as an automatic process, as it requires a range of skills, planning and support (Hargreaves, 2013; M. Zhang, Lundeberg, & Eberhardt, 2011). Drawing on what DeLuca, Bolden, and Chan (2017) found in some cases, teachers'

collaborative learning can probably be impeded by their lack of confidence to enterprise some experiences, and thus providing them with the needed support is crucial.

2.9 Inquiry and knowledge-building cycle approach for teacher SBPL

The previous section discussed the essential interrelated conditions for building effective SBPL that is teacher-driven. Tanzania, in particular, needs a well-developed SBPL model for in-service teachers (Hardman, 2009). This section explains how the inquiry and knowledge-building cycle (IKBC) can be employed to improve the capacity of teachers to engage in meaningful SBPL. The IKBC is an approach to SBPL which was adapted from the work of Timperley and colleagues in New Zealand in 2007. This approach was developed from a synthesis of research as a guideline to develop PL and improved practices of teachers in New Zealand and Australia. IKBC or *inquiry model* of PL, is also known as 'evidence-based inquiry' (Timperley, 2011). Teacher inquiry is an "important element of CPD (continuous professional development), involving critical and reflective processes" (Pachler, Daly, & Turvey, 2010, p. 93).

The IKBC is connected to other teacher-driven PL approaches such as "Lesson Study", which originated in Japan and spread across other nations (Bae, Hayes, Seitz, O'Connor, & DiStefano, 2016). The inquiry approach allows teachers to construct their learning on the basis of social interaction and therefore can be regarded as a sociocultural model (Popp & Goldman, 2016). In accordance with the recommendation made in many approaches that PL activities should be led by teachers (Beswick, 2014; Kryvonis, 2013; Shaimemanya, 2017; Sinyangwe et al., 2016), inquiry cycle empowers teachers to control their PL and gives them agency to identify learning needs. Since PL models vary according to different contexts (Guskey, 2002; Koellner & Jacobs, 2015; Wong, 2010), IKBC, like any other model has to be modified to fit the Tanzanian context. The section below provides key procedures for using an inquiry approach in Tanzania.

2.10 Conceptual framework of IKBC in Tanzanian context

Included in this section is a systematic process through which teachers can engage in SBPL through IKBC. As shown in Figure 2.1, teachers' participation in the inquiry cycle can involve three main phases, which are establishment, implementation and institutionalization.

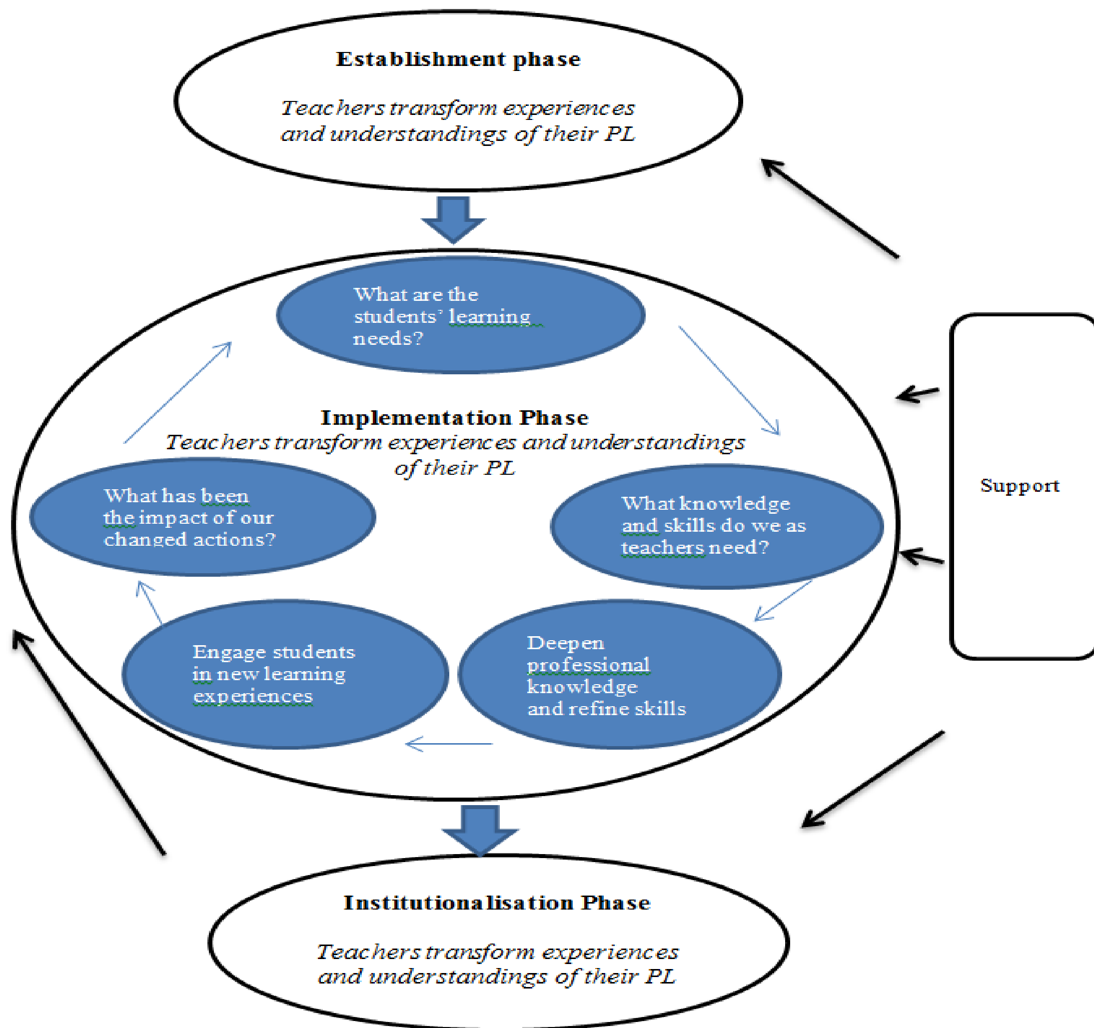

Figure 2.1 The inquiry and knowledge-building cycle of professional learning

Source: Adapted from Timperley et al. (2007).

Support from the school management and other stakeholders from outside the school is essential in each phase of the inquiry cycle, in order to facilitate teacher participation in an effective PL. Throughout the inquiry cycle, teachers are expected to improve their teaching skills and transform their knowledge, attitudes, perceptions and capabilities regarding SBPL. Below are the three main phases of the IKBC.

2.10.1 Establishment phase

Finding time in a school timetable for teachers' PL has to be considered first when encouraging teachers to engage in an ongoing SBPL. For example, Lalor and Abawi (2014) claim that school-based PLCs "work more effectively when they are timetabled"

because teachers know in advance that they have tasks to be accomplished (p. 77). After that, teachers need to organize themselves in small groups of learners by considering who might best work together. DuFour and Eaker (1998) further claim that schools are often challenged as how to start as well as to maintain the learning teams. However, Bellanca (2009) says that "to start a learning community, school leaders choose different pathways" (p. 52). Successful SBPL depends on how well learning teams are organized, and thus, teachers themselves need to learn how to formulate or choose appropriate teams to work with. The easiest way to establish a learning team is in response to a common learning problem (Mizell, 2010). Learning teams may include other skilled facilitators from inside or outside the school to contribute knowledge to the group from time to time. Entering and exiting the team has to be flexible to allow teachers to form new groups and to solve more specific issues. If the establishment phase is satisfactorily done based on the context, then teachers can engage in a cycle of learning, as indicated in the implementation phase below.

2.10.2 Implementation phase

Figure 2.1 indicates a list of activities undertaken within a bigger cycle during the implementation of an IKBC. Most of these PL activities are conducted in the form of dialogue, guided by a set of procedures. While teachers engage in inquiry activities at different stages of implementation phase, their knowledge of carrying out their SBPL is improved. These inquiries occur in five stages within the bigger cycle: identifying the students' learning needs; analyzing the teachers' learning needs; deepening teachers' professional knowledge and refining skills; engaging students in new learning experiences; and assessing students' learning and overall PL progress, as discussed below.

2.10.2.1 Identifying the students' learning needs

The most important thing in the implementation phase is the way in which teachers analyse the students' learning needs. Baird and Clark (2017) explain that the end product of an effective teacher PL programme is to improve students' learning outcomes. Therefore, focusing on learners' needs is crucial at this stage of the IKBC. In recent years, there has been an increasing shift of thinking about teacher PL and its impact on their students' learning (Fisher & Frey, 2014; Gamrat, Zimmerman, Dudek,

& Peck, 2014). Supporting this argument, Louws, Meirink, van Veen, and van Driel (2017) suggest that the objectives of PL should not be imposed on teachers, but rather follow a systematic analysis of learning needs. The reason for this is that students' learning abilities and challenges are often diverse (J. Taylor, Roth, Wilson, Stuhlsatz, & Tipton, 2016). Therefore, throughout the inquiry process, teachers should consult and triangulate the sources of evidence (Guskey, 2007; Meissel, Parr, & Timperley, 2016), such as interviewing students or analyzing assignments and other learning activities, so as to direct their inquiry (Dreaver & Dreaver, 2006).

2.10.2.2 Analyzing the teachers' learning needs

At this stage, which sometimes may occur alongside or overlap with the first stage, teachers find out how to address problems in student learning (Jojo, 2017), as identified in the first inquiry stage. It is at this stage when the teacher's discourse focuses on what to learn in relation to knowledge and skills required by students. Teachers set learning priorities and strategies that could help to address their learning needs. It is important to bear in mind that teachers learn in different ways and have their own learning needs (Killion & Crow, 2011; Mokhele & Jita, 2012). Therefore, scholars suggest that the PL has to be organized not only to meet the general targets of learning teams, but also to understand and be responsive to individuals' expectations and attitude in learning (Blandford, 2000; Boyaci & Oz, 2017; J. Cole, 2018; Kyndt & Baert, 2013).

2.10.2.3 Deepening teachers' professional knowledge and refining skills

At stage three, teachers engage in actual learning or study by considering the needs identified in stages one and two. Timperley (2011) claims that most of the traditional approaches to teacher PL start at this stage tend to jump over the prior stages. At this stage, teachers' learning is directed towards achieving the identified goals (Cwikla, 2002) and includes all formal and informal learning formats (Desimone, 2011). Generally, the selection of a suitable PL format depends on learning content and the availability of resources. More recently, however, there has been an increasing use of online networking, which connects teachers to other people who can support their learning away from the school (Feng & Ha, 2016; Harris, 2008; Mentis & Kearney, 2017). In addition, reading online resources is most preferred due to the fact that teachers are able to perform their PL at their convenience (Beach, 2017).

2.10.2.4 Engaging students in new learning experiences

After refining their knowledge and skills, teachers conduct classroom teaching at the fourth stage of the inquiry cycle. By engaging in teaching, teachers are applying their new skills with students. As commented by Gun (2017), teacher knowledge construction cannot happen in a vacuum, but needs to be situated in a classroom context. Of most interest is that engaging in an innovative PL can result in a shift in teachers' pedagogical orientation as well as in students' learning (Butler, Leahy, Hallissy, & Brown, 2017). However, it is important to note that teachers differ in their teaching competency (Mkandawire, Mwanjejele, Luo, & Ruzagiriza, 2016; Sewell, Hansen, & Weir, 2017) and thus they need support and perhaps more practice to implement the learned skills in the classroom more effectively. For instance, studies by Kitta (2004), Mkumbo (2014) and Stronkhorst and van den Akker (2006) indicate that teachers often lack the necessary teaching techniques, especially on planning teaching and assisting students' diverse learning needs.

Surprisingly, some teachers tend to resist applying new learned social constructive approaches (Roberts, Brown, & Edwards, 2015; Vavrus, 2009; Vavrus & Bartlett, 2013), because their teaching could be largely influenced by traditional assumptions about students' learning (Cochran-Smith, 2012; McLaughlin & Talbert, 2001; Santagata & Bray, 2016; Sewell, 2006; Tabulawa, 1998). In addition, Zee and Koomen (2016) point out that "despite the effectiveness of instructional practices for students' development, not all teachers feel capable of implementing and using such practices in class (p. 991). To this end, teachers should be supported to raise their teaching beliefs and see that they can effectively apply their new learned experiences to impact their students' learning. However, effective PL can challenge conventional assumptions and encourage teachers to develop innovative practices (Stoll, Harris, & Handscomb, 2012).

2.10.2.5 Assessing students' learning and overall PL progress

Assessment of the PL impact is done at the fifth stage to evaluate ways in which teacher learning has impacted student learning. Evaluation and reflection are important elements of an effective PL as they provide evidence about their teaching and learning outcomes in order to amend their own practices (Bates & Morgan, 2018; Darling-Hammond, Hyler, & Gardner, 2017). The success of the teacher learning programme is largely evaluated through classroom practices, particularly through student achievement

(Darling-Hammond, 2008). According to reflective practices by Schön (1983) and Schön (1987), teachers can be conducting an ongoing evaluation of students' learning progress. Certainly, the feedback about students' learning can help teachers to reorganize their next PL (Bellanca, 2009). Thus, teachers should seek expert support if they could not arrive at the level intended in their PL, particularly in teaching (Sewell, St George, & Cullen, 2013; Timperley, 2011). However, expert support has to focus on building the capacity of teachers to control their PL according to the context (Cordingley, Bell, Isham, Evans, & Firth, 2007).

2.10.3 Institutionalization phase

Institutionalization refers to the process of sustaining established educational initiatives overtime in an organization and making PL a part of the culture of an institution. This process occurs when successful PL practices start to be incorporated among teachers in the entire school system. Although research has shown that it often takes time for many teachers to change when learning new experiences (Sedova, 2017a, 2017b; Timperley, Kaser, & Halbert, 2014; Webster-Wright, 2009), practising professional activities through inquiry cycles can provide teachers with the confidence to successfully conduct their PL. Several other factors may also hamper the implementation of the inquiry cycles, but learning can be shaped according to the context (Hairon & Dimmock, 2012). Supporting teachers to engage in the PL that improves their competencies can enhance teachers' self-efficacy and improve their pedagogical knowledge (Hansen, 2005). Hansen (2005) also explained that experienced teachers tend to analyze the new pedagogical initiatives in relation to existing approaches before they produce the final judgment. Therefore, teachers probably learn gradually to reposition their beliefs with new approaches (O'Connell, 2010). Once teachers find that the PL which they are engaged in is having an impact on their work, then they gradually start maximizing their practices.

2.11 Chapter summary

This chapter reviewed the literature related to developing teachers' competencies for engaging in an ongoing and meaningful SBPL. In particular, how teachers' understanding and practices of PL are enhanced by engaging in SBPL. Sociocultural learning theories are presented to help understand how teachers can carry out PL at the

school environment when supported. Different models of teacher PL are also explored to analyse available PL opportunities and how teachers' engagement is promoted. The evidence reviewed here seems to suggest that a SBPL is recommended as a holistic PL approach that embraces different learning formats. However, different key aspects have to be considered in order to build an effective teacher-led and ongoing SBPL. IKBC is a useful tool of the SBPL model that encourages teachers to be in charge of their PL and engage in relevant and sustainable learning. Therefore, this study which is aimed at promoting capacity of teachers to take control of the PL is guided by the following research questions:

2.12 Research questions

This study is guided by the following research questions:

1. How do Tanzanian secondary school teachers perceive and engage with their school-based professional learning?
2. What changes do Tanzanian secondary school teachers make to their school-based professional learning practices as they engage in an inquiry and knowledge-building cycle?
3. What changes do Tanzanian secondary school teachers make in their understanding of their school-based professional learning as they engage in an inquiry and knowledge-building cycle?
4. What factors constrained and enabled Tanzanian secondary school teachers to engage in school-based and professional learning?

CHAPTER THREE

RESEARCH METHODOLOGY AND DESIGN

3.1 Introduction

This study used an embedded mixed action research design to investigate changes in teachers' understandings and practices of their school-based professional learning (SBPL). The study was conducted in two phases. The first phase provided an overview of the research problem through baseline information/data. These data guided the implementation of the second phase to investigate the changes in teachers' professional learning (PL). Quantitative and qualitative methods were used to generate data in the first phase to investigate the extent to which teachers participated in SBPL, and in the second phase, qualitative methods were used to examine the changes teachers made in their SBPL through an inquiry and knowledge-building cycle (IKBC). This chapter begins by stating the research questions that guided this study. An explanation is then provided of why the mixed methods approach was appropriate. This section is followed by a description of the research paradigm, design, tools and sampling procedures. Finally, the data collection sequence, analysis, validity, reliability and ethical issues of the study are presented.

3.2 Research questions

The following four research questions have guided this study:

1. How do Tanzanian secondary school teachers perceive and engage with their school-based professional learning?
2. What changes do Tanzanian secondary school teachers make to their school-based professional learning practices as they engage in an inquiry and knowledge-building cycle?
3. What changes do Tanzanian secondary school teachers make in their understanding of their school-based professional learning as they engage in an inquiry and knowledge-building cycle?
4. What factors constrained and enabled Tanzanian secondary school teachers to engage in school-based and professional learning?

3.3 Mixed methods approach

This study used a mixed methods approach to achieve its overall aim. Over recent years, mixed methods research has become a popular research approach across disciplines (Denzin & Lincoln, 2011; Punch & Oancea, 2014), having emerged in the 1980s as a separate research approach that combined qualitative and quantitative methods (Greene, Caracelli, & Graham, 1989). Qualitative research is an approach that focuses on finding out the meaning that an individual assign to a social phenomenon. In qualitative research, the researcher aims to explore the problem, in order to understand its complexity through the participants' multiple perspectives (Creswell & Plano Clark, 2011). In contrast, quantitative research focuses on the collection of statistical information about a research problem and examines the relationships between variables, in order to test objective theories (Denzin & Lincoln, 2000). Creswell (2015) argues that the research approaches should be mixed if a single traditional approach is not adequate to address the research problem. Therefore, mixed methods research emerged as a solution to complex problems which could not be solved by either of these traditional approaches (Tashakkori & Teddlie, 2010).

Mixed methods research draws on the strengths of both quantitative and qualitative approaches, where two methods compensate for the weaknesses within each (R. B. Johnson & Onwuegbuzie, 2004). When narratives obtained from research participants are incorporated with numerical findings, a deeper understanding of complex phenomena is reached. According to Creswell (2014), a mixed methods approach evolved from simply mixing qualitative and quantitative methods to form a methodology where phases of the research process are logically integrated and the insights gleaned from one phase can inform the development of the next phase. Before discussing the details of the research design used in this study, it is crucial to explain my insights that have helped to shape it.

3.4 Research paradigm

Researchers sometimes have pre-conceived perceptions that influence their research. Teddlie and Tashakkori (2011) state that a "researcher's worldview affects the manner through which that person conducts his or her research" (p. 292). Morgan (2007) further explains that the research paradigm that is adopted indicates the philosophical base through which the researcher perceives and experiences the world. Ling and Ling

(2017) add that all the research activities from problem identification to reporting the findings are reinforced by the research paradigm. Therefore, the researcher should be aware of his or her philosophical assumptions (Creswell, 2009; Mertens, 2015).

Debates are ongoing about mixed methods research paradigm. The argument centers on the idea that the dominant positivist (quantitative) and constructivist (qualitative) paradigms cannot be mixed because they are incompatible (Denzin & Lincoln, 2011; Howe, 1988). Other scholars contend that qualitative and quantitative methods have been combined and resulted in meaningful studies (Howe, 1988; Reichardt & Rallis, 1994). This tension has resulted in diverse paradigmatic perspectives of mixed methods (Tashakkori & Teddlie, 2010). However, a number of mixed methods scholars approve the use of a single paradigmatic position (Creswell, 2011; Edmonds & Kennedy, 2013). In this case, pragmatism is widely recommended as a suitable paradigm for mixed methods (Abdul, Sanaullah, & Asif, 2017; Denscombe, 2008). Although pragmatism is preferred by many mixed methods scholars (R. B. Johnson & Onwuegbuzie, 2004; Teddlie & Tashakkori, 2011), I employed a constructivist paradigm as it provides an appropriate philosophical guide for my study. As commented by Ling and Ling (2017) based on the function of research, "mixed methods could be used in any paradigm" (p. 8). Supporting the use of a constructivist approach, Komorowska (2016) claims that a paradigm has to be largely linked to the nature of research conducted. Since an embedded mixed methods design in this study uses largely a qualitative approach, then a constructivist paradigm is the most appropriate.

A constructivist or interpretivist paradigm arose from hermeneutics philosophies. In particular, constructivists aimed at generating knowledge through interpreting their participants' experiences (Denzin & Lincoln, 2011; Mertens, 2015) so as to realize human understandings and practices within a particular context (Schwandt, 2000). Ling and Ling (2017) further clarify that "as the interpretivist paradigm involves a realization that understandings are constructed in a social context and are multiple, interpretivist is often linked with the term "constructivist" (interpretive/constructivist) in the classification of research paradigms" (p. 9). In this sense, a constructivist research paradigm resonates with a social constructivist and sociocultural theoretical perspectives that underpin collaborative action research, and which form the main theoretical stance of my study. Sociocultural scholars are of the view that knowledge

construction occurs through a dynamic, reciprocal and collective process embedded in a social and cultural context. The influence of a constructivist ontology, epistemology, methodology and axiology for this study is explained next.

Ontology represents a researcher's worldview with regard to beliefs about reality. Ontologically, constructivists believe in subjective and multiple realities (Hesse-Biber & Johnson, 2015), where reality is regarded as something that can be created based on experience (Guba & Lincoln, 1994). McNiff and Whitehead (2009) maintain that the action researcher is an integral part of knowledge co-construction and interpretation and creation of reality with other participants. For the present study, the research endeavours to uncover the reality of the participants' varied experiences and understandings. Thus, understanding teachers' engagement in SBPL was made through a critical analysis of their perspectives and practices.

Epistemology is a philosophical concept concerned with understanding knowledge itself and how it is generated. Epistemologically, constructivists believe that knowledge comes from the interaction between the researcher and research participants (Guba & Lincoln, 1994). The idea of knowledge co-construction is consistent with sociocultural learning theories that provide the theoretical stance for this study. Creswell and Poth (2018) argue that in some circumstances, philosophical research assumptions are closely related to theories of learning. For example, sociocultural theories, like constructivist philosophies, advocate the importance of the cultural environment in knowledge construction. Similarly, Pine (2009) argues that the role of culture in causing or shaping learning cannot be underestimated. In this sense, teacher knowledge of their SBPL can be developed when interacting within their working environment. For this present study, as a researcher, I was not a distant observer (Ponterotto, 2005), rather I worked with teachers to improve their PL practices, in the belief that knowledge is created when people learn together (McNiff, 2010).

Axiology is concerned with the position taken by the researcher. Creswell and Poth (2018) state that a constructivist researcher can influence the research process with the personal values he or she brings to the study. Therefore, researchers need to position themselves in their research and identify any bias. For example, my earlier role as a student-teachers supervisor during their teaching practice saw me visit many schools

and therefore some of the teachers and school leaders in this study were already familiar to me. In as much as familiarity might have influenced the research process, I avoided taking advantage of my previous professional experiences by identifying as a researcher rather than as a supervisor. Moreover, researchers suggest that considering *reflexive* experience is central for action researchers who are employing qualitative methods (L. Cohen, Manion, & Morrison, 2007; Klein, 2012). Reflexivity in qualitative research is the process concerned with researcher's self-awareness and acknowledgement of any nature of bias that might have affected the research process (de Freitas, 2008; Finlay, 2002; Klein, 2012).

In acknowledging that working so closely with participants in the research might have influenced outcomes, it was crucial for me to overcome or reduce bias. For example, my interests in the historical and geographical background of the study might have shaped data collection and interpretation. Potential bias was therefore reduced by inviting participants to read and check for accuracy of data collection and interpretation. Finlay (2002) explains that one way of fostering reflexivity is by involving participants in data evaluation "as research participants also have the capacity to be reflexive beings, they can be co-opted into the research as co-researchers" (p. 218). In line with ideas given by Denscombe (2014), the expertise I offered to teacher participants during the research process did not give exact answers but alternative views to help them gain more insights on how to address their learning challenges. Another way used to promote reflexivity was to keep a reflective journal that helped me to evaluate personal values, interests, interactions and decisions made in relation to the research process so as to reduce subjectivity. McCormick and James 1988, cited in L. Cohen et al. (2007) confirm that addressing reflexivity "requires researchers to monitor closely and continually their own interactions with participants, their own reaction, roles, biases, and any other matters that might affect the research" (p. 172).

The methodology focuses on the theory behind the procedures undertaken to conduct a study. The constructivist paradigm is largely based on qualitative research methods (Lincoln, Lynham, & Guba, 2018). In this case, however, quantitative methods can also be applied to supplement the qualitative data (Mackenzie & Knipe, 2006). For the purpose of the present study, quantitative and qualitative data regarding teachers' perceptions and engagement in SBPL were collected during the first phase. In the

second phase, qualitative instruments, i.e. interviews and observations, were used to investigate how teachers changed their perceptions and practices as they engaged in a new inquiry model of PL. These instruments also enabled me to raise the participants' awareness of their experiences in SBPL.

3.5 Embedded mixed action research design

The dominant mixed methods research designs include: *explanatory sequential design*, where the qualitative data are collected later in the process to explain the quantitative results; *exploratory sequential design*, where the quantitative data are gathered to generalize the findings obtained from the qualitative data; and *convergent design*, where the qualitative and quantitative data are collected and analyzed simultaneously. Another design that sometimes falls under the category of basic design, according to Creswell and Plano Clark (2011), is the *embedded mixed design*. Adding another research design to the predominant mixed methods design forms an embedded design (Creswell, 2013; Ivankova, 2015; Plano Clark & Ivankova, 2016).

In this *embedded mixed design*, which was selected for this study, qualitative and quantitative strands are collected within a traditional research approach. Because the present study required understandings of the nature of the research problem to inform an intervention conducted in the second phase, the survey was nested within the main qualitative action research to achieve the overall objectives. Creswell and Plano Clark (2011) conclude that "researchers use this [embedded] design when they need to include qualitative or quantitative data to answer a research question within a largely quantitative or qualitative study" (pp. 67-68). Some researchers have also described this design as a partial mixed study because not all stages are embedded (Creswell & Plano Clark, 2011; Leech & Onwuegbuzie, 2007).

Figure 3.1 shows the embedded nature of this study. Quantitative and qualitative data were first collected simultaneously. Plano Clark and Creswell (2008) explain that in an embedded design, one research method is given less emphasis. In this study, the quantitative method had less weight. Themes resulting from the quantitative and qualitative baseline data provided broad understandings of the nature of the research problem from the teachers and schools leaders' perspectives, which then directed the second phase with its design and implementation of an intervention (Inquiry and

knowledge-building cycle) programme in one selected school. The results from the entire study were then interpreted and discussed.

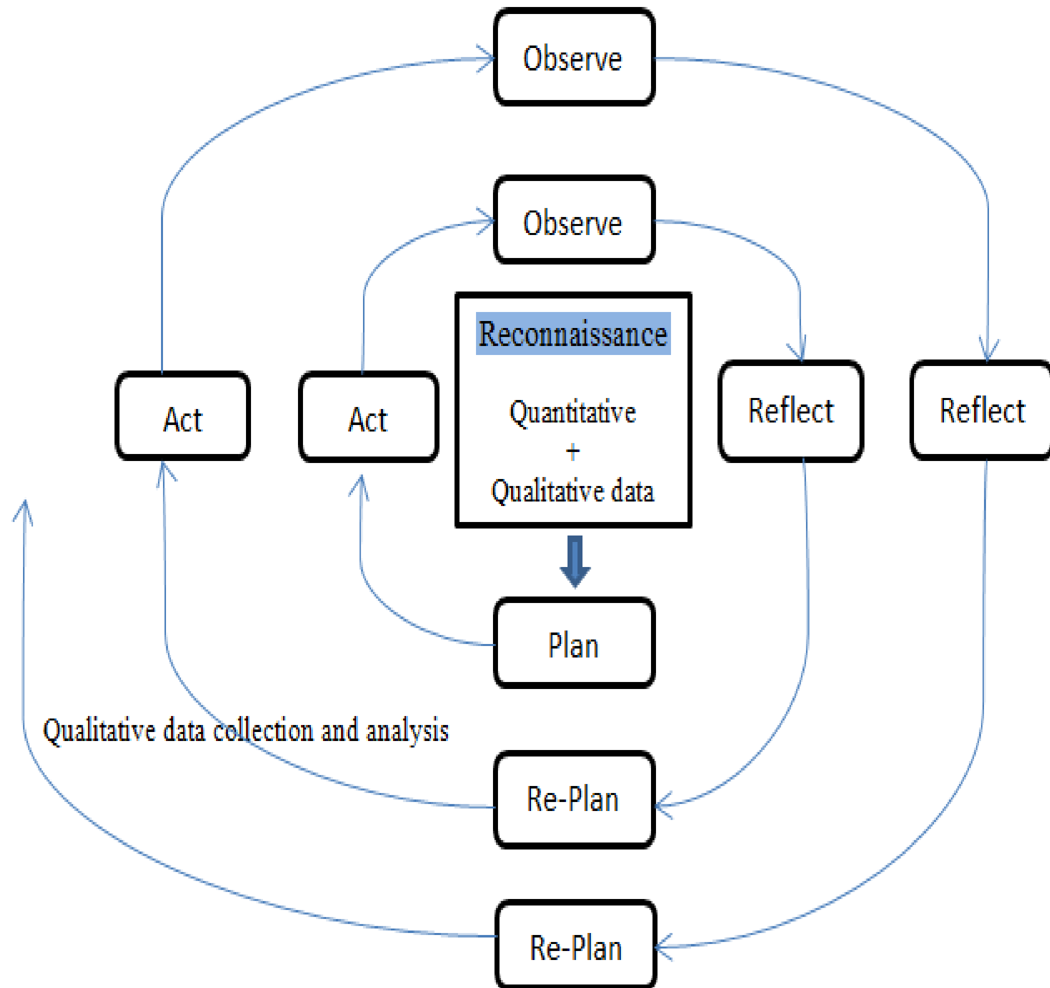

Figure 3.1. Embedded mixed action research design of this study

Source: Adapted from Ivankova (2017) and Costello (2011)

3.5.1 Action research methodology

Action research methods are used for collecting data that focus on finding solutions to social issues. This methodology formed the main design for this study because action research is "about improving (teachers) learning for improving practice" (McNiff, 2010, p. 7). Action research was initiated by a social psychologist, Kurt Lewin, in the 1940s (Kemmis & McTaggart, 2005; McNiff, 2013). After Lewin's work, in 1953, Stephen Corey from the USA introduced the idea of action research in education (Kemmis &

McTaggart, 2005; McAteer, 2013). Since this foundational work of Lewin and Corey, the ideas of action research have evolved across disciplines. Currently, action research is becoming increasingly acknowledged as an important research strategy for improving practices in schools (Ary, Jacobs, & Sorensen, 2010; McNiff, 2013; Noffke & Somekh, 2009). According to Collins and Duguid (1989, cited in L. Cohen, Manion, & Morrison, 2011), action research is 'situated learning'; learning *in* the workplace and *about* the workplace" (p. 346).

In teacher education settings, action research is a commonly used approach. This research methodology evolved from mere staff-development practices in 1970s to a more rigorous methodology in teacher-driven professional learning and research (Bradbury-Huang, 2010). In the present study, action research is relevant to the fundamental questions posed. When organized effectively, action research can empower teachers, promote student learning and change school culture (Burns, 2000; Gordon, 2008). While action research provides solutions to problems that cannot be generalized beyond the local condition, once the findings are shared, and the context made specific, other people can learn from the results.

3.5.1.1 Collaborative action research approach

This study used a collaborative action research (CAR) approach. There are a number of approaches to action research that differ in purpose and procedure (Kemmis & McTaggart, 2005), but they share some common elements (Creswell & Guetterman, 2019; Stringer, 2007, 2014). Creswell and Guetterman (2019) propose that action research falls under two main types: practical and participatory. They explain that practical action research is conducted by classroom teachers themselves or in collaboration with other school members to address common classroom challenges, while participatory action research involves broader social practices. Participatory action research can also be referred to as CAR, in which teachers study together problems of practice (Beck, 2017; Herr & Anderson, 2005).

CAR was selected as a methodology for this study because it gave teachers an opportunity to work with other colleagues and myself as a researcher and an outsider, as a way of engaging in SBPL. CAR involves dialogues and reflection in which teachers share expertise and experiences, and is conducted in the natural setting such as a school

(Biesta, 2010; Burns, 2000). In the present study, teachers collaborated with me, the researcher, as a form of professional learning to bring about changes in their SBPL understandings and practices, and as a form of transformation in their teaching practice as well. As such, CAR aligns with an inquiry and knowledge-building cycle (IKBC), which is a collaborative model of PL applied in this study. Hine (2013) argues that CAR "puts teachers in charge of their craft" (p. 152). When teachers use CAR they develop the ability to act reflectively, democratically, systematically, and with open minds to achieve their goals (L. Cohen et al., 2007).

3.5.1.2 Phases of collaborative action research

CAR is conducted in a cyclic manner. However, Creswell (2014) cautions that it is also a dynamic process which does not follow strict sequences. This study followed the common elements presented by Kemmis and McTaggart (1988) and Lewin (1948, cited in Ivankova, 2017), which conceptually occur in five stages of diagnosing or reconnaissance, planning, acting, observing and reflecting (presented in Figure 3.1 above).

At the *reconnaissance* stage, a research problem is identified and the data regarding the problem are collected, analysed and interpreted. This stage, which marked the first phase of the present study, was conducted through a survey to understand the nature of the research problem and direct the remaining phase of the study. Mraz and Kissel (2014) suggest that launching a professional learning intervention using a survey is quite useful, so as participants are offered a clear direction. During *planning* the researcher and other research participants reflect on the research topic and think about an action or an intervention that can help to address a practical problem. At this point of planning, the IKBC was employed to guide teachers to engage in an effective form of SBPL.

After planning, the teacher participants engaged in the implementation stage, known as *acting*, where they undertake some kind of intervention they have planned to address the problem. The o*bservation* phase involves looking at the implementation of the action plan. Observation also happens throughout the research process and it involves interaction between participants through informal conversations (Craig, 2009). Taking field notes or photographs helps to provide insights about what has happened.

Finally, the researcher and the participants interpret the impact of the action which forms the *reflecting* stage. However, reflection is made throughout the research process across all phases. These phases of CAR are described in detail later in the research sequence in this chapter.

3.5.1.3 Role of the researcher in collaborative action research

In CAR, it is important for researchers to establish their position. McNiff (2013) mentions three positions that can be taken by a researcher, including, (i) researching with other individuals, (ii) assisting individuals to conduct action research or (iii) engaging in CAR. Moreover, McNiff explains that an action researcher can either decide to take an outsider or an insider position, or both.

In this study, I took on both the roles of an insider and an outsider. During planning meetings and discussions, where the teachers brought their beliefs, understandings and experiences, I acted as an *insider participant* by sharing my knowledge as a co-participant. With many years of experience in teaching and reading literature about teacher learning in workplaces, I was in a better position to assist teachers develop understandings of the SBPL practices. For example, during the planning meetings I suggested different PL strategies that might suit teachers' learning plans and assisted them to identify some relevant online resources. In this way I was assuming the role of "a resource person to whom the participants can turn for advice and information" (Ary et al., 2010, p. 455). Taking on a facilitator role, while continuing learning with the teachers, enabled me to develop rapport and empathy with them. This mutual rapport helped the teachers to feel free to ask questions or to share their learning and teaching experiences. Berg (2004) emphasises that "the researcher contributes expertise when needed as a participant in the process" (p. 202).

While maintaining an insider role in this CAR, I also played an *outsider role*. Adams and Lawrence (2015) indicate that the researcher may partially interact with participants, so as to pay attention to the activities they are engaged with. Therefore, at different stages of the study I took an outsider role to allow the teachers to have more choice in their PL tasks and to take a lead in their participation. In this role, I observed, listened to and encouraged the teachers during the planning meetings and classroom teaching, which enabled them to build confidence in their SBPL participation. As

commented by Costello (2011), CAR needs to offer participants opportunities to enhance their confidence in their own PL practices. In addition, Creswell (2014) clarifies that as an outsider the researcher "sits on the periphery or some advantageous place (e.g., the back of the classroom) to watch and record the phenomenon under study" (p. 237). Through maintaining this outsider role, I was able to observe and record the teachers' participation, as well as interview them and interpret the information they shared with me.

3.6 Location of the study

The present study was conducted near Dar es Salaam city in the Coastal region of Tanzania, known as Pwani. The region is 32,547 km² with a population of approximately 1,098,668, and growing at a rate of 2.2% per year (URT, 2017). Pwani is on the eastern border of Tanzania, alongside the Indian Ocean. Currently, Pwani region has seven districts and is one of the fastest growing regions in terms of population and its economy. Many people who cannot work in the Dar es Salaam city prefer to reside in Pwani because it is convenient for them to commute between Pwani and Dar es Salaam. According to the Regional Education Statistics in Tanzania of 2016, Pwani has a total of 170 secondary schools and 4734 qualified secondary school teachers (PO-RALG, 2016b).

3.7 Sampling

Sampling is a process of selecting the research participants. An embedded mixed action research design employs different sampling strategies to obtain a convenient sample. This study employed stratified sampling, simple random sampling, cluster random sampling and purposive sampling. All the secondary schools in Pwani were stratified according to geographical zones and based on proximity to facilitate data collection process. Stratified sampling involves making categories of population and selecting the sample from proportions based on the analysis to be carried out (Newby, 2014). Therefore, four districts, Bagamoyo, Kisarawe, Mkuranga and Kibaha were selected based on the geographical locations as well as ability to provide a balanced representation. The District Education Office from each selected district then provided a list of schools. These schools were stratified according to their public or private status.

Fifteen schools were then randomly selected. These schools were selected as clusters whereas all their teachers constituted the sample for the study. Fraenkel, Wallen, and Hyun (2012) explain that "cluster random sampling is similar to simple random sampling except that groups [such as schools] rather than individuals are randomly selected" (p. 96). Cluster random sampling helps to maximize data collection at one point, and thus it is cost-effective (Newby, 2014). While cluster sampling is not providing effective representation of the characteristics of entire population, "the more school(s) selected, the more likely the findings will be applicable to the population of teachers" (Fraenkel et al., 2012, p. 96). Therefore, the teachers from these fifteen schools were invited to participate in my survey in order to provide baseline data regarding the extent to which they engaged in school-based professional learning.

In purposive sampling, individuals are chosen based on the assumption that they make representation of the population characteristics, but the data obtained from this sample cannot be generalized (E. Wilson, 2017). Purposive sampling was then used in this present study to choose the Heads of Schools and teachers for open-ended interviews. These school leaders were selected purposefully based on their position in management of school learning activities and experiences of professional learning. Table 3.1 shows the selected research participants.

Table 3.1

Research Participants Selected for the Study

Sample Composition	**Research participants**															**Total**
Name of schools	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
Teachers surveyed	16	12	14	15	14	11	16	22	8	17	20	22	10	10	6	**213**
Heads of Schools		1		1					1			1				**4**
Teachers in IKBC												4				**4**

Note: IKBC is Inquiry and knowledge-building cycle

3.7.1 Selecting teacher participants for the survey

Teachers from all subject departments of the 15 schools were invited to participate in the survey to report about their experiences of engaging in professional learning activities in the previous year. The teachers who completed the survey taught in the areas of: Social Science (39.4%), Mathematics (6.1%), Science (16.9%), Business studies (5.2%) and Languages (28.6%). Eight participants (3.8%) did not indicate their subject specialisations.

To maintain anonymity, all the returned questionnaires from different departments were placed in one envelope provided by the researcher. Stringer (2007) argues that if teachers are sampled departmentally, then they need to be combined with other departments to enhance confidentiality. Of the 213 teacher participants who completed the survey, 45.5% were male and 51.6% female. Six participants (2.8%) did not indicate their gender. The majority of teachers (77%) reported between one to ten years of teaching experience. For the purpose of this study, teaching or work experience referred to the amount of time spent by a teacher at a particular school engaging in teaching.

3.7.2 Selecting Heads of Schools

The Heads of Schools, whose teachers participated in the survey, were also invited to participate in interviews. It was decided to include the Heads of Schools in the study because they would have information about and experiences of PL programmes. Individuals can be purposively selected because of the experiences they are known to possess (Flick, 2009; Fraenkel & Wallen, 2009). In order to make effective use of the time and manage the considerable amount of data obtained from the two phases of the study, only one Head of School was chosen from each of the four districts. Each Head of School was contacted to seek their consent prior to the interview.

3.7.3 Selecting teacher participants for the PL intervention

Selecting teachers to participate in the inquiry and knowledge-building cycle (IKBC) was preceded by selecting the school. School L (Lisuli Secondary School) was selected from the 15 surveyed schools to participate in this research. The selection was based on criteria including: teachers' need for improving their PL; proximity; availability of teachers; and willingness of the school to allow the programme to take place. Teachers

in almost all the schools indicated in the survey that they had PL challenges, needed to improve their SBPL and were therefore willing to participate. As a result, based on proximity, schools F, G and L were initially selected. Due to the limited resources available, only one school could be selected for this study. Heads of Schools from all the three schools were contacted, and it was agreed that School L was the best fit according to the selection criteria.

Four Social Science teachers from Lisuli were invited to participate. As my earlier work was in the Social Science area, having teachers from the Social Science department made the programme more realistic. Inviting the four teachers started by speaking to all the Social Science teachers at the school about inquiry cycles and answering their queries before they agreed to participate. Heil (2005) suggests that explaining the research project to people you expect to work with could possibly help to recruit the right co-participants. At the beginning, six teachers from the Geography and History volunteered to participate. After explaining the specific learning tasks anticipated in the inquiry cycle and the need for a small number of participants to manage the study, the two Geography teachers decided to withdraw from the group, which left four History teachers. Clauset, Lick, and Murphy (2008) emphasise that an effective learning community requires teachers who are informed and willing to learn in a team.

It was also anticipated that upon successful completion of the programme, the invited participants would assist their fellows to enhance their PL practices. Although having all teachers from the same department seemed disappointing, I soon realised that it was more manageable to work with fewer teachers from the same department. This idea of inviting teachers from the same department who can share experiences is also supported by other scholars (Desimone et al., 2002; Israel, Schurman, & Hugentobler, 1992).

3.8 Research methods

Research methods need to be carefully selected and triangulated in order to collect relevant data (Efron & Ravid, 2013). The research methods for this study were selected to collect the information to answer my research questions. Table 3.2 shows the research methods used in response to each research question:

Table 3.2

Research Methods Used in Response to Research Questions

Research methods	**Research questions**			
	Question one	Question two	Question three	Question four
	How do Tanzanian secondary school teachers perceive and engage with their SBPL?	What changes do Tanzanian secondary school teachers make to their SBPL practices as they engage in an IKBC?	What changes do Tanzanian secondary school teachers make in their understanding of their SBPL as they engage in an IKBC?	What factors constrained and enabled Tanzanian secondary school teachers to engage in SBPL?
Questionnaire	✔			✔
One-to-one interview	✔	✔	✔	✔
Focus group discussion		✔	✔	✔
Observation		✔	✔	✔
Research journal and diaries		✔	✔	✔
Planning meetings		✔	✔	✔
Document analysis				✔

3.8.1 A survey questionnaire

This study used a survey questionnaire to establish the first data set. A survey was chosen because of its convenience in collecting information from many participants within a short time (Martella, Nelson, Morgan, & Marchand-Martella, 2013). As suggested by Tomal (2010), a one-off survey can help the researcher to understand the problem before planning the actions to address it. A survey is used to investigate trends, attitudes, preferences or opinions to provide results in a numeric form (Creswell, 2009; Edmonds & Kennedy, 2013). A survey research process can be a simple descriptive instrument to describe the characteristics of one group at one time or longitudinally (Edmonds & Kennedy, 2013; Mertens, 2015). This study used a simple descriptive survey format because I wanted to collect information from many teachers across schools within a short time. Currently, web-based surveys are becoming popular because they enable information to be collected from a large population within a short time. However, for this study, the computer literacy level of participants and the

accessibility to technology presented significant challenges. Therefore, I delivered the survey questionnaires in hard copy to each of the 15 schools.

One of the challenges in survey research is to construct an effective instrument for collecting relevant and useful information. Mertens (2015) and Creswell (2009) suggest that before undertaking the development of a survey, a researcher can investigate existing survey instruments. One instrument that is relevant to my study was adapted (Blair, Czaja, & Blair, 2014) entitled "OECD-TALIS Teachers Questionnaire" OECD (2008). This questionnaire was modified to fit the research question for this study (see Appendix 9). The questionnaire was then piloted to six teachers in one secondary school in Dar es Salaam, Tanzania and the results were coded to see if the themes were clearly understood in context. Piloting the questionnaire helps to add or delete some questions and seek relevant information (Gideon, 2012). Teachers and colleagues were asked if there was anything else they thought could be relevant to the study and were also asked to provide expertise suggestions to improve the questions. Based on the results from pilot, advice from colleagues and review of the literature, some questions were rephrased, deleted or added, in order to refine the questionnaire to ensure the collection of relevant information.

The final questionnaire had 16 closed questions with sub-questions aimed at teachers' perceptions and participation in SBPL. For example, one of the questions reads: "To what extent are you satisfied with professional learning programmes for teachers at school?" Appropriately worded Likert scales were used to help teachers to select appropriate responses for individual items. For example, in the first question, participants were asked: "How often have you participated in the following formal PL programmes/activities? Therefore, the Likert scale for the rate of participation ranged from *regular* to *never*. Another question asked participants to indicate their perceived impact of participation, and then different Likert scales were used: "How would you describe the impact of the professional learning you participated on improving your pedagogical practices?" Scales for this question ranged from *big impact* to *no impact*.

I collected the completed questionnaires on the same day they were administered at the school. However, some teachers could not complete the questionnaires during the day they were administered in their school, and thus these questionnaires were collected

later. A total of 213 questionnaires were completed in the study, with a response rate of 70.5%. This high response rate might be explained by the fact that I "administer[ed] the questionnaire in person to the group of participants" (Tomal, 2010, p. 72). Moreover, I had an opportunity to explain to teachers in detail and in person about the study during administration of the questionnaire.

3.8.2 Semi-structured individual interview

Semi-structured interviews were conducted with the four Heads of Schools and the four History teachers. The use of an individual interview was chosen because it could provide detailed information which could not be obtained from other methods such as questionnaires (Blair et al., 2014). Interviews can enable the researcher to understand the detailed experiences of people (Martinez, 2016), by probing responses in order to discover hidden, but relevant meanings (Adams & Lawrence, 2015). A guideline of questions can be used to help the researcher stay focused and to ask relevant questions (Berg, 2004).

Each of the four Heads of Schools was interviewed once where detailed information regarding teachers' PL practices in their schools was provided. Guiding questions (see Appendix 10) were used to gather information from these leaders that helped to enrich the data obtained from the questionnaires. The interviews with Heads of Schools focused on four main areas: i) the types of PL practiced in schools, ii) status of teachers' participation in SBPL, iii) onsite arrangements for promoting teachers' PL; and iv) their perspectives towards teachers' engagement in SBPL.

The interviews were audio-recorded to ensure that the original information retained meaning. All interviews with the Heads of Schools lasted between 40 to 60 minutes each in their respective schools. Semi-structured interview techniques and guidelines, such as probing more information from interviewees and flexibility, were strictly adhered to (Berg, 2004). For example, when a Head of School responded that his or her school did not have any teachers' PL programme, I probed more by asking how do teachers improve their teaching skills, so as to address challenges in their classroom practices. I was also flexible to change my schedule depending on the availability of interviewees.

Interviews were also held with the four teachers who participated in the IKBC during the second phase of the study. Each participant was interviewed at the beginning and at the conclusion of the inquiry cycles. Individual interviews explored the teachers' understandings and experiences in PL prior to participation in inquiry cycles. After the inquiry cycles, similar interviews were held with the same teacher participants to identify changes made with regard to understandings and practices in their SBPL. Guiding questions were prepared prior to interviews (see Appendix 11 and 12). Working collaboratively with teacher participants throughout the study helped me to build a strong relationship with them, which helped to make them comfortable to share information regarding their PL changes. A positive relationship developed between the interviewer and the interviewee helps to shape richer conversations and to generate deeper meanings (Cassell & Symon, 2004).

3.8.3 Focus group discussion

A focus group is a form of interview that involves conversations between a researcher and a group of participants. The focus group helps researchers to collect information from a relatively small group of participants at one time. Several factors need to be considered in order to have a meaningful and successful discussion with a focus group. Firstly, the focus group members need to be aware of the themes under discussion (Ary et al., 2010) prior to agreeing to participate. Secondly, the size of the focus group is important in order to manage sharing relevant information. Trochim, Donnelly, and Arora (2016) advise that the number of participants can be determined by the diversity of data required for the particular study. Thirdly, specific focus questions need to be planned.

Focus group discussions in this study were held with four teachers after each of the three rounds of IKBC. Therefore, there were three rounds of focus group discussions. The aim of the discussions was to understand the changes made by the teachers in their understandings and practices of SBPL. Focus group discussions were audio-recorded and transcribed immediately afterwards. I was familiar with the culture of the school environment (Martinez, 2016), which helped to clarify the questions in the participants' context for better understanding. For example, some of questions in focus group discussions included: What are the barriers to the effective implementation of the IKBC? What are your perspectives of participating in SBPL? (see Appendix 13). All the

discussions were conducted in School L in one of the offices and lasted approximately one hour.

3.8.4 Observation

An observation is one of the research tools used to collect qualitative data. During an observation, a researcher purposely looks at different activities, behavior and physical aspects to collect data (Efron & Ravid, 2013). An observation does not involve asking questions (Blair et al., 2014), but can help to gather rich information, which cannot be offered by participants' answers such as in questionnaires or interviews. As clarified by Patton (2002), an observation helps to collect information beyond expectations, and gives attention to things that occur daily. In addition, prior to observations, an observation schedule can be used to facilitate the collection of relevant information. Observation methods were selected for this study due to their potential to capture additional nonverbal information.

I observed the teachers' behavior in relation to their SBPL practices. Observations were conducted across two ways: classroom observations and out of class observations. Classroom observations were systematically conducted to see how teachers implemented their lessons which they had prepared with the support from our PL discussions and their own reading. These observations were scheduled for a single period lasting 40 minutes. A list of factors to be observed was used to guide the classroom observation (see Appendix 14) and the observation notes were hand recorded. On some occasions, photographs were taken to guide a quick reflective session with the teacher immediately after the lesson.

In contrast to classroom observations, out of classroom ones were informal and occurred during the PL planning meetings, as well as when interacting with teachers inside or outside the staffroom. As an outsider, I was able to see the teachers' behavior on different PL related tasks and listen to their views and opinions with regard to their overall SBPL practices. These practices included planning learning tasks and implementing them in their teaching. As suggested in the literature, information obtained from these observations were reflected and recorded immediately in my reflective journal (Lapan & Quartaroli, 2009).

3.8.5 Researcher's journal and teachers' diaries

Reflective journals or diaries provide another important source of data because they reinforce the information obtained from other research instruments. Efron and Ravid (2013) suggest that a "journal may include critical incidents, anecdotes, situations, events, insights questions and uncertainties that you consider relevant to your study" (p. 125). Journals can be kept by both the researcher and the participants to monitor their thinking and practices during the research (McNiff, 2013; Ortlipp, 2008). A research diary can also be used to record reflections and events regarding the research process (Cassell & Symon, 2004; Creswell & Poth, 2018). However, there are numerous strategies through which researchers and co-participants can present their reflections about the research process. In this study, the researcher kept a reflective journal, while teachers preferred to keep field notes in their own diaries.

Keeping a journal in this study helped me to record different events as well as my perspectives regarding the research. My journal contained information occurring in and out the school in order to reflect on the ways in which the teachers improved their PL practices. Moreover, these reflections added to the research rigor by amending some procedures according to needs. For example, by reflecting on the trend of the first inquiry cycle, I realized that the teachers are interested more in teaching and less in their own learning. At the beginning of the IKBC, it was hard for them to see the connection between teaching and their learning. Therefore, I thought it was important to emphasise how their learning might influence their teaching. I also shared the information I recorded in my researcher journal with them to allow them the opportunity to check if I was recording correct information regarding their practices and views. Teachers, on the other hand, had personal unstructured diaries. One form of keeping diaries in social research is by using a free style recording (Alaszewski, 2006). Although in this study the teachers used a free style recording, they were given guiding questions to help them to focus on their reflections (see Appendix 15). The teachers were also willing to share their reflections at our planning meetings.

3.8.6 Planning meetings

The planning meetings provided a useful source of data with regard to shifts in teachers' PL understandings and practices. Stringer (2014) states that "the extent that people can participate in the process of exploring the nature and the context of the problems that

concern them, they have the opportunity to develop immediate and deep understanding of their situation" (p. 28). Similarly, during the meetings, the teachers explored their problems, discussed possible ways to address them, as well as assigned one another numerous tasks that could facilitate the implementation of the plans. For example, when one of the teachers aimed to teach students how to effectively write an essay, other teachers helped her to find a suitable way to teach this. Despite their specific areas of study, teachers were able to share relevant ideas based on their own experience and reading. Therefore, in this learning process, different opinions, suggestions and challenges emerged, which added to the richness of their learning and my data.

These planning meetings were scheduled for one hour and they were audio-recorded. Although the planning meetings and the focus group discussions may appear the same, they were two different methods of generating data. While in the focus group discussion the teachers reflected on the overall implementation of the PL intervention in order to improve it, the planning meetings were conducted to plan the specific lessons and strategies that could help them to develop deeper teaching skills and resources.

3.8.7 Document review

Physical and electronic documents which are available at the research site can provide relevant and useful information. Government circulars, policies, minutes of meetings, teachers' portfolios, newspapers, reports, archival research, students' work, letters and diaries are examples of documents that can be searched by the researcher (Adams & Lawrence, 2015; Efron & Ravid, 2013). Accessing and assessing relevant documents can be challenging as some documents might not be available or they may be incomplete (Bowen, 2009). However, document review was considered useful in this study in order to provide a broad coverage of information regarding teachers' participation in the SBPL that could not be obtained through other research methods.

In this study, documents were sought from Lisuli School. It was intended that the school PL policy and related reports would be reviewed. However, the School L administration had no reports specifically kept for teachers' PL, and neither did they hold policy documents relating to school PL. Therefore, the school, through the office of Academics, was asked to submit other documents which might be relevant to teachers' PL. These documents were the Inspectorate Reports and the Departmental Meetings

minutes which provided general information about the school's overall practices, and challenges therein. As explained by Denscombe (2014), minutes of meetings can provide relevant data for the study through a picture of events and other activities that took place. A guideline for document analysis was prepared to facilitate gathering of relevant information from documents. The following are the main questions that guided the analysis of documents (minutes of departmental meetings and inspectorate reports) to check on issues related to teacher participation in school-based professional development:

- What types of teacher PL activities are indicated in the departmental meetings?
- How often do teachers discuss their professional learning activities in their departments?
- What is the school feedback on the previous teacher PL agenda?
- How does the school guide teachers' engagement in SBPL programmes through subject departments?
- What inspectorate reports on teachers' engagement in professional learning indicate?
- What do the inspectorate reports on the classroom pedagogical practices of teachers in relation to professional learning practices indicate?

3.9 Validity and reliability

Validity and reliability are research concepts used to determine the quality of the research process and its outcomes. Golafshani (2003) explains that "although reliability and validity are treated separately in quantitative studies, these terms are not viewed separately in qualitative research. Instead, terminology that encompasses both, such as credibility, transferability, and trustworthiness is used" (p. 600). While validity refers to the ability of the research instruments to measure what is intended to be measured and authenticity of results, reliability concerned with consistency of research findings. However, there are debates about checking reliability and validity in mixed methods studies. For example, Onwuegbuzie and Johnson (2006) recommend that assessment of the validity of research procedures combining quantitative and qualitative methods, requires "legitimation" . The researchers suggest that one way of legitimation is through minimizing the weaknesses of the two methods so that "the extent to which the weakness from one approach is compensated by the strengths from the other approach"

(p. 57). Other researchers argue that due to mixing of the methods, it is important to look at validity and reliability from both quantitative and qualitative methods (Giddings & Grant, 2009; Ihantola & Kihn, 2011).

One strategy to check the validity of the quantitative methods is to look at the generalisability of the findings. A study demonstrates high external validity when the findings from the sample can be reasonably generalised to its population (Fallon, 2016). Ihantola and Kihn (2011) explain that if the sample is selected by considering the characteristic features of the population from which it is drawn, then generalisation of the findings is possible. In this study, schools were randomly selected which allows some degree of generalization of the quantitative data. Since the sample was drawn from one region and it was urban-based, findings might not be generalisable to the entire region or country, but rather to the population of teachers in the Pwani urban area. While the quantitative data may be generalised, the qualitative data cannot be generalised but aspects can be transferable to another similar context (Huberman & Miles, 2002; Lincoln & Guba, 1985).

This study adapted an existing questionnaire from the OECD (2008) in order to promote reliability of the research instrument. Research is said to be reliable when it is consistent enough to produce similar results after being replicated in the same or different ways in forthcoming studies (Adams & Lawrence, 2015). Failure to produce effective research tools in quantitative research might affect the procedural reliability (Ihantola & Kihn, 2011). Blair et al. (2014) suggest that “no matter how many questions we borrow from others, we must always test the questionnaire before we start the data collection” (p. 31). To enhance its reliability, the questionnaire was piloted in one secondary school in Tanzania prior to data collection. Subsequent to this, amendments were made.

In a qualitative study, reliability relates to the level of thoroughness and credibility of the data collection process and interpretation. Thoroughness of the study is concerned with time spent in the research process, consistency in data collection and interpretation (Lincoln & Guba, 1985). Data collection in the present study took a period of nine months, which was sufficient to guarantee its rigor. The issue of time is also emphasized by McKinnon (1988, cited in Ihantola & Kihn, 2011) who stated that the reliability of the study may be at risk “if the data is not collected over a long enough

period of time" (p. 9). Apart from time, guiding questions for each research tool were prepared in advance to ensure consistency of the research instruments.

Triangulation of the research findings helped to ensure consistency in data interpretation. In triangulation process, evidence is verified from different data collection tools and research participants (Creswell & Guetterman, 2019). Qualitative tools may be subjective in interpretation and therefore triangulation of various methods of data collection or data cross-checking should be employed to ensure credibility (Komorowska, 2016; Kvale & Brinkmann, 2009; Lapan & Quartaroli, 2009). Asking participants for clarification or additions to the data provided in interviews and discussions was also done to ensure accuracy and consistency of the data. Each of the four teacher participants and the four Heads of Schools were also asked to check their transcripts and modify them. Creswell and Guetterman (2019) emphasise that "the researcher determines the accuracy or credibility of the findings through strategies such as member checking or triangulation" (p. 261).

3.10 Research sequence

This section explains the sequence of the research from accessing the field to exiting it. The process of collecting and analyzing data was cyclical and conducted in small steps. Figure 3.2 presents the sequence of key research processes.

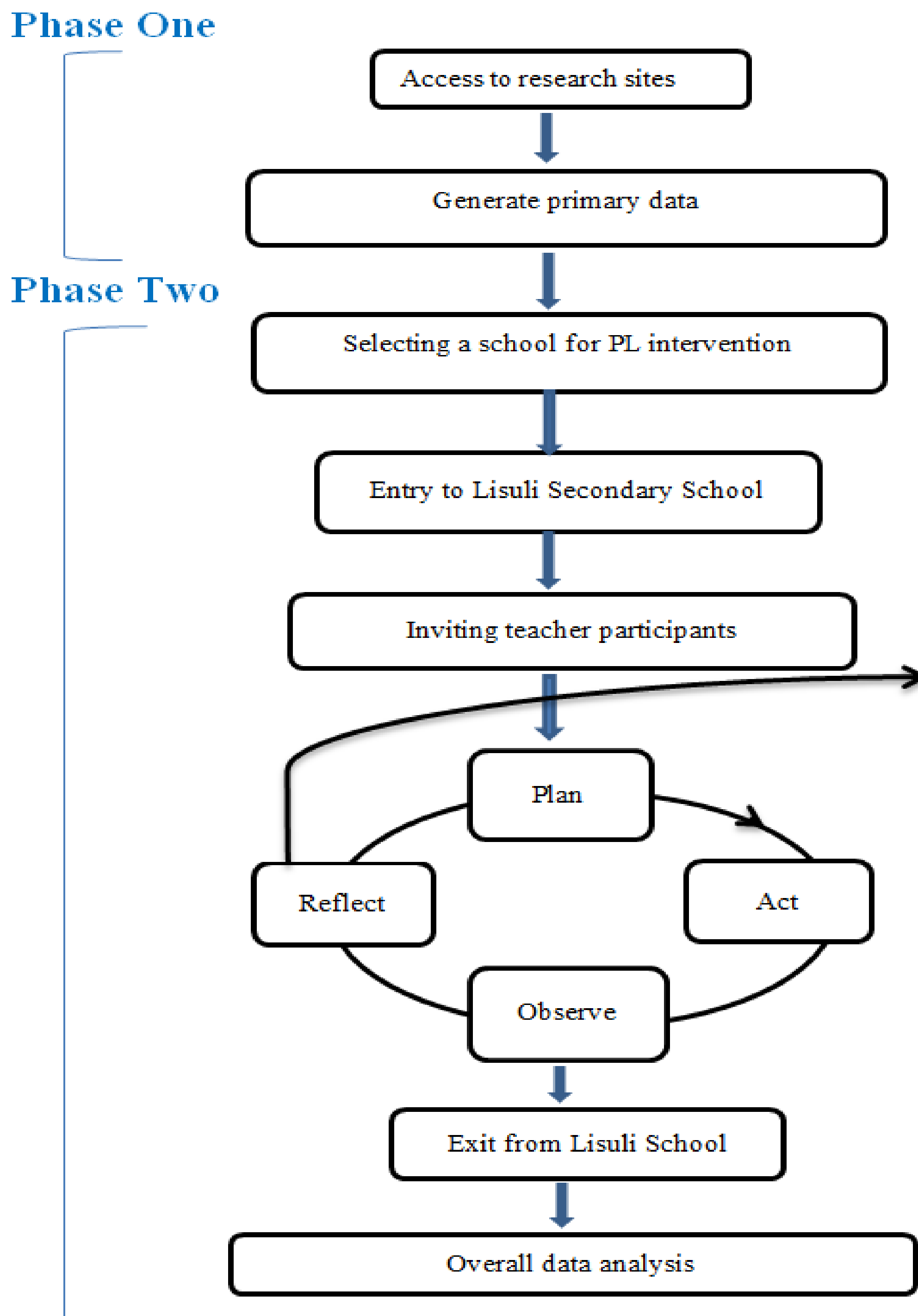

Figure 3.2. Summary of the research sequence

Source: Adapted from McKenzie (2012)

3.10.1 Access to research sites

Before gaining access to the research sites for data collection, the first task was to obtain permission from the authorities concerned. The research ethics clearance was sought from Massey University Research Ethics Committee (see Appendix 1). Having obtained

the ethics clearance, I then applied for the research clearance from the Ministry of Education, Science, Technology and Vocational Training in Tanzania (see Appendix 2). This permit was taken to the Regional Administrative Secretary in Pwani region who introduced me to the District Administrative Secretaries. Then, I was permitted to access the secondary schools and collect data. Application for a research permit was completed in December 2015.

After being granted a research permit to access the research sites, I made the initial contact with schools in order to conduct the survey. This contact was made with school management, such as the Heads of Schools or Deputy Head of School through phone calls in order to familiarize myself with them. In Tanzania, phone calls are viewed as a common way of making personal contact, and therefore, I used it as a familiarization process. Initial phone contact with school administrations helped me to introduce my research project before I visited the schools for the first time. Some school leaders, who initially had sounded unsupportive on the phone, were friendly and cooperative when I arrived at their schools. Thereafter, at each school, the school information sheet was presented to school leaders and arrangements to invite teachers for the survey were made. The survey was administered in January of 2016, immediately when the schools opened after the annual holiday.

3.10.2 Generating primary data

The collaborative action research (CAR) began with the reconnaissance phase, in which baseline data were collected through teachers' survey questionnaire and interviews with the Heads of Schools to examine the existing situation regarding teachers' engagement in SBPL. These primary data were needed to focus the second phase of the study. While questionnaires were distributed to teachers, the interviews with the four Heads of Schools were also arranged. The Head of Lisuli Secondary School (School L) was interviewed later after his school was selected to participate in the inquiry cycle. Once the questionnaires were collected, they were immediately coded and entered into the Statistical Package for the Social Sciences (SPSS) programme. The interview data were also transcribed and organized into main themes, in order to identify teacher participation in the SBPL. Action research scholars suggest that getting an overview of themes after diagnosing the existing situation is important because it gives the researcher ideas for action (Sagor, 1992; Schmuck, 2006).

Themes emerging from both the questionnaire and the initial review of interview transcripts provided the primary data that were related to: teachers' participation in formal and informal SBPL programmes; teachers' perceptions of impact of their participation in SBPL; school support to teachers' PL; factors affecting teachers' participation in ongoing SBPL; and the teachers' perceived need for more SBPL. These five themes guided the overall implementation of an intervention. For example, since the baseline findings showed that most teachers were of the view that support for SBPL was inadequate, it was crucial to assist the four teachers who participated in an intervention to learn how to seek or source out support for their PL. In line with suggestions about undertaking effective CAR from Cooper and Bedford (2017), the barriers mentioned to affect teacher participation in the SBPL were also reflected and discussed with teachers during implementation of PL practices in the second phase to facilitate achievement of learning goals.

3.10.3 Selecting a school for PL intervention

After obtaining the primary data, the next step was to select one school from fifteen schools to participate in an IKBC programme of SBPL. Lisuli Secondary School was selected using the sampling processes described above. The subsequent section explains the access to Lisuli School and the selection of teacher participants.

3.10.4 Entry to Lisuli Secondary School

The first visit to Lisuli School was during the distribution of the survey questionnaires. Entry to this school for the second phase of study was, therefore, a straightforward process, because I was already familiar with it. An appointment was made again via a phone call to see the school administration, in order to discuss implementation of the IKBC. I met the Deputy Head of School and the Head of School and we had a short conversation about the IKBC programme. The school leaders wanted to know how the programme could be run without affecting the school timetable. I told them that the programme was intended to fit within the school timetable. I clarified that the programme would not result into major changes to routines because teachers were expected not to change their teaching schedules or schemes of work. Once the leaders were satisfied that their queries were answered, I was advised that I could start working with the teachers immediately.

3.10.5 Inviting teacher participants for the PL intervention

Four teachers from the History Department were then invited to participate in the PL intervention. This invitation was reported in detail in section 3.7.3. It was crucial to generate initial data regarding the ways through which these teachers engaged in SBPL. This additional diagnosis helped me to understand more specifically their perspectives of their participation in SBPL, and the challenges they were going through. Initial interviews were conducted with these four teachers prior to setting the action plan for an intervention. The teachers were then ready to participate in an intervention.

3.10.6 Planning IKBC programme

The planning process started with a familiarization session (the first meeting) to acquaint the four teachers with the IKBC. Later, this process was done through planning meetings to enhance the teachers' SBPL skills. As commented by Clauset et al. (2008), when planning an intervention during CAR the participants think about the area of need and what they might do to address it and how they might go about this, in order to improve their practice. I first shared the tentative IKBC programme schedule with teachers, which was modified as we proceeded. The IKBC planning focused on improving teachers' learning of SBPL which was facilitated by the implementation of their teaching practices. It was anticipated that through inquiry cycle that teachers would be able to construct their knowledge of SBPL.

During the familiarisation session the teachers agreed to develop some principles that might guide their PL activities. These principles were important guidelines to teachers in their inquiry activities. Other researchers such as, Cunningham (2011) recommend that "you may choose to develop ground rules together at the start of the group's inquiry, or when they seem to be needed" (p. 120). These principles were flexible, and they meant nothing except reminding teachers of their responsibilities throughout the process of learning so that they stay focused. For example, we agreed to respect each other's views and participate effectively in all learning tasks

.

Additionally, all teachers agreed to create a chat group through a *WhatsApp* social media network to facilitate communication. This phone chat group was named *PD* (professional development) *Research*. The chatting wall was strictly for discussing PL matters, such as asking for clarification, informing one another about any changes of

schedule or informing teachers about upcoming PL tasks and exchange views. *WhatsApp* phone chat also helped to maintain communication with teachers especially when I had to travel back to the University in New Zealand in the middle of the study. For example, other PL related activities and arrangements such as proposing the school policy for guiding teachers' SBPL were facilitated through *WhatsApp* communications. Importantly, it is teachers' commitment that would sustain professional conversations and the whole PL project.

Guided by the IKBC, the teachers thought of their own PL plans. In CAR, the problem or an issue to be researched or improved has to originate from the teachers themselves in order to develop a sense of ownership (L. Cohen et al., 2011) over their learning. In the first planning session, the teachers reflected on their classroom practices and planned how they could address the teaching challenges associated with students' learning difficulties. Sagor (1992) emphasises that in CAR, the researcher and co-participants actually "look at what *they themselves* are or should be doing" (p. 7). According to the inquiry cycles, teachers started to identify the learning needs of students, before they thought of the professional skills they needed to learn in order to improve their students' learning (IKBC process is presented in detail in the Literature Chapter). Re-planning was done after completing one inquiry cycle, in order to improve the aspects that were not well implemented. Therefore, after the familiarisation session, three other planning meetings were held to support the PL practices during the inquiry cycles. On average, teachers engaged in the inquiry cycles for the period of nine months, while they planned PL actions and implemented them.

3.10.7 Acting to implement the action plan

During the action stage, teachers implemented their plans that saw them change their practice in some small ways. The teachers worked in the inquiry cycles, which enabled them to engage in the kinds of professional learning aimed at meeting the students' learning needs identified during the planning phase. The acting process occurred in three inquiry cycles. While teachers implemented their PL, I acted as the researcher facilitator who guided the direction of the research (Kvale & Brinkmann, 2009). However, my role during the project changed, as the teachers mastered the learning process. Israel et al. (1992) explain that once the engagement of participants in the study improved the role of the researcher changes from expert to adviser to co-participant.

While in the first and the third learning cycles, the participants engaged more in classroom-based PL practices, the second learning cycle involved some PL practices outside the classroom (see Appendix 16). This was a time when I was not in physical contact with the teachers because I had returned to New Zealand. Therefore, the *WhatsApp* phone group chat was used to maintain communication and to assist the teachers. Teachers continued to engage in their PL inside and outside the classroom. For example, teachers hosted a workshop for the whole staff, when a local university lecturer was invited at school to talk about lesson planning. Organizing the workshop was collaboratively done with teachers in order to build their capacity to carry out PL activities.

Another important PL activity conducted by the teachers was a two hour seminar where they invited a few teachers from the schools and some members of the school management to share with them about their PL progress. Stringer (2014) also supports this idea that teachers' reflection of their learning becomes more meaningful when they have opportunities to share it with colleagues. This seminar was also useful in enhancing the teachers' skills for organizing internal PL activities.

3.10.8 Observing the implementation of the IKBC

I observed the teachers while engaging in planning, implementing, and assessing their professional learning inside and outside the classroom settings. These observations occurred in two main ways as described under the research methods in the previous sections, namely structured observations during teaching, and unstructured observations throughout the implementation of the intervention. In the classroom, I was mainly observing different ways teachers used to implement the skills they had learned. While outside the classroom, I was looking at the ways in which the teachers demonstrated different practices of their PL. Schmuck (2006) explains that "in unstructured observations, observers do not use pre-planned categories but remain open to the process flow and later search for themes in their observation record" (p. 50). Therefore, while interacting with teachers through informal conversations, I was also observing changes that happened with teachers' learning processes (Craig, 2009). Taking reflective notes helped to provide insights about what was observed in these settings.

While I took the major responsibility of observing the implementation of the IKBC, teachers were also encouraged to collaborate in unstructured observations inside and outside the classroom. In CAR, participants are not obliged to perform the same role. However, the researcher and co-researcher might be taking different roles that are connected to the same goal (L. Cohen et al., 2007). The teachers conducted general observations and shared information that helped to improve the implementation of the IKBC. For example, when one of the teachers observed that her new teaching strategies made her students feel free and they could follow her to the staffroom for clarification and questions we thought it was important to provide more support.

3.10.9 Reflecting

Reflection during the CAR occurred continuously during, and after completing each inquiry cycle. This ongoing reflection aimed to check on the teachers' PL practices, particularly, how successfully they had implemented their new learning in the classroom. In this situation, I was monitoring their actions in order to improve their performance known as reflection *in* action (Sagor, 1992). Reflection *on* action was crucial too as it helped to evaluate the whole IKBC process. This reflection resulted in adjusting some of the aspects that were not well performed, perhaps because of lack of time and other resources.

Interviews and focus group discussions were methods used to find out how well the interventions were implemented to achieve the intended outcomes. As indicated by Cooper and Bedford (2017), interviews can provide an "opportunity for the teachers to reflect on school practices and their action research and identify further areas for improvement" (p. 273). After the first overall reflection, the teachers agreed that more actions were needed to improve teaching practice. Cunningham (2011) suggests that reflection can help to "determine next steps, identify needed adjustments, or identify a need for additional resources to address confusions" (p. 180). Therefore, two more inquiry cycles were planned again before the teachers agreed to end their participation. Throughout the implementation of the inquiry cycles, my main task was to evaluate the shift in teachers' practices and understandings of the SBPL.

3.10.10 Exit from the school

Visiting Lisuli School almost every week and sometimes twice per week made me familiar not only with the four teachers, but with other teachers and students as well. I became part of the school family, which made it difficult to exit the field. I, therefore, arranged an exit plan in advance. As a cultural practice in Tanzania, it is expected to thank the people who have hosted you, as a sign of appreciation. To this end, I informed the Head of School that my job was ending and I that planned to leave the school setting. Some days before I finished my project, the Head of School arranged a quick meeting in the staffroom to inform all the teachers that I was leaving and he thanked me for sharing some knowledge about teacher learning at the school. I also gave a note of thanks and contributed a small donation towards the school development. This small amount of money was given to the Head of School in front of teachers in the staffroom. Thereafter, we arranged a meeting with the four teacher participants and I gave them gifts to symbolize my appreciation for their commitment, effort and time they offered to me.

3.11 Data analysis

Data analysis procedures employed in this study were guided by the mixed methods design (Creswell & Plano Clark, 2011; Denscombe, 2014). Quantitative and qualitative data were analyzed separately in the first phase, and then findings were integrated to see how the qualitative information informed the quantitative data. The prevalent themes from the first phase were identified and these provided an insight for the second phase. In the second phase of the CAR, the qualitative data were analysed and key themes interpreted. Then, the findings that were obtained in both phases were synthesised to respond to the four research questions.

The analysis of statistical data from questionnaires was basically descriptive to respond to the major two aspects: teachers' participation in professional learning and teachers' perceptions of their participation in the professional learning. Descriptive statistics were used to summarize and describe information in relation to teachers' engagement in professional learning at the school. The analysis of data was conducted in percentages and presented in tables and charts. Each questionnaire was scored, coded, transformed and analyzed using the computer-based software, Statistical Package for the Social Sciences (SPSS) Version 23.

Drawing on an extensive range of sources from other researchers such as Craig (2009) and Efron and Ravid (2013), all the qualitative data from interviews, focus group discussions, planning meetings, reflective journal, and documents review were collected, transcribed and analysed by myself. These qualitative data were analysed as they were collected. The computer-based analysis program called NVivo 11 was used to analyze data from interviews, focus groups and planning meetings. The data was first organized according to broad themes and assigned codes. Initial coding process involved describing the meaning of information from the transcripts and then the nodes were created in NVivo. Related ideas were all placed at one node (see Appendix 17). The nodes were altered during the coding process depending on how the data were making sense in relation to the research questions. Although NVivo provides a good way of keeping a memo, it was convenient for me to keep a separate word file for memos. In order to track a shift in teachers' understandings and practices in SBPL, a separate sheet with a matrix was created for each teacher that showed all the phases of data collection from initial interview, meetings, focus groups to the final interview. The coded data from NVivo was then transferred to this table to form a sequence of data that helped me to check the changes demonstrated by teachers in terms of understandings and practices.

3.12 Ethical issues

In this study, ethical issues were considered throughout the research process. The researcher adhered to ethical rules and practices for the whole research process from planning, data collection, analysis and reporting of the findings (Creswell & Poth, 2018). Researchers highlight that ethical issues should come first when planning for research (Ary et al., 2010). Similarly, ethical issues such as respect to people, beneficence and privacy (Trochim et al., 2016) are at the forefront of the present study. Trochim et al. (2016) suggest that although there are rules and procedures guiding research ethics, the researcher should follow internal regulations and identify any chances that may lead to unethical practices in research. I, therefore, applied for an ethical approval and the research clearance letter from the authorities, as explained in the previous sections, to ensure that the rights of participants are legally protected. The following sections explain how the fundamental ethical aspects such as: informed consent, privacy and confidentiality were practically managed in the present study. In

addition, strategies employed to address the potential ethical issues in relation to insider-outsider roles in the present study are presented.

3.12.1 Gaining informed consent

One of the fundamental ethical research principles is the right of research participants to gain informed consent and make their own choice to participate in the study. Norton (2009) explains that making participants *informed* means that "is giving them sufficient information on which to make a realistic judgement on the possible consequences of taking part" (p. 181). Therefore, before data gathering, research participants in this present study were requested to read the information sheet that described the study content and its implications. Participants were not compelled in any way to participate in the research process and they were informed of their rights to withdraw at any point they wished (Foster & Glass, 2017). Moreover, I explained in person the nature, purpose, and scope of the study to the participants (Blair et al., 2014). The participants were made aware of the time involved in the study and how they were going to potentially benefit from it. Once participants were satisfied with the information given and they were willing to participate, were requested to sign the consent forms. Norton (2009) further explains that *consent* "means asking people to agree to take part in our research without any coercion" (p. 181).

All schools participated in the survey were given information sheets (see Appendix 3) and consent forms (see Appendix 4). There were information sheets and consent forms (see Appendices 5) for Heads of Schools interviewed. Similarly, before participating in the IKBC intervention, the four teachers were given information sheets and consent forms (see Appendix 6). The teachers were requested again to sign the consent forms for participating in focus group discussions and observations (see Appendix 7).

3.12.2 Maintaining privacy and confidentiality

It is the responsibility of the researcher to protect participants from any harm by ensuring privacy, anonymity and confidentiality. Participants need to be protected not only from physical harm, but also "psychological harm such as effects on self-esteem and academic confidence" (Norton, 2009, p. 187). Similarly, in the present study,

participants' privacy and confidentiality were taken into consideration throughout the research process as explained below.

To maintain anonymity, p*seudonyms* were used to conceal participants' identity in transcripts and reporting of findings from interviews, planning meetings or observations notes. In the documents attached to this thesis such as letters, the names of participants are covered to hide their identities. To guarantee confidentiality, all the data obtained from participants were stored securely to ensure other people have no access to them. All the questionnaires and the transcripts were accessible to the researcher and supervisors only and were locked temporarily in the researcher's personal office before taking them to the University for storage for five years according to University regulations.

Privacy is related to using and sharing individual participant's information with others. Participants in this study had freedom to decide what information they wanted to share and how. For example, they were asked to read the transcripts from interviews and field notes and add more information or delete anything they did not want to be published or that did not accurately reflect their views. Participants were also requested to sign the Authority to release interview and planning meetings transcripts (see Appendix 8).

Assurance of privacy, anonymity and confidentiality in action research is debatable (Norton, 2009). Therefore, informing participants about the extent to which confidentiality could be guaranteed was crucial (Sewell, 2006). For example, in the case of focus groups, I made clear to teacher participants that I could not guarantee them complete confidentiality because their colleagues were aware of their participation in the study. However, all participants were cautioned to maintain confidentiality of the information obtained from the discussion.

3.12.3 Addressing potential ethical issues with insider-outsider roles

The tension of taking both outsider (researcher) and insider (co-participant) roles in the research process required careful consideration of the potential ethical issues that might have occurred when collaborating with the four teachers (insiders). Creswell and Guetterman (2019) point out that "collaborating with participants, a central feature of action research, may lead to ethical issues… [and therefore] ... it is advised to

acknowledge the dual role of the teachers and the researcher and the sensitivity it takes to engage in this form of research" (p. 598). The following strategies were employed in the present study to address some potential ethical issues that might have arisen while taking the insider-outsider role.

3.12.3.1 Defining roles

At the beginning of our inquiry, I made the insider-outsider role clear to teacher participants, so as to avoid role conflicts and allow new learning possibilities to emerge from them. In collaborative action research, researchers are advised to specify their roles if they are co-participating in the study (Zeni, 1998). Just like other insiders, my role was to share PL experiences, as a former secondary school teacher and also to facilitate learning process. Having made the roles of an insider-outsider clear, I avoided imposing expertise on teachers during PL planning meetings and discussions. Acting as a teacher, however, posed some challenges, not only to participants, but also to me, especially, when I found that my views differed from theirs. Similarly, I saw teachers at the beginning of the inquiry turning to me as an outsider to seek my views, rather than as a co-participant. Coghlan and Brydon-Miller (2014) indicate that in the collaborative research, co-participants may have different needs and interests that differ from those of the researcher because they both take different roles. Thus, in order to avoid imposing specialist knowledge to teachers, I regularly reminded them of our position as insiders who had the responsibility of learning together. Moreover, the teachers were encouraged to promote shared views and co-construct SBPL knowledge. In the course of learning, when teachers gained confidence in their inquiry they were able to see me as their co-participant who was working with them as part of the community of learners.

3.12.3.2 Establishing close relationship with participants

Rapport established with all four teachers helped them to feel comfortable working with an outsider during the research process. This close relationship facilitated the data gathering and the interpretation process. For example, the teachers advised me to contact them anytime if I had difficulties interpreting the data I collected from them. Creswell and Guetterman (2019) also suggest that one of the strategies that can help researchers gather data during collaborative action research is for them to develop a close relationship with their participants. The positive relationship established with teachers during our inquiry made all of us feel free even to share life experiences

beyond our inquiry. The use of guided norms and rules to our inquiry enabled me and teachers to maintain ethical relationships that promoted our professional practices. Based on the ethical relationships established, it was possible for me to probe teachers, ask for clarifications, persuade and advise them during the study.

3.12.3.3 Negotiating with participants about PL and research procedures

Although initial informed consent was obtained prior to conducting the research, negotiating with participants about ongoing study procedures was crucial in order to address potential ethical issues. This continuing informed consent is regarded as “'process consent' (Heath, Charles, Crow, & Wiles, 2007, p. 409), in which consent is “‘negotiated on an ongoing basis’, which provides a useful mechanism for updating participants involved in studies with emergent research designs” (Locke, Alcorn, & O’Neill, 2013, p. 109). The teachers were free to choose what to learn, how to learn and whether to continue with their participation in the study.

As an insider-outsider, I was flexible and responsive to the demands of teachers during the research process. For example, while the teachers were advised to engage in peer observation and out of school educational visits during the IKBC, they indicated that time was not sufficient to allow them to perform such PL practices. Therefore, it was wise to consider the feelings of the teachers and respect their decisions. Locke et al. (2013) comment that it is the right of the participants to “renegotiate the grounds for their participation at any time” (p. 113).

Importantly, when negotiating with participants I regularly advised them about the consequences of the choice of procedures and decisions we made during our inquiry. For example, when the teachers wanted to share their PL progress with their fellows at the school, I advised them about the ethical implications of their decision. I discussed with teachers the risk of exposing the details of their individual practices in the inquiry to their fellows, as well as how the risk of identification could be reduced. Moreover, the teachers had to balance the risk of exposing their PL tasks and that of losing an opportunity to exercise their PL sharing skills. Some scholars have also mentioned about weighing the “gains and loss” of anonymity and see if the risk can be normally accepted (Zeni, 1998). Generally, negotiation helped the teachers to make appropriate decisions after knowing the risks and benefits of their practices.

3.13 Chapter summary

This chapter presented the research methodology with regard to the teacher participants' change in practices and understandings of SBPL. A rationale for the use of mixed research approach and interpretive research paradigm was presented. Mixed methods action research formed an appropriate design for this study. The research process was also explained and justified, such as specific methods of data collection, sampling process, participant selection, validity and reliability of the study. Data analysis and research ethics were also described as part of the research sequence. The next chapter reports the research findings.

CHAPTER FOUR

PHASE ONE FINDINGS

4.1 Introduction

This chapter reports the findings obtained from the study's first phase of data collection. The investigation was guided by the main research question "How do Tanzanian secondary school teachers perceive and engage with their school-based professional learning?" The chapter presents the quantitative and qualitative data obtained from the survey questionnaires and interviews, respectively. The survey was completed by 213 teachers, whereas the interviews were conducted with four Heads of Schools from school B, D, I and L. The data are integrated in order to provide a detailed response from teachers and school leaders that include: engagement in school-based professional learning (SBPL); teacher self-perceptions of their participation in SBPL; factors preventing teacher engagement in SBPL; and overcoming barriers to teacher participation in SBPL.

4.2 Engagement in SBPL

This section reports on the extent to which teachers participated in different types of professional learning (PL). In particular, the survey focused on the general rate of teacher engagement in available PL programmes at school. This item also explores the range of formal and informal PL experiences in schools. The first part of the survey required teachers to indicate their level of engagement in *formal* types of PL organised in schools in the previous year. In the second part of the survey, the teachers were asked to rate their engagement in *informal* types of PL they had engaged in the previous year. Teachers had an opportunity to rate each item which helped to assess how often they engaged in PL.

4.2.1 Engagement in formal types of SBPL

Formal types of PL were described as those professional undertakings which were arranged or recognised by the school, as a means through which teachers updated their teaching skills, in order to competently carry out classroom practices. Teachers rated

how often they engaged in formal PL. As displayed in Table 4.1, more than 50% of teachers reported that they had never participated in formal PL activities, such as attending *seminars/workshops*, *short courses*, *visiting schools* or *engaging in classroom action research*. The most frequently types of PL engaged by teachers were *discussions in staff meetings* and *mentoring or arranged expert support*.

Table 4.1

Teachers' Engagement in Formal SBPL (N= 213)

Formal PL forms	Rate of teacher participation in formal PL in percentage				
	Regularly	Sometimes	Rarely	Never	No response
Short courses	1.4	6.6	6.6	77.5	8
Seminars/workshops	1.4	10.3	13.1	70	5.2
Visiting schools/institutions	1.9	8.5	8.5	77	4.2
Peer classroom observation	13.1	30	17.8	35.7	3.3
Networking	19.7	22.5	15	39.9	2.8
Classroom action research	8	16.9	12.7	58.7	3.8
Mentoring/expert support	46.9	27.7	10.8	11.3	3.3
Discussions (staff meetings)	58.2	25.4	10.8	3.8	1.9
Team teaching	16.9	32.9	18.8	27.7	3.8

4.2.1.1 Participating in short courses

Over 75% (77.5%) of teachers reported that they had never attended short courses. This response suggests that teachers had limited chances to attend short training courses to refine their classroom practices. Similarly, the Heads of Schools (HoSs) commented that it was not common for teachers to attend short courses because they were rarely provided by external trainers and some short courses took teachers away from their work stations for a long time compared to seminars. HoS I, for example, explained that it was challenging for the school to allow teachers to participate in short courses because these were costly in terms of funding and took up a significant amount of time. In this regard, she said: *"permission to attend training can be given, but this depends on the amount of time a teacher is expected to be away from teaching or school"*. This finding may suggest that even if short courses were available, teachers in School I were not encouraged to participate because the daily teaching schedule would be interrupted.

4.2.1.2 Attendance at seminars/workshops

Table 4.1 shows that 70% of teachers had not attended any seminar/workshop training in the previous year. The HoSs also reported that seminars/workshops were not adequately provided. On this note, HoS B stated: *"not all teachers get chances to attend seminars"*. Similarly, HoS D emphasised: *"we have a few teachers who are selected to attend seminars"*. Although, the findings probably suggest that seminars were not offered to teachers, this type of PL was ironically the most commonly recognised one in schools. Focusing on his experience, HoS B illustrated that although seminars were not offered widely to teachers, they were still regarded as a popular form of PL in many schools. He also indicates in the following excerpt that external providers often initiate seminars on topics that they considered to be important, rather than the schools requesting seminar topics. *"The main forms of professional development which teachers are relying on are seminars or workshops. However, it is not the school which is organizing them; rather we receive invites from outside the school"* (*HoS B/INT).* This comment suggests that the low rate of teacher participation in seminars could be due to a lack of initiative from the school to organise them.

Seminars or workshops were regarded by HoS D as an essential means through which teachers could promote their skills. She thought that without provision of seminars, teachers would not have the opportunities they needed to refine their teaching skills. She also reinforced the view that the majority of teachers and school leaders were unaware if other PL opportunities were available.

> *It's a long time since these teachers graduated from colleges. They also need to be up-to-date. But how can they be updated? It is by taking them to seminars… many teachers and school administrators are not aware of the variety of the professional development practices… except attending the seminars (HoS D/INT).*

The most common recipients of invitations to seminars or workshops were Science teachers. This bias appears to negatively affect other teachers who were not teaching Science. Based on this experience, school leaders thought that seminar programmes needed to be organised specifically for other teachers to enable them to respond positively and effectively to their current classroom challenges. For example, HoS L stated:

It is only Science teachers who have been invited to attend seminars… Teachers who are teaching other subjects apart from Science have never received a call for seminars for many years since I started working here in 2007… the PL focus in this country is directed to Science teachers only. That's why last year in our organization as Heads of Schools we agreed to organize seminars/workshops that would support teachers teaching Arts subjects. Focusing on Science subjects alone will badly affect the development of other subjects.

Previous comment implies that having more seminars, especially for Science teachers limits PL opportunities to teachers in other fields. Generally, the findings from the HoSs revealed that although seminars or workshops seemed important in schools, they were not teacher-driven. It is possible therefore that these externally originated seminars might not impact teacher specific practice problems encountered in their working environments.

4.2.1.3 Visiting other schools/institutions

Teachers *visiting other schools* or *educational institutions* as a means of PL can be easily implemented within and between schools to enable them to share teaching strategies and resources, yet only disappointingly 18.9% of teachers had engaged in this form of PL. Therefore, the majority of teachers might have had no PL engagements across schools that would provide a rich source of PL.

Three HoSs reported that visiting other schools was neither arranged by schools nor by teachers, it rather occurred by chance. For instance, HoS I indicated that her teachers had had an official visit to another school during the last year, to *"exchange views in academics* [educational matters]*" (HoS I/INT).* In contrast, HoS L asserted that his school did not arrange PL visits for teachers. He assumed, however, that his teachers might have benefited from an unplanned visit to other schools, as he maintained:

When they go [to another school] for particular work, then automatically they learn something else. It is common, I think when you visit a place you will see many things, especially those different practices that you have not experienced at work and then, start thinking that this one... yes! It can be done at my school (HoS L/INT).

Another leader from School B equated school visits with mere outings of which his school could not afford. He concluded: *"Here, we didn't do that [visiting schools] in this school! You know it needs funds and the funds we receive are limited… So we have not allocated the funds to… tour to some places" (HoS B/INT).* Similarly, HoS D commented that lack of funds was a barrier for teachers visiting other schools. She argued: *"But do you know why conducting such PL practice will be difficult?... once you ask a teacher, let's say a Mathematics teacher to visit a neighbour school to learn, be sure that will have financial implications*". However, she admitted that when teachers had a chance to learn from other schools it helped them to modify their teaching. Overall, the findings indicated that only a few surveyed Tanzanian teachers visited schools for PL purpose, but generally, schools had no formal plans to assist them to do so.

4.2.1.4 Peer classroom observations

Observing others teaching is regarded as one of the most inexpensive means for teachers within schools to share their professional skills and expertise. The survey results showed that 60.9% of teachers had conducted a *peer classroom observation* of another teacher. However, the HoSs reported conflicting views, suggesting that peer classroom observation was an unusual practice in their schools.

For example, HoS L encouraged his teachers to perform peer observations in order to learn from their colleagues on how to teach well. However, he discovered that many teachers were not observing their peers. Talking about this issue, HoS L stated: *"I think this may happen when teachers are friends!… but for others, they don't do that".* Therefore, in his school, peer observation worked well when teachers were familiar with each other. Similarly, peer observations were not formally organised in School L and were also unusual in School B. Interestingly, HoS B reported that teachers did not observe their peers because they were neither motivated nor committed to do so:

> *According to the nature of our environment, such practice [classroom observation] is not here… It is just difficult! Sure! I am wondering where could such a spirit come from?... Having teachers who think about starting going into another class to learn… no! I have not seen such a practice (HoS B/INT).*

4.2.1.5 Networking

Just over half of the surveyed teachers (57.2%) indicated that they participated in educational *networks* with other teachers to refine their teaching skills. Although teachers showed that they engaged in some form of networking PL, it shows that they did not engage in learning activities regularly. This finding suggests that teacher PL networks were probably not active. In one case, HoS B reported that his teachers were connected with other neighbouring school teachers through school management. Surprisingly, this network was limited to exchanging examination papers between schools, yet teachers had no chance to meet and discuss their assessment practices. He further explained:

> *Networking is done, especially, in examinations… like borrowing examinations from other schools… and look at what are they doing. This is what teachers are doing at school… For example, we have good cooperation with the secondary school "Y". They take our examinations, we also take their examinations. Such kind of exchange is very popular here (HoS B/INT).*

Another leader from School D was of the view that her teachers might have educational links within or outside the school. She claimed that teacher networks depended mainly on establishing a positive relationship between individual teachers. Hence, when teachers did not have good relationship with other teachers inside or outside the school, then it seems to be difficult for them to share experiences. She illustrated:

> *If it happens that one of our teachers meets with another teacher who teaches at the neighbouring school, he/she may ask for help. This happens in a friendly manner, it is not formal. But I agree this might be a very good practice. (HoS D/INT).*

The findings also highlighted the conclusion that teachers might not be able to establish physical or online educational networks with their peers, without effective support of school management, as such a connection could not arise by mere chance.

4.2.1.6 Conducting classroom action research

Just over one-third of the surveyed teachers (37.6%) indicated that they practiced *classroom action research*. Similarly, the HoSs reported that action research was not practiced by many teachers in schools. Surprisingly, HoS I did not see action research as a standard PL practice that could be consistently adopted by teachers in their teaching roles. Despite explaining to her what action research was, she reported that her teachers never engaged in this practice:

> *Teachers are not conducting research; it is not common at the school. Teachers usually teach and they try to handle the problems that arise in the classroom. If there is something they cannot handle, and then they know what to do… they know where to report in case something goes wrong (HoS I/INT).*

HoS B had a different understanding of action research, commenting that sometimes the teachers did engage in classroom research to address students' learning issues. He narrated a scenario occurred at his school in the previous year to explain how teachers engaged in classroom research. He commented:

> *In the previous Form Four class, we had a problem with one of the classes…, so, looking at this matter you will understand that there are teachers who made close follow up until they came to discover that there was such a thing [problem] (HoS B/INT)*

This HoS B equated the usual or everyday explorations made by teachers to promote their teaching with conducting classroom action research. Overall, drawing on these findings, a clear understanding of the concept of action research seems to be lacking.

4.2.1.7 Engaging in mentoring or arranged expert support

While the survey indicated that just approximately half of the surveyed teachers (46.9%) engaged frequently in *mentoring* or *expert support* form of PL, all four HoSs affirmed that formal mentoring was not organized among teachers in their schools. More importantly, it has been pointed out that a novice or less knowledgeable teacher who needed expert guidance was usually advised to approach a more experienced fellow teacher. In this case, more knowledgeable and less knowledgeable teachers were encouraged during staff meetings to work together to assist one another professionally. In this regard, HoS B commented that in his school there was a kind of collegial professional assistance among teachers that depended on individual relationships, competencies and willingness: *"But support… it depends on individuals' commitment… How an individual feels" (HoS B/INT).* Furthermore, HoS D added: *"In their departments, teachers normally exchange knowledge, whereas a knowledgeable teacher tries to help his/her colleagues. In such situation, teachers share experiences and support one another" (HoS D/INT).*

4.2.1.8 Discussions in departmental and staff meetings

Discussing professional matters was a common practice among the teachers. Over half of the surveyed teachers (58.2%) indicated that they frequently participated in organised *discussions*. Interviews revealed that most of these discussions were conducted in departmental or whole staff meetings. Departmental meetings were usually attended by teachers who were teaching similar subjects, while staff meetings were attended by all teachers at the school, regardless of their subject specialisation. Illustrating how the meetings were conducted in his school, HoS B described:

> *When the teacher returns back to school from the seminar, he/she can share information through general staff meetings. Also, the teacher is advised to share the acquired skills at the department level, because not all teachers in the department attended the seminar (HoS B/INT).*

These meetings were regarded as central to teachers' SBPL, as commented by one HoS: *"We do not have any other means through which we share PL issues apart from the staff meetings" (HoS D/INT)*. Teachers who had opportunities to attend seminars or visit other schools were required to give feedback at the meetings. In some schools, teachers were advised during meetings to engage in learning. These departmental and staff meetings were mostly regarded as valuable opportunities where teachers could share teaching techniques based on their experiences, or to give feedback based on professional training gained outside school. Teachers, who visited another school, whether for academic or non-academic purposes, were obliged to share their experiences. On this point, HoS L clarified: *"Possibly, if an individual teacher goes to invigilate national examinations, then he/she will say that I went to this school and I saw this and that! By staying at particular school for a few days, he/she learns"*. Furthermore, HoS L reported that he used staff meetings to advise teachers to engage in PL to promote their teaching. He stated: *"Yes in the meetings we insist on them to do so because of their differences in abilities… We tell them that if you can't do something, ask your colleague" (HoS L/INT).* Thus, it appeared that teachers were learning about new teaching skills or becoming informed of professional issues through discussions that occurred during departmental and staff meetings.

4.2.1.9 Team teaching

Team teaching is another form of PL that can be structured in schools to build teachers' capacity to address classroom challenges more collaboratively through co-teaching and promote student active learning. The survey findings indicated that 68.6% of teachers had engaged in team teaching. Again, interviews with school leaders indicated that effective team teaching depended on teachers' initiatives because there were no specific arrangements in place for promoting such PL practice.

Overall, findings from the HoSs indicated that short courses, seminars, workshops and discussions in whole staff and subject departmental meetings were organised and recognised forms of teacher PL in schools. With the exception of discussions, these types of PL have usually originated from outside the schools with little or no connection to teachers' learning priorities. Other types of PL such as visiting schools, peer observations, action research, networking and team teaching were largely initiated and maintained by teachers based on their professional learning needs.

4.2.2 Engagement in informal types of SBPL

The survey findings showed that informal PL opportunities were undertaken by most teachers. Analysis of the survey results displayed in Table 4.2 indicates that over 80% of teachers engaged in varied informal and often unintentional types of SBPL.

Table 4.2

Teachers' Engagement in Informal SBPL (N= 213)

Informal types of PL	Rate of teacher participation in informal PL in %				
	Regularly	Sometimes	Rarely	Never	No response
Reading research-based professional literature	26.3	34.3	14.1	18.8	6.6
Reading other professional literature	54.9	28.2	9.4	4.2	3.3
Informal dialogue with peers	42.7	32.4	11.3	8.9	4.7
Chatting with another teacher to help a student	57.3	23.9	9.9	3.3	5.6

At the beginning of the interviews, the HoSs disclosed that they were uncertain about the nature of teachers' informal forms of PL. For example, HoS L reported that: "*I don't know how to put this because I have not made an effective follow-up"*, while HoS B commented: "*it is difficult to tell to what extent they can do [engage in informal PL]*". Similarly, HoS I was unaware of the variety of informal PL activities used by her teachers. When asked to explain how teachers in her school engaged in less formal types of SBPL, she reported: *"Not quite sure about that… It is only what I have already mentioned. It is difficult to know what other techniques teachers use" (HoS I/INT).* After some prompting, all HoSs agreed that their teachers participated in different informal PL, as presented below in relation to survey results.

4.2.2.1 Engaging in reading research-based professional literature

Survey results showed that a minority of teachers (18.8%) never read *research-based professional literature* to improve their professional skills, as shown in Table 4.2. Research-based literature referred to scholarly articles and related works that assist teachers to have a wide understanding of the precise issues pertaining to their profession. For example, teachers could easily update their teaching strategies and manage their classes through conducting meaningful assessments and reading from journal articles, research reports, thesis papers etc.

All HoSs reported that teachers could be reading research-based scholarly articles as informal part of SBPL but they were not aware of the available range of literature that would be useful to teachers' PL. As a result, teachers' PL was perhaps hampered by the lack of effective arrangements that would assist the teachers to have access to these scholarly articles or the promotion of reading. For instance, one HoS indicated that she did not know what research-based literature should be made available for teachers' PL. She commented: *"as a school we are not aware about having research reports… for teachers to read. We have never tried to have such documents at the school" (HoS D/INT)*. Similarly, another leader from School L disclosed that his school was unaware that their teachers needed to read recent and extensive professional literature apart from textbooks, to keep them up-to-date with their pedagogical practices. This HoS thought that it was the responsibility of the government to make sure that professional materials were available in schools. He said: *"They have not brought them at the school… we are not informed about their availability. We don't know whether they are present or not" (HoS L/INT)*

4.2.2.2 Engaging in reading other professional literature

While some teachers read research-based literature as shown in survey results, the majority (92.5%) indicated that they were reading other professional literature such as textbooks, pamphlets or different books to supplement information obtained from textbooks and refine their teaching skills. The HoSs indicated that teachers appeared to engage in independent reading using books available at school or through the internet. Using the internet emerged as a useful way through which some teachers could access professional information for their subjects, as stated by one HoS: *"Teachers use the internet to find online resources to solve challenging issues in teaching" (HoS I/INT)*. Another leader from School B added that learning through online resources was done by individual teachers, based on their ability to engage in e-learning, and their passion for teaching. He further described that teachers' e-learning was confined to supplementing what they missed from the textbooks. He said:

> *Learning has to be initiated by the teacher… I think not many are engaging themselves in the use of the internet, but I am sure there are some teachers who use the internet to learn… By looking at some documents… not found in the normal textbooks (HoS B/INT).*

While HoS I reported that: "*Accessing the internet is easy for teachers at our school because we are using the wireless network*" *(HoS I/INT)*, other HoSs revealed that the use of the internet was constrained by lack of computers in schools. For instance, HoS L commented:

> *PL can be done through the internet resources… There are some teachers, especially the young ones are using the internet… the school does not have computers… some teachers may be learning using their computers when they are at home. Some they do at their own time and summarise the materials, they come to school (HoS L/INT).*

Alternatively, teachers used their smart mobile phones to read from the internet, as HoS B explained: "*Computers, no! Teachers have been using phones. So, through phones teachers have access to different information" (HoS B/INT).* Thus, these results suggest that accessing resources from the internet remained a challenge for both the HoSs and the teachers.

4.2.2.3 Teachers engaging in informal dialogue with peers

According to the survey results, conducting *informal dialogues with peers* to address academic issues was undertaken by 86.4% of teachers. This high rate of informal dialogues or conversations was supported by HoSs who said that teacher engagement in unplanned PL conversations was a common practice. The HoSs believed that sharing teaching information was a useful form of informal PL. In this regard, based on her own experience both as a leader and a classroom teacher, HoS D clarified that informal conversations regularly occurred when one teacher wanted to seek views on her/his teaching or to seek help for a particular teaching challenge. She explained:

> *Normally, a teacher who raises any problem or challenges she/he has been experiencing will be supported by other teachers accordingly. They learn by cooperating with others. For example, in my own case, I used to ask my fellow teachers how to teach certain topics, or how to prepare teaching aids… I do not stay far from my fellow teachers, because I believe that they have something good to tell concerning my teaching.*

4.2.2.4 Chatting with another teacher to help a student

In the survey, teachers were asked if they had opportunities to chat together about learning difficulties which affected a specific student. By doing so, teachers could have

an opportunity to practice their PL when trying to identify a certain student's learning challenges and ways to address them. Similar to engagement in informal PL dialogues, most teachers (91.1%) responded that they engaged in such professional conversations. According to the views from the HoSs, this form of teacher PL was related to teacher engagement in informal conversations.

4.3 Teachers' self-perception of their participation in SBPL

This section presents the findings regarding the teachers' self-perception of their engagement in SBPL. The perceptions are reported with respect to the *impact* of the formal PL sessions teachers engaged, the *support* teachers obtained in their engagement in the PL, their sense of *satisfaction* with their participation and perceived *level* of overall participation. Responses were elicited related to four items: impact, support, satisfaction and level of participation. Teachers were asked to indicate their views by rating each item. Table 4.3 provides a summary of the perceptions of impact, support and satisfaction. A detailed analysis is presented in the following sections.

Table 4.3

Teachers' Self-Perception of their Participation in SBPL (N=213)

Responses	Teachers' perceptions of the SBPL in percentage (%)		
	Perceived PL Impact	Perceived PL Support	Perceived PL Satisfaction
High	14.1	3.8	5.6
Moderate	44.6	18.8	28.6
Little	22.5	26.3	22.5
None	9.9	47.9	20.2
Not applicable	2.8	-	18.3
No response	6.1	3.3	4.7

Note: The *not applicable* scale suggested that either there were no structured PL programmes at school or teachers were not aware of their applications.

4.3.1 Teachers' perceived impact of their participation in SBPL

With regard to the perceived impact of different types of formal SBPL, 58.7% of teachers considered PL as having a *high* to *moderate* impact on their own practice. These teachers believed that their engagement in the PL had helped them to address specific job-related challenges. This view was affirmed by the HoSs who reported that when teachers engaged in any form of learning for their pedagogical practices, that useful knowledge and skills were gained, *"to improve what they teach*" *(HoS I/INT).* Similarly, HoSs D and B considered that when teachers attend seminars or other forms of PL for the purpose of making effective instruction, then their teaching changes. As HoSs D and B put it:

> *When teachers feel that they gain useful knowledge or skills for their students they are keen to perform anything that make them best teachers…. So, I believe… they have discovered that learning gives them an opportunity to make their teaching meaningful (HoS D/INT).*
>
> *I may say it in general that they learn good things by attending seminars (HoS B/INT).*

On the other hand, 32.4% perceived that SBPL had only *little* or *no impact* in improving their teaching competencies and students' learning. These teachers felt that the PL they had engaged in was irrelevant for their teaching. Likewise, during the interviews, HoS B clarified that some PL programmes were hard to implement and hence the school perceived them as too difficult to organise and sustain. He claimed that teachers often find it difficult to implement the ideas they have acquired from outside the school mainly due to lack of resources in school:

> *We normally don't see the impact very well because teachers cannot implement the acquired skills as intended in the training programme... the challenge is when the teacher tries to utilise the knowledge in the classroom… they require additional time or other resources (HoS B/INT).*

4.3.2 Perceived SBPL support

The survey sought to capture teachers' perceptions about the level of support they had received from their school leadership for SBPL participation. In particular, the focus was on the teachers' feelings about the general support they had received. The results displayed in Table 4.3 above, revealed that only 22.6% of all teachers reported that the support from the school was sufficient, while 74.2% indicated *little* to no *support* is

received. Among the teachers, 47.9% claimed that they had not received any support from their schools.

On the contrary, the school leaders claimed that they were spending the meagre resources they had to support teachers in PL. However, the views from the HoSs could not dismiss the fact that teachers were not pleased by the low level of support given regarding their PL. All HoS interviewees agreed that it was necessary for schools to support teachers in order to help them to increase their engagement in PL. Generally, the anticipated support was regarded as being in the form of financial assistance, or the provision of facilities that might have potential influence on teaching and learning. Substantial leadership support could also be in the form of offering teachers practical advice, such as on how to engage in appropriate professional practices. Two types of assistance provided to teachers to help with their participation in PL were financial assistance and permission from HoSs. These are outlined below.

4.3.2.1 Financial assistance for teachers' PL

HoSs claimed that although schools were running short of funds, they had succeeded in offering small amounts of money to a few teachers who were called to attend professional training, particularly outside of the school. One HoS explained that regardless of financial constraints, *"the school has been supporting teachers in professional learning" (HoS L/INT).* HoS B also clarified: "*We support them when it is necessary… Anyway, in rare cases the government is financing training for fewer teachers"*. This leader further commented that his school tried to offer the little funds that were available because no funds have been allocated to school budget for PL by the government.

Another HoS also revealed that the small amount of money spent on PL was deducted from their meagre school budget. Therefore, financial assistance was based on 'first come, first served: "*For example, when teachers are called for seminars organizers can give them money for transport and then they claim the rest of allowances from the school" (HoS D/INT).* HoS L further explained: *"if seminar organisers pay for the meal allowance, it is the responsibility of the school to provide the transport allowance"*. Different schools placed different priorities and values on PL. Showing that her

privately owned school was playing a role to support teachers' engagement in PL programmes, HoS I highlighted: *"when a teacher is sent to a seminar by the school, that means he/she will be offered financial support" (HoS I/INT).*

Any financial assistance from schools was mainly intended for covering travel costs from schools to training centres, or for meal allowances. Therefore, teachers were not guaranteed full support, besides allowances were only offered when the money was available. In most cases, professional training costs were shared between schools and training organisers. Teachers were rarely able to attend PL that required full funding for their participation.

4.3.2.2 Permission to engage in PL activities at the school

Another type of support reported by HoSs was the permission to engage in PL programmes. It seemed that teachers were required to seek permission to participate in PL. Asking for permission was especially necessary when the PL was practised outside the school environment. On this point, HoS D clarified: *"when we receive a call or an invite to ask teachers to participate in a particular learning programme, we are ready to release them"*. However, the decision to allow teachers to participate in PL was usually made by considering the costs involved and the amount of time spent on PL by a teacher. It was considered that teachers might fail to fulfil their obligations, such as teaching, if they spent more time in PL. Thus, some schools only *"allow teachers to go for further studies/learning if they wish to do so, but this will be at their own cost" (HoS I/INT).* This view implies that if the PL was reasonably extensive, then teachers would need to do it at their own cost because their schools were not prepared to pay for such PL. Basically, the HoSs indicated that teachers were not refused participation in PL, provided that they notified the school administration well in advance. The challenge remained for teachers to maintain a balance between their participation in PL and attending to their demanding teaching responsibilities.

Moreover, it was also noted that many teachers did not bother to consult or gain approval from their administration when they engaged in PL. Therefore, sometimes the school was not aware of their teachers' PL participation. For example, HoS D commented: *"maybe they do not confide some of their PL issues in me" (HoS D/INT).*

HoS B said: *"If our teachers really needed more PL, I think we could know that they were passionate… and wanted more from us" (HoS B/INT)*. He further clarified: *"However, if an individual teacher wishes to conduct any professional learning activity, he/she is allowed and the school will support this"*. Possibly, the type of PL his teachers engaged in did not interfere with the teaching timetable and therefore, they did not see any reason as to ask for his permission.

4.3.3 Teachers' perceptions of satisfaction with PL

The teachers reported a range of levels of satisfaction with the way PL was organised in their schools. Interestingly, about 42.7% of teachers reported *little* to *no* satisfaction. Yet, 18.3% indicated that the aspect of satisfaction was not applicable to their school environment (See Table 4.3). These teachers believed that their schools had no organised PL programmes to comment on and hence they opted for the non-applicable response. These results in general suggest that a significant percentage of teachers were not pleased with the availability and organisation of formal SBPL programmes. All HoSs agreed that much improvement was needed to ensure that the teachers felt more satisfied with their SBPL.

4.3.4 Teachers' perceived level of participation in SBPL

The low sense of satisfaction with SBPL was also reflected in the teachers' feelings about their levels of participation. The teachers were asked to describe their perceptions of their level of participation in formal and informal PL activities in schools, as reflected in Figure 4.1. While 36% of teachers reported *low* to *poor* levels of participation in PL, 60% were comfortable with their level of participation. However, 23% of teachers felt that they had not engaged in enough quality PL. It was this expressed concern for engagement in quality PL that led to the second phase of this study.

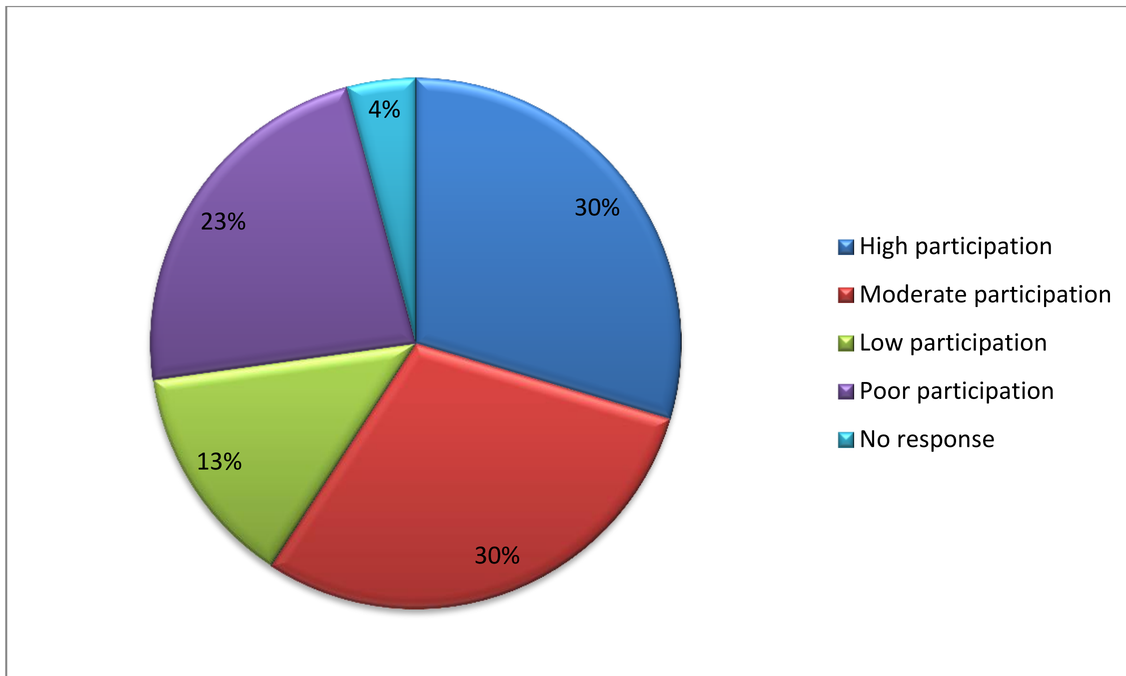

Figure 4.1 Teachers' perceived level of participation in SBPL

Furthermore, the teachers were asked to indicate whether they intended to participate in more PL than the previous year. Where SBPL was not formally organised, getting teachers' views about the extent of need for PL and know about their commitment to learning was crucial. The results showed that, 88.3% of the teachers wanted to participate more in PL. This finding suggests that even those teachers who felt that their participation in SBPL was at high level (see Figure 4.1); they needed more learning to update their teaching skills. For instance, responding to the last survey question, 93% of teachers indicated that they would like to be involved in a PL intervention that was designed to enhance their competency to manage SBPL practices. Specifically, teachers indicated a high need for PL to integrate media technology into their classroom teaching.

All HoSs also supported the notion that teachers needed opportunities for adequate and effective PL that would help them to continuously engage in learning about their teaching. In relation to this point, HoS L revealed that some teachers might not be competent enough in their teaching. Illustrating the high demand for PL for his teachers, he explained:

> *There are many teachers who are really supposed to go back to school to learn again how to do their job, particularly teaching! If we can encourage teachers*

> *to do PL that would be better. Sometimes I look at some of my teachers and am surprised at how they managed to graduate from colleges, because they are really incompetent (HoS L/INT).*

Similarly, HoS D reported that student achievement depended more on teachers' competency in teaching, and hence it was necessary for teachers to engage in ongoing PL. She commented that: *"we wish we could have the best teachers that would boost the development of students. All the weakness you see in teaching is because teachers lack skills" (HoS D/INT).*

4.4 Factors preventing teachers' engagement in PL

This section reports on the barriers to Tanzanian teachers' engagement in effective PL (these factors are further addressed in Chapter Six). A list of possible factors was presented to the teachers, as shown in Table 4.4, so they were not limited to one choice. Teachers reported that several factors have created barriers to their effective engagement in the SBPL. For instance, just over half (52.1%) of the teachers indicated a lack of employer/school support to attend PL activities as the leading constraining factor. This finding aligns with the lack of school support reported in Table 4.3. Surprisingly, only a few teachers (10.8%) considered heavy workload as a barrier to their engagement in PL.

Table 4.4

Factors preventing teachers' engagement in effective PL (N=213)

Factors preventing effective participation in PL	Percent (%)
There was a lack of employer's support	52.1
No suitable PL programme	39.9
PL was too expensive	24.4
PL conflicted with work schedule	20.7
Lack of necessary resources to implement PL	19.2
Other factors	12.2
Heavy workload	10.8

The teachers' reports of PL constraints in Table 4.4 were reinforced by the HoSs' comments during interviews with some contradictory views. All HoSs claimed that SBPL was difficult to develop and sustain. They revealed that lack of reliable sources of funding and sufficient time for teachers to engage were the main factors that would impede the development of SBPL.

A consistent response from the teachers and the HoSs was that PL programmes could not be carried out without adequate and reliable sources of funding. The HoSs reported that lack of funding had contributed to the deterioration of professional practices. For example, HoS I claimed that: *"For some private schools it was a bit difficult to attend the training due to financial difficulties" (HoS I/INT)*. A similar situation was presented for three government schools. HoS B commented:

> *These government schools do not have enough funds for managing teachers' learning and we do not have other means for generating income… Unfortunately, the government does not set aside enough in their budgets to enable teachers to attend the seminar and to bring the knowledge back to school to share.*

Therefore, school management was probably unable to plan or support the implementation of effective SBPL due to shortage of funds. HoS D supported this view of the overall budget deficit, as she commented: *"In the meantime, I am not sure that we can support them financially… My dear! Where do you get that money! So many things demand money"*. HoS L also stated: *"now the office is running shortage of funds… the funds provided by the government are not enough to support everything including teachers' PL" (HoS L/INT)*. This shared view implies that schools did not bother to plan for PL activities because they knew in advance the amount of funds that would be needed for performing that task. Similarly, purchasing teaching and learning materials and other resources was not probably conceivable.

Lack of time was also mentioned by HoSs as one of the main barriers for teachers' participation in PL. The HoSs were supportive of the view that teaching schedules were too demanding to allow some teachers additional time to engage in PL. Apart from a little time available in staff or departmental meetings, these schools did not have other time allocated for teachers' PL during working hours, as commented by one of the

HoSs: *"We discussed once that we need a special class and time for professional learning because the experience shows that a teacher cannot share everything he/she learned from a seminar during staff meetings" (HoS D/INT).* Moreover, spending time in PL appeared to be difficult for some teachers, as they considered it to be an extra duty. The school leaders argued that the extra time teachers spent on PL activities should be compensated, as the following excerpt revealed: "*Sometimes the teacher is required to do it [PL] on weekends, so it needs payment. Many teachers cannot do that for free (HoS B/INT).* Similarly, HoS D explained: *"But organising PL after office hours is expensive because you need to pay teachers for lunch"*.

HoSs also considered that engaging in PL would have wasted the time teachers needed for covering the subject syllabus and focus on other school activities. Teaching is a core duty for teachers and therefore, they were expected to complete their teaching as scheduled. For example, the HoSs B and D were of the view that by engaging in regular PL activities, teachers would not have sufficient time to focus on their teaching. They stated:

> *Teachers focus on one main task and that is teaching students. It might be difficult for teachers to spend time in PL while they are required to manage their limited teaching time and cover the topics (HoS B/INT).*
>
> *We do not have extra time for PL activities… Frankly speaking, time has never been enough (HoS D/INT)*

School leaders emphasised that lack of funding and time were the main factors preventing teachers from engaging in effective PL. However, it was also revealed that the leaders were not possibly too keen to adopt an outside initiative for offering PL. This situation might have made it difficult to develop effective teacher-driven PL programmes. Interestingly, not one HoS reported that his/her school had guidelines to organise SBPL activities. When the HoSs were asked about how teachers' SBPL activities were organised, the following replies were provided:

> *We have not formulated a policy for these professional development matters… nor policy to guide learning programmes (HoS B/INT).*
>
> *Well, if a teacher has some skills or knowledge to share with others, the school will find means to help her/him…. The school does not have such a PL policy (HoS I/INT).*

The school does not have a specific arrangement for teachers' professional learning (HoS D/INT).

No school policy for teachers' professional learning (HoS L/INT).

Such comments from school leaders confirmed that SBPL was not systematically arranged. The most common PL arrangement across the four schools was for teachers to share their skills in department meetings after attending external training. However, these meetings were not effectively managed. For example, HoS L revealed that he had not gone through the previous minutes from the departmental meetings to check on teachers PL related issues. He admitted: *"I am planning to go through the files to see what they have recorded… it might take longer"*. Similarly, the last inspection report at School L showed that only 18% of the departmental meeting minutes were available and the inspectorate team commented: *"the Head of School was advised to ensure that departmental meetings are convened regularly and minutes are kept in the respective files" (School inspectorate report 2014/DOC).* Apparently, lack of explicit guidelines and poor management of SBPL meant that teachers were engaging in PL at their own discretion.

In addition, the interviews revealed that teachers were not well informed about the PL opportunities that could be made available to them within their school environment. Information about SBPL was not clearly communicated to teachers often because the leaders themselves did not have accurate information. In general, school leaders' understandings of the PL were confined to seminar training, which were externally based. They were not aware of how the scope of learning through SBPL could be conducted by teachers to upgrade their teaching practices. One of the HoSs reported:

Many teachers and school administrators are not aware of a variety of the professional development practices you have mentioned here… Perhaps teachers are not effectively engaged in SBPL because they are not encouraged to do so or let say because they don't know (HoS D/INT).

Similarly, HoS I disclosed: *"There might be some useful programmes and information about SBPL, but they are kept by top offices [authorities] and we do not get to know them… If this information would be provided in schools in time, then everyone could be aware" (HoS I/INT).*

4.5 Overcoming barriers to teachers' participation in SBPL

The teachers were invited to provide a general comment on how their participation in SBPL could be improved. Responses were then coded based on the number of times they were mentioned by teachers. Overall, offering more external training to improve their engagement in PL was considered important by 30% of teachers (see Table 4.5). This finding aligns with the HoSs' previous comment that external training was a common form of teacher PL in schools. The other commentaries (26.3%) were related to different suggestions such as improving teacher working environment, promoting team teaching, promoting teacher motivation and availability of teaching resources.

Table 4.5

Summary of Teachers' Comments on Improving their Participation in SBPL (N=213)

Respondents' recommendations	Percent (%)
More external training to be provided to teachers	30
Other comments	26.3
Schools should support teachers in their PL	15.5
Government should support teachers PL in many ways	10.3
No responses	9.4
PL need to be organized well at the school level	6.1
PL should be offered to all teachers	2.3

While a few teachers (10.3%) commented on the role of government in promoting SBPL, the main recommendations from the HoSs were directed to the government. The government represented here in the Ministry of Education, Science, Technology and Vocational Training was regarded as the main provider of all resources that teachers would require for their SBPL. Therefore, since running SBPL was considered to be costly, HoSs believed that the government needed to allocate more funding to schools for its effective implementation. In addition, the HoSs thought that if the government informed them about the significance of SBPL and made it compulsory, then the engagement of teachers in PL might improve. For example, one HoS stated: *"The Ministry of Education has to announce SBPL as a compulsory practice for all teachers" (HoS I/INT).*

The HoSs also believed that promoting PL activities in schools was possible if individual teachers were prepared to take a more active role in planning them, so as to raise their sense of commitment. Commenting on the same idea, HoSs L and B considered teacher commitment to be a key aspect for a successful SBPL. HoS L explained that while some teachers appeared that they were committed to engage in regular PL, others were not. He described one scenario where some of his teachers showed no interest in participating in an organised SBPL programme: *"I remember we had challenges on Literature teaching for our students and one teacher volunteered to support… Surprisingly, some teachers refused to participate on note that there should be 'allowances' [posho] paid… they are overly fond of money"*. On the other hand, this situation suggests that teachers needed to be involved in making decision about their PL, rather than being told to do so. However, this leader was of the view that participating in PL "*depends on the teachers' consciousness and understandings that SBPL is useful and can make significant changes to their classroom practices" (HoS L/INT).* Therefore, HoS L advised that teachers should be made aware of the PL practices in schools. He realised that regardless of the barriers to their participation, there were teachers who were ready to actively engage in the PL when proper procedures were in place. Likewise, HoS B insisted that encouraging teachers to engage in SBPL would lead to new and better practices. He also commented: "*there are many activities which we do by volunteering… teachers are used to this volunteering life style. If teachers make up their minds can do wonderful things and make a difference… Nothing is impossible" (HoS B/INT).*

4.6 Chapter summary

This chapter has presented the extent to which Tanzanian teachers engaged in SBPL and their perceptions of both formal and informal PL practices. Many teachers were shown to engage in unstructured or informal SBPL. However, schools in general had no formal arrangements to support teachers' participation in PL. HoSs revealed that most of the formal SBPL opportunities were conducted during departments and whole staff meetings. Interestingly, teachers had varied perceptions of their engagement in the SBPL. Although they felt that SBPL was useful, they expressed that they were not supported during their PL practices, and hence they were not satisfied with their participation in SBPL. A significant number of teachers perceived that their level of

participation in the SBPL was low and poor. As a result, most teachers wanted ongoing PL to improve their teaching competencies. The HoSs were also of the view that teachers needed opportunities for them to engage in adequate, relevant and ongoing PL to improve student learning outcomes.

The analysis also indicated that there were several factors that prevented teachers from engaging in effective PL. Critical barriers included lack of funding for PL programmes and poor knowledge about them. The main suggestion given by teachers to improve their engagement in SBPL was to be offered more training opportunities. The main recommendation from the HoSs was directed to Tanzanian government to support schools to establish effective SBPL. The analysis also showed that teachers and school leaders acknowledged the need to develop skills and strategies to assist them to develop effective SBPL programmes to support teacher-driven professional learning.

CHAPTER FIVE

LUCY'S CHANGED ENGAGEMENT WITH AND UNDERSTANDING OF SBPL

5.1 Introduction

This chapter presents the research findings from teacher Lucy who engaged in an inquiry and knowledge-building cycle with three other participants from Lisuli Secondary School (School L). The findings are presented in response to the following two research questions:

> What changes do Tanzanian secondary school teachers make to their school-based professional learning practices as they engage in an inquiry and knowledge-building cycle?
>
> What changes do Tanzanian secondary school teachers make in their understanding of their school-based professional learning as they engage in an inquiry and knowledge-building cycle?

Data were gathered through interviews, observations, document analysis, planning meetings as well as the researcher's reflective journal and teachers' research diaries. These data sources were then triangulated to build a fuller picture of the teachers' changed practices and perceptions of engaging in the school-based professional learning (SBPL). It is noteworthy that the teacher interviews provided the richest source of evidence of their transformations. Table 5.1 describes codes allocated to the research tools to facilitate a clear understanding of the data sources.

Table 5.1

Codes of Data Sources

Research Tool	Code Sample	Code Sample Description
Initial interview	Lucy/INT-I	Lucy (Pseudonym); INT (Interview); I (Initial)
Final interview	Mourine /INT-F	Mourine (Pseudonym); INT (Interview); I (Final)
Focus group discussion	Tausi /FGD-1	Tausi (Pseudonym); FGD (Focus Group Discussion); 1 (First)
Planning meeting	Magdalene/MT-2	Magdalene (Pseudonym); MT (Meeting); 2 (Second)
Classroom observation	COB-1/Tausi	COB (Classroom observation); 1 (First); Tausi (Pseudonym)
Researcher's reflective journal	Rehema/REF/J	Rehema (Researcher); REF/J (Reflective Journal)
Teacher's research diary	Lucy/RES/Diary	Lucy (Pseudonym); RES/Diary (Research Diary)
Document	School inspectorate report/DOC	School inspectorate report (Sample); DOC (Document)

In the subsequent sections, the overall teacher engagement in the inquiry and knowledge-building cycles (IKBC) is summarised, before providing specific changes in practices and understandings of SBPL. Based on the quantity and quality of data, findings from one participant (teacher Lucy) are reported in detail. Reporting detailed information from one participant helps to manage the magnitude of data and provides a basis for understanding the nature of the transformations among the other three teachers as presented in the next chapter.

5.2 School context

Lisuli is a day-school located in one of the districts in the Pwani region of Tanzania. It is a community-based secondary school established in 2004. In 2016, the year when this study was conducted, the school had a roll of 303 students and 50 teachers. This teacher-student ratio reflects the imbalanced distribution of teachers occurring in some

public secondary schools in Tanzania. The physical, social and cultural environments of the Lisuli Secondary School are briefly highlighted in this section. Knowing the context is essential to understand the possibility of its influence on professional learning practices within the school.

5.2.1 Physical setting

Lisuli Secondary School is located adjacent to a primary school in the District's town. However, the two schools operate independently. Another relatively large and well-resourced secondary school is situated two kilometres away. The Teacher Resource Centre (TRC), which is located 300 metres far from the school, has not been in use for many years. Being located in close proximity to other neighbouring schools, the resource centre and social services in town, School L is exposed to different PL opportunities in the form of shared services and facilities. The school has only a few classroom buildings, laboratories, and toilets, which are insufficient to accommodate the number of students and teachers (School inspectorate report 2014/DOC). The school is lacking in other essential buildings, such as an administration block, a library, a meeting hall, playgrounds and departmental offices. Currently, a small building, which is located on the other side of the school buildings, is rented by the school for the main administrative offices. In addition, one classroom is used as a staffroom. The 2014 school inspectorate report indicates that more buildings need to be built in order to create a more effective study and work environment.

5.2.2 Social and cultural environment

As a researcher, I noted that several cultural practices were observed in the school throughout the course of this study. As the case in other schools, different customs, norms and beliefs were revealed by teachers, students and administrators. In addition, there was friendly communication among teachers and their students, especially when they were outside classrooms. The two official languages, English and Kiswahili, are both used at school, with English being the medium of instruction in Tanzanian secondary schools, as previously pointed out in Chapter Two. However, it was uncommon to hear teachers or students at School L speak at least a short sentence in English outside the classroom; Kiswahili being the dominant language used in communication.

There appeared to be a centralized line of communication between teachers and the school management. In other words, most of the decisions came from the administrative office to teachers for implementation. Teachers abided by the procedures and channelled all their academic requirements to the main administration office. On several occasions, it was observed that the centralized communication inhibited teachers from making prompt decisions in their practices, in the light of the current standard procedure for requesting any service from the main school administration. Although teachers appeared to have discretion over their work routines, they needed to ensure that tasks assigned by administration were satisfactorily completed by the end of each school day.

I also found that the school administration, teachers and students were very hospitable in welcoming me to inquire about anything from anyone, regardless of their position in the school. In the same way, the school administration and teachers were free to talk with me, especially when seeking advice on educational matters.

5.3 Lucy's engagements in SBPL

The following section reports on how teacher Lucy engaged in SBPL through an inquiry focused knowledge-building cycle (IKBC) with three other teachers at her school. Her personal characteristics and engagement in the three inquiry cycles are presented below.

5.3.1 Lucy

Lucy had a Bachelor of Arts in Education qualification at the time this study was conducted. She had been teaching at School L for 11 years. Lucy had never been employed in another school prior to the current one. Her teaching subjects were History and Kiswahili, but she spent most of the time teaching History. Apart from teaching, Lucy was the main spokesperson for the school and the chairperson of the School Social Security Fund. Previously, she had served the school in different positions, as a project teacher, storekeeper, cashier, as well as a member of school committees on a voluntary basis. Lucy was one of those teachers at school who willingly accepted additional responsibilities in an already busy teaching schedule.

During this study, Lucy was teaching History to Form Four students. In addition, Lucy was the leader of the PL group under the guidance of the facilitator. Her overarching PL goal was to "acquire skills for engaging in ongoing SBPL". In the inquiry cycle, which was a tool for engaging in SBPL, Lucy aimed to promote "reading for understanding" of historical concepts in her students. In the three inquiry cycles, which were classified as IKBC-1, IKBC-2 and IKBC-3, one meeting was held to plan the PL activities, followed by her classroom teaching. These inquiry cycles were conducted at the end of February, 2016 to November, 2016. Lucy engaged in all three major inquiry cycles with other participants, wherein smaller activity cycles also occurred, as summarised in Figure 5.1.

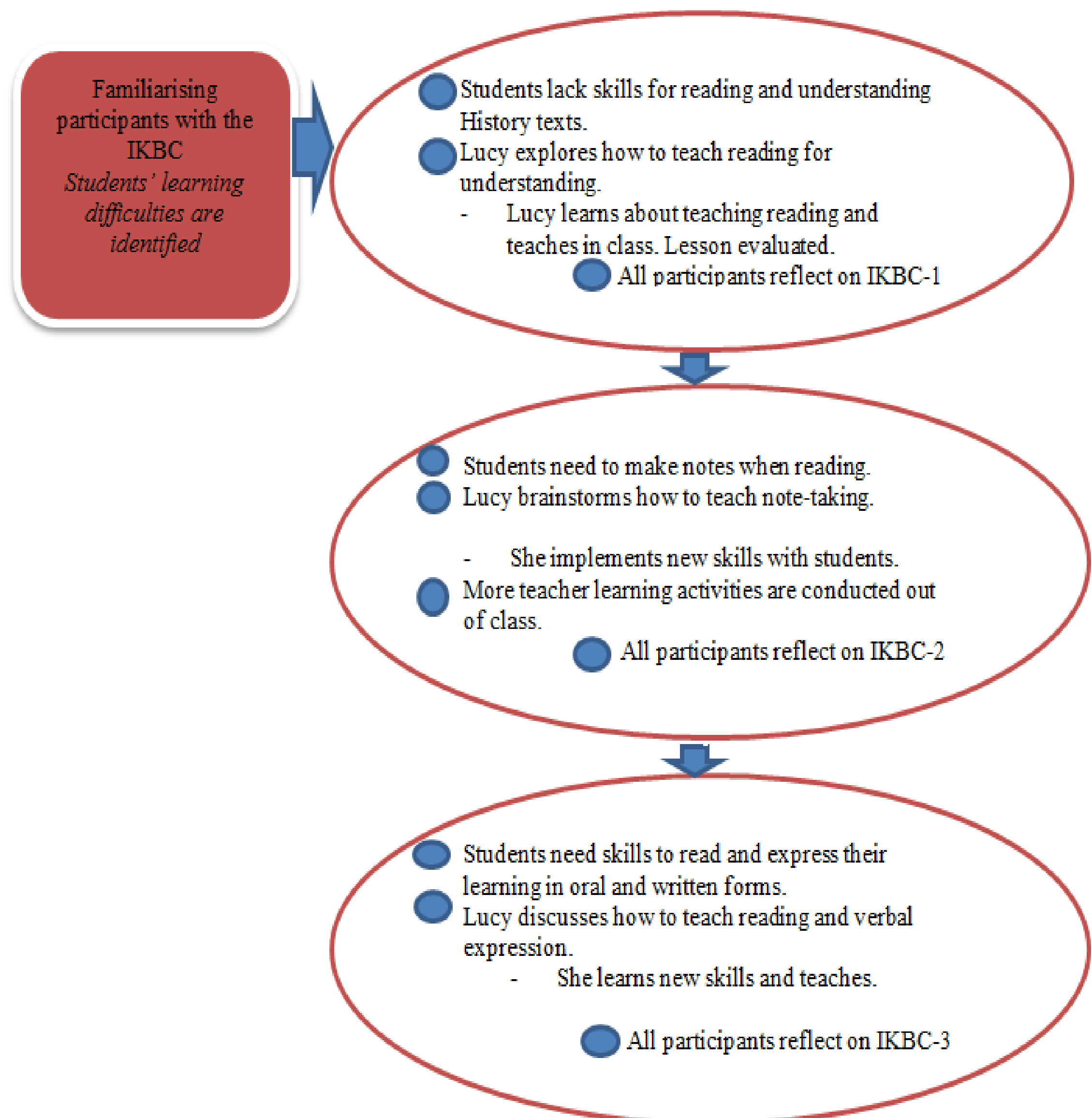

Figure 5.1. Summary of Lucy's practices in the IKBC

5.3.2 Inquiry and knowledge-building cycle 1 (IKBC- 1)

This inquiry cycle started immediately after familiarizing teachers with the PL model in our first meeting and through later informal conversations. Almost all the learning activities for IKBC-1 were planned during the second meeting with teachers. During her participation in this first inquiry cycle, Lucy identified the goal of helping her students to promote their learning of History by teaching them effective reading of History texts. Lucy engaged in a series of learning activities to address this goal as indicated in Figure 5.1.

5.3.2.1 Identifying the students' learning difficulties

At the beginning of the inquiry cycle, teachers were asked to identify the learning difficulties experienced by their students and to suggest aspects of their teaching they might focus on to promote their professional learning need. This task initially seemed challenging for the teachers and the great amount of time needed to better understand students' learning needs. Similar to other teachers, Lucy indicated a number of barriers for her students' learning. She referred to a number of these issues in her field notes:

> *Students are weak, they shy away from tests, they hide assignments, it is hard to make them submit their assignments… they can't write essays, reading is worse, maybe, because there are no books. Their language [English] is worse beyond repair, they are hopeless and… (Lucy/RES/Diary).*

Lucy proposed a plan that she hoped might overcome her students' learning difficulties. In discussion with me, Lucy was advised that dealing with multiple objectives was unrealistic, given the limited amount of time and resources at hand. This reflection prompted a revision of time allocated for teachers for pursuing their PL. It was agreed that people from inside or outside the school, particularly those who could assist in identifying or refining the PL challenges, need to be consulted. The extensive use of evidence was strongly recommended for identifying and analysing the learning issues. Lucy's inability to clearly articulate and focus on one specific learning aspect was also reflected in my journal:

> *I think the three teachers were very passionate about the PL programme. It seemed that they wanted to see all issues in their classes solved immediately. The teachers also thought that this programme could make just a simple fix to their teaching problems. However, after our discussion, they now realise the*

importance of focusing on a specific learning/teaching aspect. It's difficult to touch everything at once (Rehema/REF/J)

During the meeting for planning the PL activities for IKBC-1, Lucy finally decided on her teaching goal. She had understood the importance of focusing on one learning aspect at a time. Reaching this conclusion had not been easy, as it happened after a series of conversations with colleagues, the researcher and further analysis of her students' work. In so doing, Lucy decided to work on her students' reading, particularly reading History texts. She was assertive about what she specifically wanted to focus on, as captured in the following extract:

Lucy: *We eventually agreed to support my students in their reading. To help students do their reading effectively.*
Rehema: *Just reading!*
Lucy: *Not just a mere reading, but it is reading History literature…*
Rehema: *But we expect them to learn these... from English or Swahili teachers*
Magdalene: *Reading is a complex skill*
Lucy: *The English teachers cannot teach them everything… students are not reading books… I have discovered that it is necessary for my students to learn and develop interest in reading… to understand the History language and terminologies… and do better in internal examinations… However, where should they read from? (MT-2).*

5.3.2.2 Deepening professional knowledge and refining skills

The next task was for Lucy to explore the skills that she needed to develop in order to teach her students about reading History texts for understanding. In this part of the cycle, the teachers explored what to teach and how to teach. They brainstormed and suggested PL strategies that could be utilized by Lucy when familiarizing herself with teaching reading skills. Reflecting on Lucy's teaching goal and her students' nature, the other teachers suggested several ideas for her to consider. Importantly, learning *new* teaching techniques was emphasized, in contrast to maintaining their usual teaching practices. The discussion which attempted to identify the appropriate teaching skills for Lucy is exemplified in the extract below:

Lucy: *But still I see the problem on how the books can be accessed. I will need photocopies of books, however, it is expensive.*
Rehema: *What else have you thought about? I still say that you know your students better than I or other teachers do.*
Lucy: *That is what I can do for now. I have just thought up to that level! Ha-ha! End of thinking capacity! Unless there is someone who wants to tell me what to do, add on what I have already described.*

Rehema:*Yeah! That is the benefit of group learning.*
Mourine: *If I were you, I would try to give them* [students] *individual tasks in order for everyone to feel that he/she is responsible. Because some of them are lazy…*
Magdalene: *According to the situation, you can see now she needs to understand the reading techniques… there might be several ways of teaching it (MT-2).*

No one had provided the perfect solution; nevertheless each member was trying to address Lucy's learning focus and offered her numerous options. In conclusion, Lucy was advised to learn about how to teach reading skills regardless of the subject content. Although the comments provided were not exhaustive, these helped Lucy to continue thinking about the new skills she needed to learn, so as to improve her students' reading skills. The other teachers also suggested some other strategies that might assist Lucy in her own learning as well as her teaching of students. The discussion below shows some contributions given to Lucy:

Rehema: *I am not sure, but let me ask you [Lucy]. Have you ever thought about what other teachers are doing on a similar aspect?*
Lucy: *No! I just know what is actually needed on this, but frankly speaking, I had never thought about finding out what other teachers have been doing. I normally give them work and tell them what to read*
Magdalene: *Maybe by asking others, but where shall she direct her queries?*
Tausi: *can learn new things just through Google*
Rehema: *I usually use "YouTube". There are many tutorials…*
Mourine: *I think the teacher should find out from let say journal articles*
Lucy: *But, how do I get these journals?*
Rehema: *Don't worry. I will help you for the benefit of others as well. (MT-2)*

The extract above reveals that Lucy had no exact idea of how she might go about learning pedagogical strategies to teach reading skills. Regardless of the suggestions provided by other teachers, Lucy ultimately had the responsibility for synthesising the ideas and coming up with a workable solution. I also reminded Lucy of various strategies which she might employ like seeking help from other schools or contacting resource people outside our PL group. I emphasised:

When you want to learn a skill, for example, any skill related to teaching, you are not limited to sources of information, provided you are not breaking the school rules. You should also check if time allows you to engage in such activities (Rehema/MT-2).

The actual acquisition of new teaching skills was the hardest part, not only for Lucy, but for all the teachers. The learning process was initiated by individual teachers in collaboration with other peers and took place mostly outside the IKBC formal meetings. Since learning could not possibly be completed in one or two IKBC meetings, teachers were advised to continue learning at their convenience. This PL phase has considerably strengthened each teacher's skills to carry out her PL. After exploring several opportunities, Lucy decided to learn about new teaching skills by chatting with other teachers and reading relevant literature, such as "Reading strategies for the Social Studies class", by Gretchen and Fitzpatrick (2010). She also learned from tutorials via *You Tube* about how to encourage students to read. She promptly consulted me whenever she needed advice. Lucy continued to learn about the appropriate skills through personal reading and informal conversations.

Therefore, Lucy applied different forms of PL, particularly through reading online articles, questioning and talking with other teachers, before deciding to implement new teaching strategies in her classroom. The following comments from the third planning meeting show how Lucy acquired her new teaching information. She stated:

> *From the Website! Yes, that tutorial you shared…. from the University abroad was inspiring. I didn't get it all, but I captured it in my teaching.*
>
> *I got it from the Website… 'Essentials for language teaching' so I thought that could be useful in teaching my History students.*
>
> *You know what, I read different resources, but I found it difficult to apply them to my students. So, what I did after I had read two or three readings, I constructed my own stuff, which I knew would be okay for my students. I also shared with Magdalene and she gave me good advice. I really, appreciate your contribution (Lucy/MT-3).*

5.3.2.3 Implementing the new teaching skills

When reporting to other teachers in the third meeting about the implementation of her learned skills in the classroom, Lucy narrated how she introduced reading skills in her last teaching period. She also explained that the lesson about reading was integrated in the topic of "Decolonisation in Africa":

> *We agreed that we should be teaching based on the topics we have with our students. That is what I did…. During the last period, before you visited, I talked*

> *to them about the skills required for effective reading. Previewing, predicting, paraphrasing are the important things I emphasized. This is what they were instructed to do. So when you visited me, I started by presenting the lesson, which was about "decolonization process in Uganda". That was the first part followed by reading (Lucy/MT-3).*

Lucy learned that it was important to start by teaching the criteria to be considered when reading. She mainly used questions and students' group work to teach her lesson, as I observed: "*Towards the end of the lesson, students were divided into groups of five to six to read the book chapter about decolonization*" *(COB-1/Lucy).* Lucy went on clarifying the lesson:

> *This means that the reading was accompanied with some tasks. Reading for understanding… I gave them an exercise immediately after the lesson. These were the questions from the chapter they read from the book, but most of the questions I gave them required the reference to be made from the reading (Lucy/MT-3).*

Lucy's understanding of the progress of her students' learning was crucial to assess the impact of her learning and teaching efforts. She commented after the class: *"It was a nice experience to learn and teach and learn… perhaps, will lead me to more learning" (Lucy/RES/Diary).* When the other teachers asked Lucy to provide an overview of her students' lesson progress, she reported: "*They did the exercise, and let me say that they performed well. However, still, there is a percentage of students who didn't perform well" (Lucy/MT-3).* However, Lucy was occasionally challenged in the meeting about her lesson as I noted: "*It is not very clear!… It seemed that the students were not reading… what do you have to say?" (Rehema/MT-3).* Another teacher, Magdalene, also commented that: *"I have not understood the way you taught your lesson (Magdalene/MT-3).* In addition, during a quick lesson reflection after teaching, I challenged Lucy's lesson plan document, as it probably did not reflect the reality of what had happened in the classroom, in terms of time spent and learning activities undertaken. These results suggest that all these challenges appeared to assist Lucy to reflect more on the lesson she taught and therefore our questions prompted her to engage in further learning about teaching reading strategies.

5.3.2.4 Reflecting on the PL practices in IKBC-1

An evaluation of the SBPL was done at the end of the first inquiry cycle, mainly through a focused group interview. Among other things, the teachers were asked to explain how they had engaged in the whole PL process and to identify the challenges they had encountered. In addition, teachers' opinions were sought to see if there was a need for a second inquiry cycle.

In response to two questions during the interview, Lucy mentioned several factors that had affected the effective implementation of her learning plan (see details in Chapter 6). She commented:

> *As a teacher, I am rushing to make sure that I finish teaching topics on time, at the same time introducing the new skills to students… So it is still difficult to strike a balance, considering the fact that we have just started this PL (Lucy/FGD-1).*

Integrating reading skills with the lesson topic was a big challenge for Lucy, as I observed during implementation of her lesson and commented: *"The teacher should have started by helping students to learn some techniques on how to read by using the topic of Decolonisation … instead of separating the two aspects" (COB-1/Lucy).* On the other hand, asking students to read the whole chapter appeared to be unrealistic. Thus, Lucy needed to modify her teaching strategy so that she could effectively apply the new teaching skills she had learned to facilitate students' reading competence.

Lucy, however, noted that there could be other new techniques for helping students to read, which indicated that she wanted to continue engaging in more PL. Her desire to learn more skills is reflected in her statements: *"Sure, there is a need to modify some aspects and putting things together for the next period. Maybe, we can talk more about it when we start arranging the next learning programme" (FGD-1).* The need for more PL marked the beginning of the second inquiry cycle (IKBC- 2).

5.3.3 Inquiry and knowledge-building cycle 2 (IKBC-2)

Over the second inquiry cycle, Lucy improved her PL practices. Adopting the PL inquiry procedures and confidence in learning were evident, as examined in detail in section 5.4. Planning PL activities for the second inquiry cycle was discussed in our

third planning meeting. However, some ideas had already been raised during the first focus group when reviewing IKBC- 1. In the following section, Lucy's new SBPL practices in the IKBC-2 are presented, as indicated in the summary of activities in Figure 5.1.

5.3.3.1 Identifying the student' learning difficulties

An analysis of the learning difficulties Lucy's students still encountered was performed with the support of other teachers. Reflecting on the teachers' views and students' learning progress, Lucy admitted that her students did not demonstrate as much progress as she had expected. It is important to highlight though that Lucy became more focused in this second inquiry cycle.

Lucy realized that teaching reading strategies alone would not make a significant difference in her students' reading ability. Therefore, she was thinking about adapting the teaching strategies to better assist their learning. The idea of modifying teaching strategies and adding objectives was first raised by one teacher, and it then gained strong support from Lucy, as revealed in the following extract:

> ***Mourine:****I can see that we have similar problems*
> ***Rehema:*** *What do you mean?*
> ***Mourine:*** *About our students' learning difficulties and when I look at the teaching challenges are almost the same.*
> ***Rehema:*** *Can you please explain?*
> ***Mourine:*** *If I continue teaching... about essay.. I must also teach… other things*
> ***Lucy:*** *Exactly! This is what I wanted to say. It is similar to my class… if we continue teaching these aspects separately, then we are not providing significant support to our students. A student who is taught how to read… the case of my students… they should also learn how to summarise ideas from what they read (FGD-1).*

As the researcher facilitator, I doubted how well Lucy could manage teaching multiple aspects at one time since Mourine, another teacher, introduced this notion in the planning meeting. I asked them if their ideas would be successful: *"Mh! I understand, but my worry is… how will you manage? Don't you think that will be too much? (Rehema/MT-3).* Concerns about Lucy's desire to modify her learning goal were also reflected in my field notes:

> *It sounds professional to let teachers work on something they have a passion for. In fact they are learning to modify their PL skills according to new experiences. However, this is a learning process and I am also learning, so I should not stick*

too much to the cycle's procedures, but assist them to focus on what work best in their circumstances. I want them to be realistic in order to sustain their PL in the future (Rehema/REF/J).

It was also noted that teachers had options over their professional and curricular aspects they proposed and thus their suggestions were meant for enhancing their main teaching goals. Therefore, Lucy added a "note-taking" focus to teach reading for understanding, an area which another teacher, Magdalene, was working on.

5.3.3.2 Deepening professional knowledge and refining skills

An analysis of the required skills for teaching note-taking and reading was conducted more in the third planning meeting. This time, however, Lucy was encouraged to continue searching for effective techniques for teaching reading strategies, particularly note-taking skills, while correspondingly sharing ideas with Magdalene, who was currently working on note-taking with her students. Lucy summarised:

Note taking, reading skills and expression are allied. For example, you may provide a text and ask a student to read… So, even if they are going to read, they will mention and thereafter explain in short… It should not be necessary reading books, as we have learned; it can be reading any other supplementary materials (Lucy/MT-3).

The quotations above indicate that Lucy had made a shift in understanding that reading about History topics could be enhanced by using other sources beyond the textbook. Improving reading skills cannot be studied using textbooks alone, as she emphasised in the first inquiry cycle, but by using other sources as well. Having established a clear focus about her teaching area and managing to explore how to learn to teach the new skills, Lucy engaged in learning to refine her teaching competence.

Lucy consulted her colleagues and learned from some articles that she had accessed via the internet and a handout I had provided for her. Learning about the note-taking techniques was prioritized in this phase of inquiry. Lucy believed that the note-taking techniques might enable her students to develop systematic ways to comprehend the historical concepts they were reading.

5.3.3.3 Implementing the new teaching skill

Lucy's second lesson was not taught as scheduled due to an official assignment she attended outside the school. However, she planned some tasks to be done by students while she was away. Students were divided into groups and were assigned different sub-topics to work on and then, they were asked to prepare short summaries of what they had read in their own styles before she met them in class. These specific activities prior to actual teaching were meant to facilitate students' understanding of the text and to save time. Lucy's prior implementation of her lesson was shared with me and I noted the following comment in my journal:

> *Sometimes teachers should prepare the content and introduce it to their students prior to classroom teaching. I think Lucy's arrangement is okay. The single or double teaching period wouldn't be sufficient for her to introduce note-taking techniques, ask students to read and make notes at the same time. Teaching reading skills requires ample time to help students learn systematically (Rehema/REF/J).*

Unfortunately, I was not able to observe the whole lesson when Lucy had a chance to implement it in the classroom. When I met Lucy for reflection she indicated an improvement in her understanding of the teaching content and in facilitating her students' learning. She also reported on her use of a variety of resources in teaching reading that included photocopies, books and a printed handout.

Importantly, Lucy was satisfied with some improvements she made in assisting students to read. Although students' work showed that the new note-taking strategies had not been easily grasped, students managed to read at least a few paragraphs, from different sub-topics and summarise the salient points. Overall, Lucy was satisfied with the way she had mixed the study skills and planned to apply more new strategies in her teaching in the future. She commented:

> *When I was teaching… I came to realize that reading for understanding is not just mere reading. There are several steps to be taken into consideration. This also requires an association with other small skills. For example, this one is teaching essay… but you cannot make students write good essays if their reading ability is poor (Lucy/MT-4).*

Lucy also recognized that not all students were able to perform equally well in the reading and note-making exercise. She admitted: "*I am not saying that everything is*

perfect now" (Lucy/MT-4). She mentioned poor language as being the main obstacle to her students' performance. She agreed that teachers should help to develop new innovations that would help students to improve their English language. She maintained: "*We should continue to emphasize the language aspect… I think as History teachers, we need to initiate debates on History matters. I may propose this" (Lucy/MT-4).*

In addition, after she had implemented her second lesson during IKBC-2, Lucy and the other three teachers engaged in a number of out-of-class PL activities. These extended PL activities in the second inquiry cycle included: holding a workshop about lesson planning; developing a peer observation guide; proposing a school PL policy; and organizing a school-based seminar to share their PL progress with their peers. All four teachers also had an opportunity to share their teaching content with a History tutor through the researcher facilitator. The tutor provided some written advice, which helped to challenge the work of individual teachers. Generally, these out-of-class activities intended to strengthen teacher capacity of organising and conducting PL and give them ownership of their SBPL.

5.3.3.4 Reflecting on the PL practices in IKBC-2

The evaluation made during the second focus group indicated that Lucy had an opportunity to engage in PL from various sources. Sharing knowledge with her colleagues, doing independent reading of professional literature and organising other PL activities, such as the workshop and seminar, had helped Lucy to acquire new skills for carrying out her PL and demonstrate the ability to support her students' learning. She commented: *"This has aided in improving our practice… from the old teaching and strategies that confused our students to planning better ones" (FGD-2)*. The excerpt below shows that Lucy benefited by working collaboratively with other teachers in a SBPL community:

> *It was mainly team teaching or working. This was the great thing we had ever done. For example, I have been reading, but at the same time I learned about essays, I learned about expression as well… when I am studying about reading, at the same time Magdalene is presenting note-taking and the other one expression. Therefore… I found myself applying all these skills in my teaching (Lucy/FGD-2).*

As a result of engaging in a range of PL practices during the second inquiry cycle, Lucy also revealed that her understanding of PL practices was broadened. She realised that without planning PL activities it could be difficult to achieve learning objectives. Lucy commented:

> *I realized that planning is part of the successful PL. Planning is done in advance to facilitate the achievement of the objectives… we can use our PL plans… to convince them [school management and others] that we are working on something great that needs their support (Lucy/FGD-2).*

Upon finalizing the second inquiry cycle with the teachers, Lucy revealed her future plans for supporting her students' ongoing learning. She aimed to continue the focus on promoting students' reading ability, while also linking this with other study skills she had learned from other three teachers. Her comment during the fourth meeting exemplified this idea: *"Therefore, combining is best for me, especially in the next session" (LucyMT-4).* She further commented: *"What I know is that a teacher has to reach a point where he/she can decide to move on or not, depending on how he/she is satisfied with the progress" (Lucy/MT-4).*

5.3.4 Inquiry and knowledge-building cycle 3 (IKBC-3)

Lucy and colleagues appeared more confident during the planning and implementation of the third inquiry cycle. The PL activities in this third inquiry cycle followed a similar pattern coinciding exactly with the previous two inquiry cycles.

5.3.4.1 Identifying the students' learning difficulties

Having developed a passion for PL activities, Lucy wanted to continue helping her students to learn. She concentrated on her main teaching goal of enabling students' reading for understanding historical concepts. She intended to improve some weaknesses she had observed during the previous lesson: *"Some students can read well, but they don't know how to give a summary of what they have read" (Lucy/RES/Diary*). She emphasised that English language remained to pose the main challenge to her students' learning and thus they needed more practice to improve. Lucy's analysis of her students' persistent learning difficulties is summarised below:

> *The problems which we observed at the beginning are now lessened, though it was within a short period… if we continue like this, I believe that it is going to reach a point where all students will change… But the main problem, the main challenge that I have observed with our students is language… You may teach students, follow the procedures, but because they don't know the language… they repeat same mistakes (Lucy/FGD-2).*

Lucy was satisfied with the general level of achievement her students demonstrated, although the English language issue appeared to be deep rooted. Since language improvement requires practice, Lucy intended to help her students to express orally the content they read from texts. On this point, I recommended that teachers teach something more applicable for supporting their students' learning progress: *"It depends on how you see your students… and share with us" (Rehema/MT-4)*. Sharing students' learning needs would help identify the teachers' own learning needs and therefore help to shape their learning process.

5.3.4.2 Deepening professional knowledge and refining skills

The other teachers brainstormed ideas with Lucy about what she might learn in the third inquiry cycle. Given that she opted not to change her teaching goal, she was advised to continue exploring strategies for teaching reading through integrating study skills. Lucy had been familiarizing herself with the note-taking and reading as well as conversation skills. The following excerpt shows how Lucy planned her lesson based on previously learned knowledge:

> *I will also do a combination [integrating skills]. I need to help students to read and write essays. My students are in their final year and they have been writing several essays as a part of preparation for their final National Examinations. Since we have learned a lot of skills from this project… this time, I want them to combine the reading with writing and talking… It is just one of the strategies for improving their reading skills (MT-4).*

After brainstorming how Lucy might conduct her learning to teach reading, essay writing and oral expression, she then engaged in the actual learning process. Lucy synthesized comments from her colleagues and re-read the articles she accessed in the previous inquiry cycle. Teacher Tausi also shared with her a website, which provided a guide on how to teach students to give oral presentations. Lucy learned most of the

expressive techniques from her colleague Tausi, who was using the same strategies with her students. In addition, she considered suggestions received from a History tutor from outside the school and combined these with the materials learned from the website.

5.3.4.3 Implementing the new teaching skills

Lucy re-designed the learning activities for her students by featuring the oral expression aspect. In this cycle, she puts more emphasis on developing students' ability to make verbal expression. The following are some of the learning activities and students' behaviours I observed during her lesson implementation: *"Students revised the 'Maji Maji war' [Form Three topic] by reading the passages given by the teacher… Today's class is active… some students are asked to prepare themselves for oral presentation" (COB-3/Lucy).*

A number of learning activities were arranged by Lucy to enable her students to read about the Maji Maji war and to give feedback verbally about their understanding. First, students were given passages to read and were asked to make their own notes prior to the teaching period. Second, Lucy asked students to revise their notes during the teaching period. Third, questions were asked randomly to challenge students to share their new understandings. Finally, a few students were asked to present their new understandings to the class. These presentations were guided by a list of questions and other students were encouraged to ask more questions. Therefore, by using different teaching strategies, Lucy had tried to engage her students in whole class discussions. Lucy summarised this learning progress as follows:

> *First of all, this was the question I wanted to revise for their final National Examinations. I guessed this should be among the questions in the History examination [National Examination}… Through questioning, first, they explained the concept and in that way, they did an oral expression. You heard the way they expressed about Majimaji and that was after reading the passages…. For those who found difficult to explain it, I allowed them to speak in Swahili, knowing that if they couldn't say it in English, maybe they could tell in Swahili, which they did. Some could do better in writing (FGD-3).*

She added:

> *What I wanted was for the students to read the passage by themselves so that while reading, they could develop an understanding of what they needed to say*

> *in their essays. It was easy for them to pick up important ideas from there…. I think they did it well (FGD-3).*

According to the classroom observation I made in Lucy's class, I found that students were relatively able to express themselves orally based on what they had read. Moreover, during the final interview, Lucy indicated that she was pleased with her students' progress because their reading was improved. However, mastery of the English language remained a challenge for most of the students.

5.3.4.4 Reflecting on the PL practices in IKBC-3

Evaluating the implementation of the teachers' PL was conducted during the final focus group interview with all teachers. Teachers were asked to describe how they had carried out their PL, so as to check their improved inquiry competency through the IKBCs. Generally, Lucy's response about how she identified her students' learning needs provided a clear indication of her understanding of the SBPL process through inquiry cycles:

> *You identify the problem reflecting on how you teach in the classroom. For example, when you give them an exercise you can find out the objectives that students have not been able to attain. Therefore, what is needed is to find out 'what to do with your students!' What strategy can I use to enable them understand (Lucy/FGD-3).*

In addition, by engaging in inquiry cycles, Lucy realised that PL did not end with identifying students' learning difficulties, rather it was ongoing learning that guided her to find out ways to support her students. She also pointed to the value of making ongoing reflection, which is an important aspect of inquiry. She asserted:

> *For example, on my side, about reading… I discovered that my students did not know how to effectively read and understand History concepts. So, I reflected and thought of an alternative technique that could help students read, whether a passage or anything else… It [PL] involves sitting down again and reflect (Lucy/FGD-3).*

In conclusion, Lucy was articulate about different PL practices after she had gone through three inquiry cycles. Lucy and her colleagues agreed to conclude this third inquiry cycle with a continued focus on teaching reading. She also revealed in the final

focused discussion that she personally intended to continue with her PL even after the study project:

> *The need is still there, these students I have today will not be the same next year… now I teach Form Four, even if I will teach Form Four next year, they will not be the same… Therefore, you will find that the cycle continues (Lucy/FGD-3).*

5.4 Lucy's changed practices in SBPL

The following section reports on the shifts in the way Lucy engaged in SBPL as she participated in the professional inquiry cycles. The shifts are examined with regard to changes in her performance and understanding of PL activities. These shifts indicate new patterns of engagement that included: developing a PL focus; learning through different types of PL; sharing PL skills; and seeking PL assistance. The previous PL practices are described in each new pattern of engagement, followed by the transformations in participation. The key changes of previous PL practices of Lucy are marked as they were revealed in the inquiry cycles, in Table 5.2.

Table 5.2

An Overview of Key Changes in Lucy's PL Engagement

PL practices	**Revealed key changes in PL practices**	
	Before IKBC	During and after IKBC
Developing a PL focus	No clear PL goal	Focused PL goal
Learning through different types of PL	Unorganized discussion	Systematic and informative discussions
	Limited independent study to subject textbooks and finding definition of concepts from the internet.	A variety of online reading sources discovered. Comprehensive reading conducted. Ability to search reading resources improved.
	Informal classroom inquiries practiced.	Procedures for systematic classroom action research learned.
	No seminar or workshop attendance.	Participated in one in-school seminar to share her PL progress with others. Learned how to organise school-based seminars/workshop. Utilised seminar resources provided
	No visits to schools to learn how others teach	Procedures for visiting a school learned.
	No peer classroom observations	Developed guideline for peer classroom observation.
Sharing PL skills by giving feedback	Lack skills for giving feedback	Feedback skills learned by sharing her PL progress.
Seeking PL support	PL support not sought	Asked for PL support from others.

5.4.1 Change in developing PL focus

Lucy's shift in determining the direction of her PL is examined with regard to goal-setting based on analysis of her students' learning difficulties. Setting the area of PL focus required Lucy to have a clear understanding of her students' learning characteristics. Initially, it was not easy for Lucy to communicate what her PL goals might be. She believed that her students had too many learning problems and that they were getting out of hand. The excerpt below explains the specific learning focus that she believed had been affecting her students' History learning:

> *I don't know what the real problem is! They do not have such capability to add on what you have offered in notes… they have poor English language… I see the*

topics are not well arranged in one way or another… It is difficult for students to follow (Lucy/INT-1).

Lucy found it difficult to identify the specific learning issues of her students that would direct her PL. Her PL before the IKBCs seemed to occur when the need aroused. She explained: *"When a student asks you a complicated question, you quickly consult Google for help" (Lucy/INT-I).* Moreover, Lucy's prior PL and teaching style had been directed to assist students to answer examination questions: *"you need to prepare short notes so that when they read they can easily explain… The same notes you offer will be reproduced by them during examinations" (INT-1).* Her previous PL initiatives were therefore limited to the preparation of good notes for students to copy, which in turn prompted them to merely replicate information.

The changes in determining her PL direction were observed when Lucy participated in the second meeting for planning IKBC-1. It appeared that Lucy acquired appropriate knowledge about her students' learning issues after the earlier familiarisation session and later conversations with other participants. At this point, she was able to clearly indicate that her aim was to promote students' reading skills. She discovered that poor reading was a central problem when she concluded: *"At the beginning, I took it for granted. But later on, with some challenges… I wish all students should learn how to read books and understand" (Lucy/MT-2).*

Apparently, the expert's advice combined with other teachers' comments helped Lucy to identify and refine her PL goal. As a researcher facilitator, I found reminding Lucy about the importance of having a focused PL objective to be so crucial. I commented: *"we should not be over ambitious by thinking that we can shift mountains. One thing at a time…*" *(Rehema/MT-2).* In addition, after learning new skills and implemented them in the classroom, Lucy admitted that it was important for a teacher to have a clear PL goal before embarking on other PL activities: "*Without knowing what learners are struggling with, you cannot effectively conduct this professional inquiry ... because you will lack a guide to your learning activities" (Lucy/FGD-2).*

5.4.2 Learning through different types of PL

Lucy demonstrated important changes in the way she carried out the following PL forms during the inquiry cycles.

5.4.2.1 Changes in participation in PL discussions

Prior to her participation in inquiry cycles, Lucy indicated that she practiced her PL through discussions, which were held in the department meetings. She acquired different teaching skills by discussing teaching matters with members of the department: *"In our department, we are doing that (PL). Even sharing materials, you see these things… like the Form Four question, we can solve them by cooperating with other teachers" (Lucy/INT-1).* However, my review of departmental meetings minutes at School L showed that only one formal meeting had been conducted in her History department in the year 2015 *(Minutes of meeting/Doc)*. This record indicates that formal PL discussions were not regularly organised nor documented in Lucy's department. However, Lucy acknowledged that she participated in the informal discussions with colleagues.

The shift in practice was evident immediately when Lucy started to engage in her inquiry. This inquiry brought some changes to Lucy's ways of acquiring teaching skills through our regular and systematic discussions. Her PL plans and objectives were presented and discussed by all teacher participants and she was guided in these discussions to implement new learning opportunities for her students. Over time, Lucy noted that departments *could* provide a useful forum for teachers to access teaching techniques through discussions: *"it could be possible to work with a department like this one than a whole school… It is possible sharing with a few teachers" (Lucy/FGD-2).*

Lucy explained the unique nature of discussions during her inquiry, claiming that they were focused and informative. She received support from her colleagues as she shared ideas. She also reflected on the high trust between teachers, which made her feel safe to share her thoughts. She said:

> *The difference is understandable. In the previous discussions we conducted, there was no feedback… if there was something I didn't know [during the*

> *IKBC], my colleagues were aware about it. We were helping each other during the discussion sessions or when we were in normal conversation outside the class or school. Our discussions were organised and guided (Lucy/FGD- 3).*

In her final interview, she added:

> *Previously, our discussions were like ordinary stories… You may discuss for a while and leave it hanging without anyone caring whether it has been successful or not. There was no meaningful thread of professional conversations that aimed at finding best solution to a teaching matter (Lucy/INT- F).*

Having clear goals and carefully planned activities being supported by a facilitator enabled Lucy to engage in a systematic conversation during formal and informal PL meetings. These discussions maintained continuity in her PL activities.

5.4.2.2 Learning through independent study

Lucy indicated that prior to engaging in our IKBC, she had engaged in an independent study. Her reading material consisted mainly of textbooks that were available at school for her students to read. However, she reported that she had occasionally accessed teaching material from the internet. She said: *"Otherwise, the online materials have been providing great help to teaching resources… personally, I like perusing here and there… Mobile phones have been helpful" (INT-1).*

Lucy also revealed that she learned teaching techniques from radio and television programmes when she initially responded to the question related to PL independent study. She explained: *"Sometimes I listen to radio and programmes on Star Television. There is an educational programme whereas one teacher who I really like the way he teaches… teaches History" (LucyINT-1).* When she was asked if she had read any research-based professional literature, such as research reports and journal articles, she admitted that she had no idea, as she noted: "*In truth, I have never attempted to look for such kinds of things" (INT-1).*

Her competence in the independent study she undertook was noticed when she started searching and examining professional literature online with my support and that of other

teachers. She realised that collaboration was required even in an independent study. She learned to access teaching materials that corresponded to what she wanted to teach. She announced:

> *I never knew that there were some literature on note taking… until you shared… Remember the first day when we met, it was insisted that; everyone should go to read… But reading requires someone to have a clear start. You cannot start from nowhere!... So by showing us the tutorials from 'YouTube" I discovered what I had to do (FGD- 1).*

She also widened her reading resources that helped her to gain more knowledge and skills regarding her teaching area. Lucy realised that there were a variety of reading sources and gradually increased her independent search and reading of professional literature. She commented:

> *Once I identified the reading issue with my students, I started reading as a teacher... Reading is not restricted to textbooks only… So, after engaging myself in a thorough search for knowledge, I discovered a lot of things which I couldn't obtain them from the textbooks (INT-F).*

After engaging in all three inquiry cycles, Lucy had developed the confidence to use the internet to access resources that improved her independent study. She emphasised: "*I use the internet most of the time to learn from different sources… Through the internet, you get access to different sources" (INT-F).*

5.4.2.3 Learning to use classroom action research

Some changes in practice were observed as Lucy was able to understand and perform the tasks she could not do or articulate before engaging in the IKBC. Initially, Lucy did not mention if she had ever used action research as a PL strategy to address classroom teaching issues. However, she had employed some informal inquiries to address student learning and behavioural issues in her classroom. Over the course of the study, she started learning how action research could be conducted and used by teachers to acquire new teaching skills. Since the inquiry cycles basically applied action research skills, Lucy had started to learn and apply the procedures. She articulated: *"It is like doing a kind of research, until you are satisfied with the achievement of your goal. You develop a strategy of learning, which you are sure it is going to help your students to learn and improve" (Lucy/FGD-3).*

In her final interview, Lucy realized that she had unintentionally engaged in action research, since she was not primarily aware of its methodical application. She asserted:

> *Previously I didn't know what it meant by conducting action research. I have seen the advantage of engaging in the action research through this [IKBC] programme. It helped us to address students' learning problems. We did not leave the problems hanging. Once we discovered the problem about teaching our students, we intended to find out strategies to address them (INT-F.)*

5.4.2.4 Learning to organise PL activities

When Lucy was asked if she had participated in classroom observations or attended a seminar during the initial interview, she simply said "*no*". She also claimed that she had never paid an official educational visit to other schools. She further clarified:

> *For ten years at this school never been called to any seminar/workshop… Even a single seminar! No one!... I have never! We have never gone to another school for the purpose of learning… plans were not there from the beginning, that's why we don't visit other schools (INT-1).*

There were various contributory factors that might have limited her participation in different types of PL prior to IKBC. These factors are reported in detail in the next chapter. During the course of this study, Lucy did not have an opportunity to participate in one of the two seminars conducted at the school, visit a school, or do a classroom observation. However, she participated with other participants to organise PL activities, such as arranging the two seminars conducted at the school and preparing a guide for the classroom peer observation. She, therefore, developed essential learning skills to adopt these practices. For example, when Lucy was asked if she was capable of arranging a PL visitation to another school, her reply indicated that she developed the confidence to do so:

> *For now, I can do that… For example, I didn't know that if you want to go to a particular school, you need to plan for that visit. We need to arrange and write a letter… Problems that we experience here at Lisuli School are the same as in other schools (Lucy/FGD-2).*

Likewise, although Lucy did not conduct a classroom observation inside or outside the school, her knowledge of what constituted a classroom observation improved through learning with her colleagues, including me. Therefore, through engaging in inquiry cycles, Lucy developed ability to utilise opportunities available within her school

environment to organise extensive PL activities such as workshops, educational visits and peer classroom observations. This improved practice enabled Lucy and her peers to create more opportunities for PL, an experience they expressed they have never had prior to this study.

5.4.3 Sharing PL skills

Developing competency to share professional knowledge and skills is important for an ongoing SBPL and for helping teachers take ownership of their PL. Before engaging in the IKBC, Lucy indicated that she was not entirely confident whether to share her knowledge with fellow teachers at school. For example, she had an opportunity to mark the regional mock examinations where she discovered a lot of techniques that would help the students raise their performance. She said:

> *I have been to the mock examination marking team [regional based examinations]. It is where I got this experience and started to learn that there are things that we do not help our students to know about… I didn't know that we were making mistakes on some issues related to teaching our students until I went for marking (LucyINT-1).*

It appears that Lucy would like to share what she had learned from this marking experience with other teachers at her school, but found it difficult. She claimed: "*If I do as an individual, other teachers will see me as showing off" (INT-1).*

However, Lucy's ability to share and lead PL group activities and exchange information among teachers grew over time. The following excerpt gives an example of Lucy's leadership practices during our fourth planning meeting in the third inquiry cycle: *"It's my pleasure to welcome you all to another meeting. It is another good day and we continue with our discussion" (MT-4).* Lucy's ability to share her PL skills and confidence were evident when she provided feedback to her fellow teachers at the seminar organised at school about the progress of her PL, as a practice of giving feedback to teachers.

Furthermore, Lucy reported that she had convinced the other members of her department to start practising some of the PL skills they had learned in inquiry cycles. She explained:

> *We held a meeting a few past days to arrange the teaching matrix… we shared with other teachers… If someone teaches we can visit her class to observe. Or, if someone has a topic and thinks that she can ask another teacher to teach on behalf that can also be done (Lucy/INT- F).*

5.4.4 Seeking PL support

Lucy was unable to engage in effective PL practices prior to her participation in the IKBC because she claimed that she neither got support from the school management nor was she aware of the kinds of support she could obtain from inside or outside the school. She thought that PL assistance could not be obtained from her school because it was not budgeted for, as revealed in her comment: *"I didn't try asking for any support… From the look of things, you should understand that there is nothing you can get… the school cannot do anything to support us because it does not have the funds" (INT-1).* Lucy's comments may suggest that she did not bother to ask for support from school, besides she could not source PL support from outside school.

However, when she started engaging in the first inquiry cycle, Lucy sought my feedback about every little thing she doubted. Seeking help was a good sign of Lucy's improved participation in PL. As the researcher facilitator, I treated this sign with caution. I observed: "*The teacher should learn to be confident while carrying out her PL. After all, we do not have a 'yes' or 'no' answer in this project. I will let them know that they should not worry about every little thing" (Rehema/REF/J).* It was Lucy's first experience to engage in a professional inquiry and thus it was understandable that she was checking if she was doing it correctly.

During the same first inquiry cycle, Lucy realized the importance of informing her school that she was in need of new learning materials so that she could implement her PL. She commented: *"we need to show that it is very necessary for them to look for the materials we need, in order to make this programme sustainable" (FGD-1).* This comment implies that Lucy learned that it was important to ask for resources where it

was necessary. The ability and confidence to support her PL intensified when she further spoke about consulting people outside the school: *"I can consult other people… I have learned that you can create networks with either teachers from other schools or other professionals" (Lucy/INT- F).* Her comment suggests that PL support could be obtained from outside the school provided that teachers and school management had the skills to find these opportunities. She also pointed out: "*But also you can plan and request some materials by writing a letter to a place you intend… even if it is a university, big colleges, even to the Ministry of Education or to the district council, anywhere!" (FGD-2.)*

5.5 Lucy's changed understandings of SBPL

This section reports on the changes of Lucy's understandings of SBPL before and after she engaged in the inquiry cycles. Understanding of SBPL in terms of a concept, procedures and scope was crucial in order to facilitate Lucy's sustained engagement in wider PL activities. Individual interviews and focus group interviews provided rich data about her changed understanding. Lucy's changes are discussed under four broad themes namely: understanding of the SBPL concept; value and impact of SBPL; availability of PL support; and implementation of SBPL. A summary of these changes is presented in Table 5.3.

Table 5.3

Summary of Lucy's Changing Understandings of SBPL

Understanding of SBPL	**Revealed key changes in SBPL understandings**	
	Before IKBC	During and after IKBC
SBPL concept	SBPL confined to school physical environment.	SBPL could be conducted at any place
	SBPL as independent of seminars	Seminars /workshops are part of SBPL.
		SBPL embraces many types of PL
	SBPL as training of skills	SBPL is not meant to impose knowledge and skills on teachers.
		SBPL as a teacher-led learning process.
Value and impact of SBPL	SBPL has no significant impact on teaching practice	SBPL improved teaching practice
	Poor understandings of students' ways of learning due to lack of effective PL	SBPL broadened teacher understanding of students' learning, changed attitudes and increased support for students
	SBPL has no impact on students' learning	SBPL provided an effective learning environment for students and teachers.
Availability of school support in PL	School has nothing to offer for PL	School can offer and support PL opportunities
Implementing SBPL	Impossible to implement SBPL without adequate teaching/learning resources	Implementing SBPL is possible with available school resources and accessing new resources via internet.

5.5.1 Changes in understanding of SBPL concept

Before participating in her IKBC, Lucy explained that she understood SBPL as a form of training of skills such as seminars, which were mostly confined to school as presented in Table 5.3. Individual interviews and focus group discussions provided evidence of her changed understandings of SBPL concept from one-off provision of training at school to teacher-led continuous learning. However, Lucy's understanding of SBPL was not stable until she completed her own inquiry at school.

5.5.1.1 SBPL is not confined to school premises

Lucy previously perceived SBPL as limited to within the school walls. Her explanation of SBPL during the first interview revealed that she started engaging in the inquiry with a belief that everything should be confined to the school setting. She also thought that a lack of PL expertise within school could limit teachers from engaging in wider learning practices available from outside their school: *"When you are at school you use your own efforts… when a person attends a seminar somewhere he/she can acquire extra techniques/strategies (Lucy/INT-1).* Lucy was of the view that by engaging in other PL practices, such as seminars that are not school-based, teachers can be exposed to many sources of learning.

Lucy's shift of understanding of SBPL was noted when she stated that it could be conducted anywhere. She stated: "*if I have followed properly what we have been doing here, it seems that one can seek knowledge from anywhere provided the intention is to provide answers to the questions troubling us" (Lucy/FGD-1)*. She further clarified that teachers' PL is regarded as school-based when it is connected to the needs of students, teachers and school priorities, regardless of the physical environment. Her clarification of the SBPL concept below is a good example of how Lucy shifted her perceptions. She said:

> *The word "base" means foundation… can be done at different places or at school by teachers, through personal reading… Our foundation or I can say that our main capital is students… everywhere you go, the starting point is the students you have, that's why we say it is school-based. Our foundation, our field is education/teaching and the main substance is teaching the students (Lucy/FGD- 2).*

Lucy's response indicates that she was aware that SBPL could be conducted at any place, while still catering for students' and/or school's needs.

5.5.1.2 Seminars/workshops are part of SBPL

Lucy also appeared to view SBPL and seminars as separate entities before she participated in inquiry cycles. However, she thought that seminars and SBPL could be linked if relevant expertise is available. She commented: *"What about our Educational*

Officers? Can't they prepare seminars to be done in our schools? What they need to do is to look for experts who could come to our schools to train us" (Lucy/INT-I). Although Lucy was inclined to think that seminars could be integrated in SBPL, she was not aware that teachers could also organise these as part of their inquiry. After her first inquiry she argued: *"I support the idea that a seminar should be part of the SBPL… I think that seminars are very important…. However, it is not good for teachers to rely on seminars" (FGD-1).* Her statement also suggests that she was of the view that seminars were perhaps unproductive if implemented as the single source of PL.

Since participating teachers as well as other teachers at school had an opportunity to engage in two seminars during the implementation of this SBPL and that they could initiate it, Lucy came to understand that a seminar can be embedded in SBPL. The following excerpt confirmed this understanding. She concluded: *"Therefore, SBPL can be through seminar (FGD-2)*; *"We were sitting down complaining that we are not called for seminars… Hahaha! I didn't know that you can also do it yourself, instead of laying down waiting for the government" (Lucy/INT-F).*

5.5.1.3 SBPL as a teacher-led learning process

Prior to her participation in the IKBC, Lucy understood SBPL as formal training opportunities which were offered to teachers after they graduated from their initial teacher education. She explained: "*I understand it [SBPL] as the training given to the teacher while he/she is at work" (LucyI/NT-1).* She viewed PL as a process through which teachers receive teaching knowledge and skills to improve their job. She further commented: *"However, the teacher should be trained by a professional or an expert" (FGD-1).* Since the IKBC required teachers to initiate PL activities based on their students' learning needs, Lucy started noting a difference between her inquiry in the school and the traditional in-service teacher training programmes she had known before. She said: *"Sometimes you need training, while in reality, you don't know what you need to learn" (FGD-1).* Lucy's comment suggests that she learned that SBPL involves teachers making decisions about their learning focus with relevance to their teaching context. Attending traditional training did not offer this opportunity personalise her PL.

A clear shift in Lucy's understanding of SBPL was further evident when she engaged in her second inquiry cycle. Participating in collaborative group discussions and performing a variety of PL activities extended her knowledge of SBPL. She explained: "*SBPL gives teachers, many opportunities to learn… engage in discussion with other teachers or do other things that can help the teacher in teaching" (FGD-2).* Towards the end of the study, she realised that effective SBPL is not just about transmitting knowledge to teachers, but rather involving teachers themselves to determine and plan suitable PL activities based on their classroom teaching challenges. She commented:

> *The teacher is trained, but he/she is not independent… I don't think if that is proper... But, things are different in this professional learning [IKBC] which is conducted in the work environment... it is not necessary to have someone to train you… You identify problems (INT- F).*

She also noted, however, that most of the PL activities she was running throughout the inquiry cycles were in the form of learning, in which she took a leadership role. For example, when she was asked to explain what SBPL entails during the first focus group, she equated it with a learning process although she still believed that teachers could not learn by themselves. She said: "*It is like saying that every teacher has an opportunity to engage in a kind of learning (FGD-1)"*. In the second and third focus group discussions, she referred SBPL to a continual learning process by teachers. By the final interview, Lucy came to explain that SBPL was a process of continual learning for and by teachers. She reported:

> *This practice motivates teachers to participate in a continual learning (FGD-2).*
>
> *It is a teachers' professional learning in workplaces, sometimes without depending on availability of resources* (FGD-3).
>
> *It is a learning done by the teacher while at school… It is a learning that you need to perform as a teacher on a regular basis, perhaps with other fellow teachers (INT-F).*

5.5.2 Changes in understanding of the value and impact of SBPL in teaching

Lucy's transformations in understanding the value and impact of the SBPL were crucial because these determined her ability to sustain her PL. These changes are discussed in relation to two main areas namely teaching practice and improving students' learning.

5.5.2.1 Understanding that PL could improve teaching practice

Lucy claimed that previously PL had had no significant impact on her teaching. She clarified that she had previously engaged in poorly organised PL, which did not result into positive changes in her classroom teaching. Reflecting on what she did with colleagues when they once engaged in team teaching, she claimed that the practice was not fruitful. She revealed:

> *Because we were just moving without knowing, surely I didn't see its impact... The teaching was different, because one was teaching using a lecture and another was just reading a book. We confused students. I don't know! we entered in the class without specified objectives (INT- 1).*

After engaging in three cycles of her inquiry, she discovered that she lacked the necessary PL skills in her previous practice. Lucy came to understand that effective teaching practice could not happen if teachers do not make time to think about what to teach and how to refine their teaching skills. She realised that when teaching is regarded as a 'business as usual', creativity to modify it is almost non-existent:

> *This PL has changed my practice. I don't teach just because I have been assigned teaching duties! Rather, we need to teach by accommodating a variety of techniques and make sure that students understand. In truth, despite all the challenges we are going through, this SBPL has added some important things in my teaching (FGD-1).*

Lucy also noted that a crucial aspect in her teaching practice was missing, i.e. learning how to modify teaching strategies through regular and focused PL activities. She believed that her teaching practice had changed because of engaging in these organised inquiry cycles. She went on to confirm that she was able to apply different strategies to assist students' learning. On this note, she stated: "*The programme has changed me for real. I am no longer saying like, today we are going to study this topic; it is from this book... No, now I am flexible" (Lucy/INT-F).*

The skills she learned about searching PL materials were highly beneficial. Lucy reported that by engaging in the inquiry cycle, she was able to identify and access different materials she needed for improving her teaching: *"I have discovered techniques for getting learning materials and learning guides" (Lucy/INT-F).* In addition, Lucy perceived that SBPL was useful as it helped her to learn research skills

which promoted her PL: "*According to my experience in the inquiry, I can say that it helps to do research in teaching. First of all, it guides teachers in their learning process, which then helps to develop the knowledge and skills through reading" (INT-F).*

Lucy also acknowledged that she had developed confidence in her teaching and ability to organize teaching strategies and materials. By saying that "*something can be done*", she indicates her enhanced self-efficacy which is crucial to influence her teaching practice. This raised self-efficacy served to promote Lucy's confidence in her classroom practice. The excerpt below reveals her transformation:

> *I also enjoyed the programme and found that it was useful… the SBPL has helped me very much to develop teaching skills and confidence… Something can be done! The things which we previously thought that they were impossible now we see them as possible (Lucy/INT-F).*

Specifically, Lucy indicated her shift of understanding regarding the value of PL to improve her teaching practice. She also learned that her engagement in SBPL contributed to the development of skills to select and use appropriate teaching strategies and resources to address identified students' learning challenges.

5.5.2.2 Understanding that PL could support students' learning

Lucy also acknowledged that participating in an inquiry broadened her understanding of students' learning needs and improved her ability to see how her teaching impacted their learning. At the beginning of the study, Lucy generally attributed most learning difficulties to the students' poor academic abilities and their lack of motivation. According to Lucy, students' poor mastery of the English language was perhaps the chief barrier to her students' learning. She also attributed other problems to parents and school environment, without really reflecting on her own teaching. She firmly believed that her students were weak; hence changing them could be difficult. She said:

> *They are also lazy… you do not need to explain in detail because they are poor at English language, even if you do, it will be difficult for them to understand… as well, our students do not like studying, that is the reality… They show openly that they don't like studying… If you have the last period to teach you will find that some students do not understand and many are dozing off in class… I think*

> *the problem is the environment. First of all they are coming from poor families… Also, their parents are not supportive (Lucy/INT-1).*

After starting to engage in the first inquiry cycle, Lucy clearly realised that most learning problems were not deficits in the students alone as she had perceived earlier. She also came to realise that her own teaching approaches might be among the factors affecting their learning. She confirmed: *"Previously we asked students to read from here ... to there..., without showing them how… One must have the necessary skills if has to read it properly" (Lucy/FGD-1).* Lucy's change in understanding her students' learning needs was also noticed when she started to speak more positively and encouragingly to her students. Some of these changes were noted in my journal when one student approached Lucy and asked for clarification when we were outside the staffroom, as she replied: *"if you still don't understand, come back to me... ask your friend, start again… no problem, you will get there" (Rehema/REF/J).*

In due course, Lucy commented that students can demonstrate good learning ability if they are well guided. Her students' interest in learning was increased when she encouraged and supported them to learn. More importantly, Lucy acknowledged that as a teacher she had a major role in promoting her students' learning abilities through refining her teaching skills. Notably, she perceived that students differ in their learning abilities and therefore, her tireless assistance through using different strategies can possibly make a change. The following comment illustrates the significant transformation in Lucy's attitude to her students:

> *Since we started learning, I have realized that these students are teachable… I mean they have potential skills. When you teach them using the procedure described, they understand ... I used to complain about them without knowing that they needed help. A Form Four 'B' class is good, and I have seen them putting more effort and started being interested in learning. If we say that teaching is impossible, then we will be very wrong, because we are the one to make it possible and successful. Slowly, slowly it can be done (Lucy/INT-F).*

Lucy further admitted that perhaps her negative attitudes towards students' learning prior to her engagement in this inquiry had contributed to her poor teaching and assessment skills, and consequently to her poor understanding of her students: "*I came*

to realize that I didn't know how to assess my teaching… We didn't know there was a way of assisting them [students] bit by bit (Lucy/FGD-3).

Finally, Lucy commented that SBPL had an impact on students' learning and she was pleased with the level of achievement demonstrated by her students during the implementation of her inquiry. She commented: "*It might be that the students have not gained much, but I am happy to say that they have been exposed to useful strategies of learning" (INT- F).* Lucy's view of her students' learning suggests that she was able to see and understand the educational value and impact of her engagement in SBPL.

5.5.3 Changes in understanding about school support in PL

Initially, Lucy felt that her school offered nothing to enable the implementation of SBPL and therefore did not expect to get any kind of support from school. She stated: *"I am sure that nothing can be done concerning support from the school" (Lucy/INT-1).* She insisted: "*Those are personal efforts, school, no! There is not any support from the school" (INT-1).* She also claimed that: "*Teachers might have good thoughts, or let's say plans which require some resources for the plans to be executed, but you get upset since you cannot receive any assistance" (Lucy/INT-I).*

However, when Lucy had engaged in the third inquiry cycle, she became more aware that there were opportunities around the school that could enable SBPL. She commented: "*The school is supporting in many aspects. When you asked me this question earlier, I thought there was no any contribution from the school. However, now I realize that the school can help in some ways" (FGD-3).* Lucy came to realise that she was allowed non-financial support that could greatly facilitate teacher engagement in SBPL. In her final interview, she pointed out one aspect of support offered to teachers by senior management during their inquiry cycles, which was: *"to allow us to participate in the programme during the teaching time… I take it as a great support" (INT/F).* Even if her school could not provide sufficient support, Lucy became aware of the available types of support pertaining to promoting her PL.

5.5.4 Changes in understanding about implementing SBPL

At first, Lucy believed that implementing ongoing and teacher-driven SBPL at her school was unachievable. Reflecting on her PL attempts she made with her colleagues before she started our IKBC, she was convinced that it would be impossible for the school and teachers to carry out SBPL. She asserted:

> *It is not possible for teachers to engage in PL using the resources available at school, or with no resources… a teacher may have good thoughts and want to do something to improve his/her teaching skills, but once you remember that there is a cost to bear then you give up… the problem is obstacles around (Lucy/INT-I).*

Lucy thought that PL could not be implemented in their school unless the necessary learning materials and facilities were made available and that other related challenges were addressed. She believed that the provision of seminars seemed to be a better option compared to planning costly teacher-led PL activities. She maintained: "*SBPL is very expensive… it could be better to have some kind of internal seminar" (Lucy/INT-I).*

While participating in her first inquiry cycle, Lucy continued to doubt the possibility of implementing SBPL. For example, during a brief reflection after teaching her first lesson, Lucy was concerned about the shortage of time as well as using unfamiliar teaching methods both to her and her students. The challenges experienced by Lucy during her first inquiry cycle were sustained: "*Implementing this learning programme we call SBPL is really challenging… we don't have the materials… History teachers, we have very few History periods… Its implementation is not easy, I think it requires plenty of time" (Lucy/FGD-1).* At the start of her first inquiry, Lucy lacked confidence in what she was doing, and therefore when she was asked if she could describe the SBPL process to other teachers she was not confident enough to help. She argued: "*but you understand this better than us. Therefore, I think if other teachers will get it from the horse's mouth will be more effective than us" (Lucy/FGD-1).*

The degree of freedom which allowed her to share PL challenges among the teacher participants and myself as a facilitator may have helped Lucy to address some of the challenges she experienced in her PL. For example, she started understanding that teaching reading can be done without solely relying on textbooks. She also learned to

create more reading resources through involving her students. These actions were improving her teaching ability. She reflected: *Therefore, professional learning requires more to look at the needs or challenges and then again how to improve your teaching or how to learn to modify your teaching (Lucy/FGD-2)*. Lucy started to believe that it was possible to establish a PL progamme at the school and to sustain it. *"has been so helpful and it [SBPL] has encouraged us as teachers to change our perceptions… it is possible to do SBPL at the workplace without depending much on resources from outside" (Lucy/INT-F).*

5.6 Remaining concerns regarding SBPL

Towards the end of our inquiry cycles, Lucy indicated that she was not only satisfied with her engagement in SBPL, but that she would also like to make this practice an essential part of her role as a teacher. However, despite the fact that Lucy revealed a shift in her mindset and engagement in SBPL, she was uncertain if PL programmes would be formally arranged in her school. She argued that without obtaining a formal recognition of PL practices at school, perhaps by allocating sessions in the annual calendar, it would be difficult for teachers to sustain this practice. She stated:

> *My thinking is: This SBPL should be managed by the school itself. All PL matters should be included in the school calendar. During the course of the year, there should be the calendar that shows what to be done for the whole year. By doing so, teachers will consider it coming from the school management and everyone should participate (Lucy/INT-F).*

For example, Lucy emphasised that forming a PL community across subjects would need school permission: *"It is possible, but you need to involve the management. That means it should be included in the school timetable or calendar" (Lucy/INT-F).* Her comments suggest outstanding concerns about teachers' ability to conduct some PL practices.

Lucy believed, however, that together with her colleagues they were ready to offer SBPL expertise, "*Definitely! I can do it confidently! Ha ha! Yes, I am the SBPL expert*" *(INT-F).* However, her major concern centred on the obligation of the school to support their will:

> *Supervision is important, the main supervisor of PL is supposed to be an Academic Master… they always make follow up to ensure that teachers have written lesson plans, scheme of work and the like. They can also supervise this one (Lucy/INT-F).*

Lucy's concern was left with the school management and the other teacher participants in this study who promised to ensure that PL would be an ongoing activity at school. A sample of a SBPL policy was supplied to the school management to encourage them to prepare the school's PL guidelines for the following year.

5.7 Chapter summary

This chapter has explored Lucy's engagement in SBPL through three inquiry cycles and illustrated the way her practices and understandings of PL had been transformed. The results in this chapter indicate that prior to the study, Lucy had engaged in some SBPL activities, which were not formally organised. Throughout her inquiry phase, Lucy focused on teaching students about "reading for understanding" as a vehicle towards promoting her competency for engaging in effective SBPL. In the course of her learning, Lucy demonstrated significant changes in her PL practices. Lucy's understandings of the SBPL also changed gradually as she engaged in her inquiry. Changes in her PL understandings happened along with transformations in PL practices. Regardless of the factors that hindered Lucy's participation in her SBPL (see details in chapter six), her increasing ability to work with other teachers, her desire to learn, and overall support she obtained enabled her to improve her PL. The next chapter therefore, moves on to present findings about the changes and impact of engaging in effective SBPL on the other three teachers who participated in this initiative.

CHAPTER SIX

THREE TEACHERS' CHANGED ENGAGEMENT WITH AND UNDERSTANDING OF SBPL

6.1 Introduction

Findings from three teachers (Tausi, Magdalene and Mourine) are presented here in relation to the three research questions:

> What changes do Tanzanian secondary school teachers make to their school-based professional learning practices as they engage in an inquiry and knowledge-building cycle?
>
> What changes do Tanzanian secondary school teachers make in their understanding of their school-based professional learning as they engage in an inquiry and knowledge-building cycle?
>
> What factors constrained and enabled Tanzanian secondary school teachers to engage in school-based and professional learning?

In the previous chapter, Lucy's participation in a school-based professional learning (SBPL) was presented in detail, as a focused case study of the changes she had made in her professional learning (PL) practices and understandings. This chapter highlights the changes of practice and understandings made by the other three teacher participants, Tausi, Magdalene and Mourine who have engaged in an inquiry and knowledge-building cycle (IKBC) within their school. The three teachers worked within the same school setting that Lucy worked in, hence were exposed to quite similar learning culture. This chapter also presents the factors that constrained and enabled all the four teachers to engage in SBPL.

Each of the participants, Tausi, Magdalene and Mourine, identified different teaching areas to focus on in their inquiry in order to improve their teaching competencies, while

enhancing their skills of engaging in PL. Regardless of their distinct PL focus areas, the three teachers found that their teaching foci were interrelated. Consequently, teachers tried to integrate their teaching areas to optimise their learning experience. Of particular interest to this study is how the teachers developed new understandings of their teaching and PL practices, which resulted in quite distinctive transformations.

The following sections summarise the characteristics of the three individual teachers who are all female, and then examine their changed participation in SBPL. The overall changes in the three teachers' understanding of SBPL are presented, followed by factors which enabled and constrained their engagement in SBPL.

6.2 Introduction to teachers' engagements in SBPL

In this section, a brief profile of the three teachers, Tausi, Magdalene and Mourine is presented that includes academic qualifications, teaching experience and related responsibilities, and the PL areas they focused on. All teachers participated in three inquiry cycles with the aim of developing professional skills that would help them to continue their engagement in SBPL. Table 6.1 shows the profiles of the three teachers.

Table 6.1

Profiles of the Three Teacher Participants Engaged in the SBPL

Teacher name (Pseudonym)	**Teaching qualification**	**Years of teaching at the school**	**Classroom level**	**Class size**	**Average age of students in years**	**Teaching/PL Goals**
Magdalene	Bachelor in Education	7	Form One	36	13-14	To develop skills for helping students to improve their note-taking skills
Mourine	Bachelor of Arts in Education	7	Form Three	52 A&B	16-17	To learn to teach the students to write essays in History
Tausi	Diploma in Education	3	Form Three	52 A&B	16-17	To help students to verbally express their ideas and to understand Historical concepts.

The teaching goals that also served as the PL goals, as shown in Table 6.1, guided the three teachers to achieve the overarching goal of developing competencies for engaging in the SBPL. In this study, all three teachers taught History. Tausi and Mourine shared the teaching of History in Form Three, which had two streams, A and B, though each chose topics based on their relevant expertise. Apart from teaching, the teachers performed other job-related duties. For example, Magdelene was the discipline teacher for the school management and a treasurer of the social security fund for teachers at the school.

All three teachers modified their PL practices during the IKBC through different ways, which resulted in the improvement of both their teaching and PL practices. Teachers'

transformation of their practices and understandings of SBPL that occurred during this inquiry learning process is analysed in the subsequent sections.

6.3 Teachers' changed practices in SBPL

The main focus of the study was to enable the teachers to learn how to organise and implement the SBPL activities by engaging in them. The changes in teachers' SBPL practices are reported using the inquiry's framework provided in Figure 6.1. The framework includes three dimensions: establishing the PL focus area; engaging in teacher learning; and using new teaching approaches. The framework indicates the main changes that emerged in the three teachers' PL practices over three iterations of the inquiry learning cycles from February to November 2016.

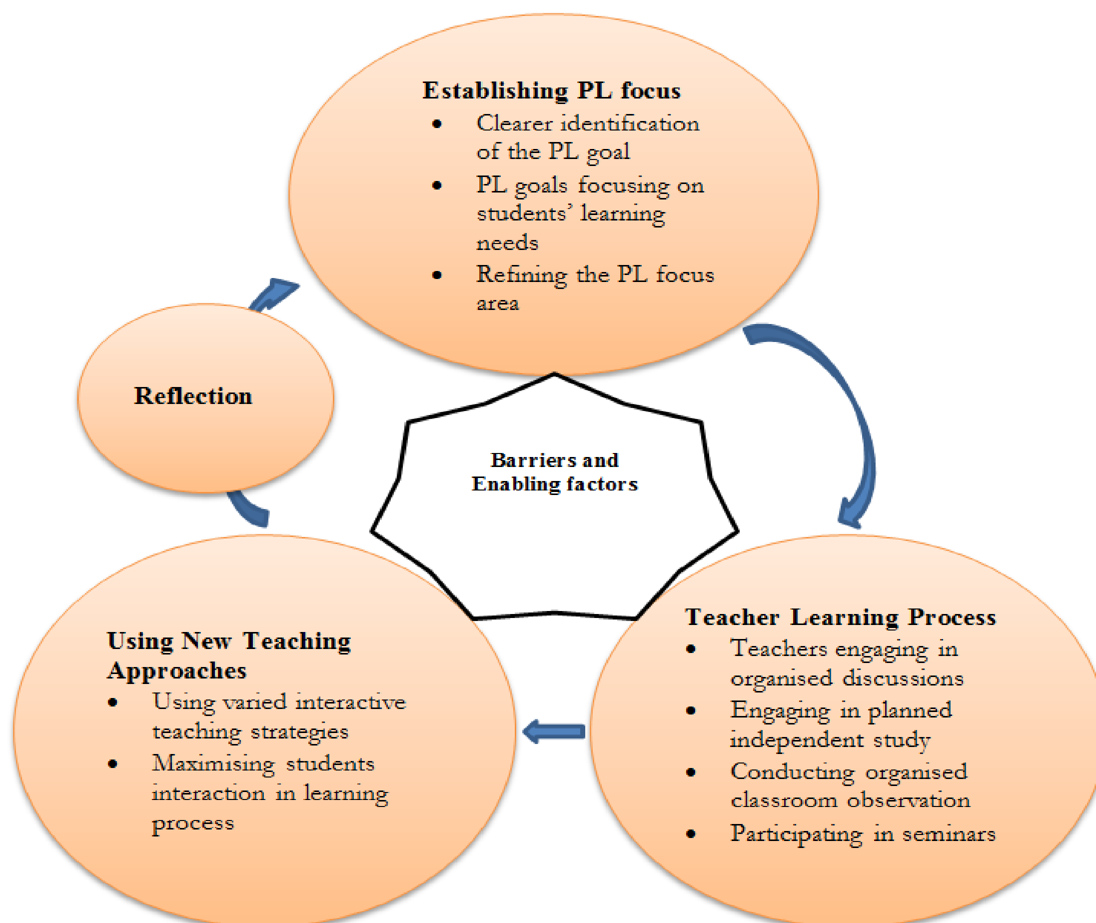

Figure 6.1. The framework of changes of teachers' PL practices

6.3.1 Changes in establishing PL focus

This section reports on the ways in which the three teachers identified and reshaped their PL goals to establish a learning focus in the inquiry cycles. Changes in their practices include: clearer identification of PL goals; developing PL goals by focusing on students' learning needs; and refining the PL focus areas, as reported below:

6.3.1.1 Clearer identification of the PL goals

Initially, it was crucial to find out if the teachers had a PL goal that might provide a basis for their professional inquiry. The teachers revealed that they had previously participated in some ad hoc PL activities, but had no clear goals for these. For example, Magdalene explained that PL *"happens when a person has a problem at work" (INT-I).* Mourine also indicated that she tried to get assistance from colleagues at school to help her when she had problems related to teaching. Hence, she did not tend to set PL goals in advance, explaining that *"PL is not formal here… Whenever I am stuck I should look for someone whom I believe will be of assistance and ask for help" (Mourine/INT-1).* Their lack of a learning focus suggests that the teachers conducted PL when faced with a challenge. The initial interview asked each teacher to identify the areas of their teaching challenges or their students' learning difficulties, so as to establish a basis for SBPL.

Formulation of a PL goal started when the teachers learned about the IKBC. The identification and modification of each PL focus occurred during this first session with me, the researcher. This goal identification continued in informal conversations after this meeting. Magdalene established her PL focus of teaching her students how to take meaningful notes. However, Tausi and Mourine went a step further to reshape their PL areas. Initially, similar to Mourine, Tausi reported that she wanted to teach her students about essay writing. However, she was encouraged to consider her students' learning problems more closely. Through reflecting on the topics she taught and the comments she received from colleagues, Tausi confirmed that her students lacked spoken and written communication skills that contributed to their poor essay writing. Therefore, verbal skills became the focus of her PL. Tausi then invited me, as the researcher, and other teachers to attend her classes to observe her teaching and her students' learning.

Mourine shared samples of her students' work indicating their lack of basic writing skills. She associated essay writing problems with other learning issues such as poor English language and sluggish attitudes. She emphasised that she needed to address these issues first if the students were to be taught how to write good essays. She clarified:

> *I have brought some students' works. Here… you look at these essays… these are Form Three students. They have a very serious problem in writing. You can see some of them have scored zero. What she wrote cannot be understood by other people except herself (Mourine/MT-2).*

However, after engaging in the first inquiry cycle, Mourine confirmed that her PL could be difficult if she focused on too many issues. She realised that teaching essay writing was procedural and required more time than she had given previously:

> *Really, I wanted to address all problems I experienced with my students. But now I have started to realize that it couldn't be possible. Frankly speaking, when we started, I intended to change these students right away. Ha-ha! Just to be slowed down that it doesn't work like that. I meant that we shouldn't put many issues at once. Each goal must be clear in order to put it into practice (Mourine/FGD-1).*

6.3.1.2 PL goals focusing on students' learning needs

Mourine appreciated that it was a new experience for her to start thinking that her students' learning issues could be analysed and presented to inform her own PL goals. She commented: *"we started by looking out the problems we have in classes… to give evidence of the existing problems" (MourineFGD-1).* It was evident that Mourine was convinced that the identification of her PL need was crucial and thus it could be easily done by either an individual teacher or with the help of colleagues. She commented that: *"it was difficult to see where the problem is… when you are the teacher, you can understand [students' learning difficulties], but mainly, you need to ask the individual students" (Mourine/INT-F).*

Tausi, on the other hand, reshaped her PL goal and reported the process she went through in setting her PL focus:

> *I managed to identify the problems, though they might not be exactly the way it should be. It was obvious that students had problems with their expression… and you are asked to confirm it… I found it very difficult [to confirm about students' learning need]! Very hard, especially when you insisted on having evidence (Tausi/FGD-1).*

Tausi revealed that identifying her PL need was the most difficult task she had experienced in the learning process. She explained:

> *Through sharing, we discovered several problems. These were not new problems, but… when we realized the nature of the problems, it was easy for us to read in detail and look for the solution. Previously, we were not thinking about digging the problem in detail… instead we were jumping to find the solution to whatever seemed to be a problem (Tausi/INT-F).*

For the three teachers, evaluating their PL goals was a continual process throughout the inquiry cycles. Although the three teachers found it valuable to use evidence to justify their PL, they also believed that the evidence should not always come from the students, rather the teachers had to determine what was appropriate for them. For instance, Magdalene commented that: *"when the students fail you realise that this one is in worse condition and he/she needs this amount of help" (Magdalene/MT-3).* Although all three teachers revealed some changes in their PL focus, the shift was possibly more significant for Tausi and Mourine.

6.3.1.3 Refining the PL focus areas

The teachers' PL goals were evaluated at the end of each inquiry cycle. All three teachers maintained their same goals throughout their PL as they found that these were unattainable so far. After the first inquiry cycle, two teachers realised that they experienced similar student learning difficulties. Therefore, in the course of their PL, the teachers refined their goals, as exemplified in the excerpts below:

> *Can't you see that the problems seem to be highly interconnected? If we continue to concentrate on one area alone, I doubt we will not be able to help these students! We still have other issues existing, so, I am suggesting we should combine our PL objectives (Mourine/MT-3).*
>
> *I would suggest that we check all their learning challenges simultaneously because there is no single problem, rather most of their problems are related (Magdalene/MT-2).*

Through collaboration, the two teachers identified and used strategies that were employed by their colleagues. For example, Mourine included a requirement for students to present their essays in class to improve their oral expression and to internalise what they had learned. Magdalene also added verbal expressions, as another aspect to improve students' note-taking skills. Therefore, the teachers adjusted the learning activities, while still maintaining their PL foci.

6.3.2 Changes in teacher learning process

Prior to the introduction of the inquiry cycle, any formal PL was conducted in the form of departmental or whole staff meetings. However, the most common informal PL occurred in the form of collegial discussions and independent reading. The changes that occurred in their PL practices during inquiry cycles are presented in the following sections, as: organised discussions, independent learning, classroom observation, and the seminar.

6.3.2.1 Engaging in organised discussions

Initially, the department and whole staff meetings occasionally offered Tausi, Magdalene and Mourine an opportunity to learn from their fellow teachers, who shared ideas from the external training they had received. A significant outcome of this type of PL was that, alongside other administrative and educational agenda, teachers managed to raise issues related to improving their pedagogical practices. Tausi confirmed that: "*There is something like PL in a departmental meeting… they just gave us the feedback" (Tausi/INT-1).*

Magdalene also indicated that she relied mostly on informal collegial assistance, whenever she experienced a teaching challenge. Such openness to help one another was expressed in Magdalene's statement: "*If you feel like you have failed to do something and you need support, you can go to any of your colleagues and ask for help" (Magdalene/INT-1).* Therefore, the three teachers noted that their discussions whether in the department or in informal conversations were neither systematic, nor directed to address specific students' or teachers' PL needs in detail.

Transformation was evident immediately when the teachers engaged in planned discussions, as an integral part of their inquiry cycles. The teachers discovered significant variation in the nature of these discussions compared to having feedback in a departmental meeting. The IKBC required that an agenda be set to guide discussions before and after the formal meetings. Each teacher was also urged to learn about their colleagues' PL focus in order to contribute meaningfully during or after our formal discussions.

At the first inquiry cycle planning meeting, Tausi received several helpful comments aimed at supporting her learning about teaching oral skills. The extract below gives an example of the nature of their PL discussions:

> ***Tausi:*** *My teaching area is to make students talk… in order to promote their language ability and effective understanding of the subject… I have an idea, I have planned to do more group discussions and presentations.*
> ***Magdalene:*** *Is that not what you have been doing and it didn't bring any impact to your students? Can you think of something else?*
> ***Tausi:*** *Not real! That is why I have brought this here for you all to assist me.*
> ***Magdalene:*** *Some of them, they are shy, but others it is because they are disrespectful… That's why I don't get what you are really, planning to achieve!*
> ***Lucy:*** *Ha! Do you think that these students cannot formulate logical ideas? (MT-2).*

While the conversation shows a tension about teachers' expectations of students, it focused on supporting Tausi to reflect on and improve her teaching skills. Similarly, such support given to Mourine to help her improve her second lesson provided evidence of the relative importance of holding organised discussions to teachers' PL. For example, Mourine's first lesson was not particularly successful because she spent most of her time explaining to students how to write an essay instead of actively engaging them in the actual learning process. Also, she did not use students' prior knowledge and experiences in her teaching, as commented in my observation notes:

> *The teacher shouldn't spend all the time lecturing students about an essay… Students' prior knowledge about essay writing should be explored and utilized before presenting the new content… Students were not given enough chance to practice the necessary criteria for essay writing, (COB-1/Mourine).*

Discussions conducted by teachers during planning meeting for the second inquiry, provided both challenging and helpful feedback to Mourine. She was advised to divide the content of her lesson into small parts and teach each chunk in detail. The idea of encouraging students to present their written essays in the class was also pointed out:

> ***Mourine:*** *I will keep asking*
> ***Rehema:*** *I also suggest that you may decide to deal with one aspect at a time.*
> ***Magdalene:*** *I think that is a very good suggestion*
> ***Mourine:*** *Yeah! That makes sense. Thanks*
> ***Rehema:*** *Sure, instead of tackling the whole question. Let students learn step by step… I also read it from somewhere, I don't remember!*
> ***Mourine:*** *Can anyone give an example? Ha-ha!*
> ***Lucy:*** *But we should also remember that students should not only learn about the essay, but they can summarise… and ending up with a presentation (MT- 3)*

Mourine appreciated these contributions from colleagues commenting that: *"When you are in a group, there is the possibility of gaining some tips… There might not be many new things, but they add on to your understanding" (Mourine/FGD-1).* In addition, she was learning to evaluate her colleagues' suggestions, commenting: *"I learned how to judge the comments offered by teachers. Teachers will provide heaps of alternatives, therefore, I was careful to check on which one might work best in my situation" (Mourine/INT-F).*

The comments received by the teachers from these formal IKBC meetings and informal daily conversations helped them to improve their teaching and promote their PL competencies. Teachers noted that IKBC discussions were interactive focused on learning and more systematic, contrary to what they had experienced traditionally in the department. Even informal discussions that were conducted by teachers at their convenient time were guided by their PL goals. Commenting about the advantage of learning teaching skills through organised discussions, Tausi said: "*Teachers provided examples from their classroom experiences regarding verbal expression and I learned a lot from the cases they presented" (Tausi/FGD-1).* In her final interview she noted that: *"the discussion has been more suitable... We couldn't find out an answer without discussing what the problem was. We did all these [teaching and learning activities] through discussions" (Tausi/INT-F).*

Magdalene also discovered that working in a community of learners established by the inquiry cycle, required an understanding of how to exchange ideas in a meaningful way. She stated: *"My experience is not far from Madam Tausi, because I also learned from other members [teachers] through discussion. I learnt how to work with other teachers. But also, they advised me to read the note-taking techniques" (Magdalene/FGD-1).* She also discovered that previous discussions did not offer teachers an opportunity to learn, commenting that: *"Before you introduced this programme (IKBC), the discussion was conducted only when someone had an issue in teaching. That means it was not a learning process" (MagdaleneINT-F).*

6.3.2.2 Teachers' engagement in planned independent learning

Prior to using inquiry cycles, all the three teachers engaged in self-directed learning. The teachers claimed that they had engaged in independent reading, watched educational programmes on television and searched online materials. Magdalene summarised: "*We read and listened to some of the things through the media. In most cases we have been reading books" (Magdalene/INT-1).* Mourine also indicated: "*I 'Google' to find the meaning of words and also make comparison between the materials written in textbooks and that obtained from the internet" (INT-I).*

In addition, the teachers reported that independent reading had not been effective due to their lack of skills, lack of learning focus and the unavailability of reading resources. For example, Mourine indicated that although she attempted to learn from the internet she could not engage in deep learning due to lack of skills. *"It is more when you want to know about the meaning of a word, or when you are looking for notes which are in Swahili" (INT-I).* On the other hand, Tausi confessed that she had never used professional or scholarly literature, such as journal articles or research reports in her learning as she was unaware of their availability. She admitted: "*In reality, I have never studied such documents, What? You mean educational reports?" (Tausi/INT-1).* Therefore, her reading was merely confined to content knowledge from the textbooks.

During the inquiry cycles, engaging in independent learning was considered a convenient way to access teaching information. In the first learning cycle, teachers were advised to connect their mobile phones to the internet and I assisted them to find online

teaching materials using my laptop computer. Likewise, Tausi also learned how to read articles from the internet with my assistance. Although the website content she read from was aimed at young children, Tausi insisted that it suited her students because this was their current level. It was a great achievement for Tausi to familiarise herself with this new PL experience, as she explained:

> *As it was a condition for everyone to read before and after we met… I went to read about the subject I was about to teach. I tried once reading from the internet just to see what others were doing regarding teaching students how to express themselves… content related to colonial administration. I composed questions and posted them on Google search for answers (Tausi/FGD-1).*

On the other hand, Mourine discovered that there was plenty of literature about how to teach essay writing. She was interested mostly in reading articles on the "busyteacher" website that supported teachers with resource materials. In the course of learning, she realized she had been mistaken in what she had taught. She revealed that she had learned through this process that having accurate professional knowledge is crucial before teaching: "*when I first told students about writing essays, I never read anything about it. I was using my experience in essay writing. Moreover, I didn't know that I was supposed to teach them in detail about it" (MourineFGD-1).*

Mourine read examples of essays and applied what she learned in her following lessons. She was no longer just checking on the definition of concepts from the internet, but was reading the strategies of how to teach these then shared them with her colleagues and contextualized these techniques for her teaching. She presented this shift in PL practice in her final interview:

> *I was using the internet most of the time. I was checking essay writing and then I found that there were a lot of materials about essays. So, I needed to make a choice, because you can find that this one has three stages and this one ten. But at the end of the day if you compare them all, they are talking about the same thing (Mourine/INT-F).*

While participating in the inquiry cycles, Magdalene read articles from websites that were concerned with teaching note-taking. She was also interested in finding books about her teaching topic of "Evolution of Man" and found an online book containing relevant illustrations for her students. Having no school computers, Magdalene learned

to adapt her practice to make effective use of her smart mobile phone by seeking Mourine's support. She stated:

> *For example, Madam Mourine is an expert at searching online materials. Personally, I like doing that, but… I have a problem with my eyes. She tells me to look at this one, I stop, and tell her that you will be reading and I will be listening (Magdalene/INT-F).*

Gradually, Magdalene came to realise that PL literature could be easily accessed if she developed her search skills and was determined to learn. She commented: "*You need skills to learn some skills. As you said earlier, this depends on what you want to learn" (Magdalene/FGD-2).* Magdalene had indeed acquired new techniques to improve her independent learning. She appreciated reading online resources and getting support from colleagues:

> *I was reading from various sources… It was mainly through the internet. If it was reading a book, then, I did it through the internet… everyone goes around and read accordingly. When we meet we share the information. It is possible to learn many and different online resources (Magdalene/FGD-F).*

Thus, the three teachers shifted their motivation and expectations for independent learning by engaging in SBPL. They realised that being independent is about being self-driven, but also that it is crucial to be collaborative and to seek support from their colleagues. In addition, the teachers realised that reading extensive scholarly literature could supplement school resources and enable them to find new pedagogies for teaching that syllabus.

6.3.2.3 Conducting peer classroom observations

Of the three teachers, Tausi was the only one who engaged in classroom observations before and after the inquiry cycles. In the initial interview, Tausi indicated that she had an opportunity to engage in classroom observations to evaluate the way another teacher was teaching. She said, *"Long time, since I have observed someone teaching… It was good" (Tausi/NT-1).* She conducted the classroom observation once when she was requested by a colleague to observe his class while teaching and to comment on his teaching approach: "*It was just the subject teacher who invited me… I was invited just to observe the way he was teaching. It was to help the teacher, but at the same time I was learning something through observing" (Tausi/NT-1).* Although she admitted that it

was useful being in another teacher's class, she expressed that she did not maintain that kind of learning before she started engaging in the inquiry cycles.

As Tausi developed more competency and confidence through the inquiry learning cycles, she was keen to conduct more classroom observations, trusting that they could bring constructive changes to her teaching. For example, during the preparation of her third lesson, she noted that it was difficult for her to link lesson content, so she decided to visit Magdalene's class to learn from her teaching style. Therefore, Tausi was able to practice one classroom observation in her inquiry. She explained how useful this observation was: "*Of course she [Magdalene] did it well and simple. I was trying to complicate it… The main points were emphasized, then I heard her linking the points… It was technical, tricky as well" (Tausi/FGD-3).* Tausi also described how she conducted her classroom observation:

> *I considered the tips for conducting classroom observation. I couldn't enter into somebody's class just like that. She was aware, though she didn't know that I was going to stay for a short time. I intended to observe only the introduction part… I had a reason, just wanted to focus on that particular aspect. How does she connect the skills? (Tausi/FGD-3).*

Tausi made a significant shift from engaging in unorganized and unfocused classroom observations to conducting a planned and focused classroom observation.

6.3.2.4 Participating in seminars

Before the inquiry cycles, none of the teachers had an opportunity to attend seminar training. All three teachers confirmed the lack of seminars at school:

> *Six years, I have been here… never attended any seminar and even my colleagues have never gone to any seminar/workshop (Magdalene/INT-I).*
>
> *Seminars are commonly offered to Science teachers and not to teachers like us who are teaching subjects like Arts. This is my own experience, since I started working here (Mourine/INT-I).*
>
> *In short, I have never participated in any kind of training… May be I can say that we just get feedback from those who attended training (Tausi/INT-I).*

During the implementation of the SBPL the teachers organised a seminar about the preparation of lesson plans and all teachers at the school were invited. The first seminar in the first inquiry cycle was conducted following teachers' concern, particularly Magdalene's concern of lacking lesson preparation knowledge. After teaching her first lesson, Magdalene realised that she needed to learn how to document her lesson plan properly in order to facilitate teaching of her new learned skills. Magdalene disclosed that she didn't know how to prepare a lesson plan and requested support:

> *Moreover, I have a problem regarding lesson planning. Every teacher is planning the way he/she thinks is correct. Really, I am not satisfied. Most of us have problems preparing the lesson plans… we are just copying. The lesson plans you saw last time need modification… We can learn by ourselves, but it could be better if we get a facilitator to guide us (Magdalene/FGD- 1).*

Other teachers supported Magdalene's idea: *"It is true… Writing a lesson plan is challenging" (Tausi/FGD- 1)*. Mourine emphasised: *"Every teacher has been preparing it [a lesson plan] without having a clear focus… Especially the assessment part confuses me most because I don't know what exactly to indicate" (FGD- 1).* As a facilitator, I discussed with the teachers how support could possibly be sought from outside the school regarding planning lessons. A University lecturer was approached and he accepted an invitation to talk to teachers at school about preparing lesson documents to support teaching. Magdalene and Tausi later reported that participating in the lesson planning seminar had improved their teaching skills in different ways: "*I can say that there was a lot to learn related to lesson planning" (Magdalene/FGD-2).* Tausi also said: "*there are a lot of techniques which can be employed to adjust your lesson plan" (Tausi/INT-F).*

In addition, another school-based seminar was conducted by the four teachers after the second inquiry cycle to share their new learning with a few teachers and school leaders. An application of this PL practice is the possibility that there were numerous teacher learning opportunities during the inquiry cycles and the teachers realised that the seminar presented an opportunity which resulted from engaging in the SBPL: *"We had a seminar in this programme [IKBC]… After all, having a seminar was not a common thing at this school" (Mourine/INT-F)*. Importantly, teachers developed skills on how to organise internal seminars to create more learning opportunities for teacher SBPL.

6.3.3 Change in pedagogical practice

Examining shifts in teaching pedagogies is crucial as these changes have been influenced by the teachers' PL practices. At the beginning of the study, the three teachers claimed that they employed several teaching strategies that they believed were relevant in promoting learning and thus addressing challenges they were facing. It was interesting to note new teaching strategies that teachers used as a result of their engagement in their inquiry cycles. These changes were mainly related to: shifting from heavily relying on teaching notes to employing varied strategies; and promoting students' learning interests, as reported below.

6.3.3.1 A shift from relying on teaching notes to employing varied strategies

One of the main teaching strategies used by Mourine and Magdalene prior to this action research was note-giving. Mourine claimed that she used to prepare all what she wanted to teach her students in bullet point form and then read these points to the class. *"I tried to change the style of giving notes… instead of giving them the lesson notes to copy, I decided to dictate (INT-I).* Although she thought that her plan was a student-friendly strategy, she was aware that it did not promote her students' learning. She commented: *"then, I discovered later that they were making lots of errors" (Mourine/INT-I).*

Magdalene also prepared a summary of her teaching notes and gave it to her students to copy. She commented: "*simple and clear notes help students to learn… It's hard for them to read from a book… if you summarize the same notes... they read. You do it like this… these are the questions and these are the answers" (Magdalene/INT-1).* Magdalene and Mourine regarded giving notes to students as a simple traditional teaching strategy. In reality, the provision of summarised notes encouraged rote learning.

Magdalene's shift in practice was noted in her second lesson when she started using probing questions to guide students make their notes and asked them to share their written notes during classroom presentations. Magdalene improved her strategy of using teaching notes according to advice given by colleagues in the previous lesson and based on her independent reading. Trying out new strategies helped her to develop new understandings about the process of note-taking. She was also impressed that students

managed to make their own notes while she was teaching and asking questions. She commented: "*asking questions, while teaching or immediately after teaching… was a good technique. This made students to learn how to jot down important information, while I was teaching" (Magdalene/INT-F).*

Magdalene was aware that her previous strategies were not so effective, but she did not know how to improve them. Through inquiry cycles, she discovered that just providing teaching notes to her students was ineffective for learning. She revealed:

> *I used to go to class… writing notes on the blackboard… reading the sentences and explain… So, in this SBPL, I was challenged… I have learned that in order for a student to take or make good notes for a meaningful learning, it is not wise to give the prepared notes in advance (Magdalene/INT-F).*

On the other hand, Mourine was advised to stop relying on her teaching notes because copying notes would not help students to engage in effective learning. Mourine modified her teaching by employing different strategies during the inquiry cycles, so as to help her students participate actively in the lesson and improve their thinking skills. The following excerpts underline Mourine's changes in practice, in particular with regards her use of teaching notes: "*most of the time we do discussions and presentations [with her students]" (FGD- 2).* After teaching her third lesson, she said*: "I sampled students… to make follow up on their progress… no one is left behind… towards the end, I asked everyone to write" (Mourine/FGD- 3).* In her final interview, she commented: "*just need to teach students with a pause that allows them an opportunity to synchronize information… For example, I can plan that today I want to teach how to write an introduction part" (INT-F).*

By engaging in collaborative learning with other teachers in inquiry cycles, Mourine learned how to improve her teaching strategies. Therefore, her main change with respect to teaching strategies, was a considerable shift from heavily relying on teaching notes to using a variety of approaches such as discussions, dividing lessons in small portions, giving students enough time to practice learning and enabling them to create relevant notes for their future reference.

6.3.3.2 Maximising students' interactions and interest in learning

Before engaging in the inquiry cycles, teachers' ability to promote students' interests in the lesson was limited. For example, Magdalene reported that on several occasions she avoided teaching material she was not comfortable with. This comment possibly suggests that students were also not fully motivated to learn her subject. Magdalene claimed that when she was assigned to teach a subject she disliked, although she couldn't refuse, she avoided teaching that particular subject. The following excerpt highlights her avoidance strategy: "*I remember when I came to this school for the first time I was assigned to teach Civics. Truly, personally, I don't like Civics subject… Sometimes I asked another teacher to teach for me" (Magdalene/INT-1).* Her apparent passive resistance and dislike of Civics were due, in part, to her lack of competency and thus asking another teacher to teach that area on her behalf only provided a short-term solution. However, her reported incompetency or reduced motivation might have lowered her students' learning interest, as she realised that some students paid less attention to her subject. She said: *"they are not bothered; after all they are waiting for your time to end up… It was like a few students ignored what I was teaching" (Magdalene/INT-1).*

When teaching her first lesson in the inquiry cycle, I noted that although Magdalene used a range of simple techniques, such as the bulletin, tree-branches and the spider diagram, she did not clearly link the topic she was teaching about Evolution of Man to note-taking skills. As a result, some students could not understand exactly what they were supposed to do. This point was documented in my classroom observation notes: "*The students were not given a chance to familiarise themselves with note-taking skills… I observed a significant number of students struggling to take/make notes" (COB-1/Magdalene).* Magdalene however, clarified that she did what she referred to as 'outside preparation'. In other words, she taught note-taking techniques before teaching the topic so that it could be easy for her students to take notes; a point clarified during our following meeting. However, it was revealed through classroom observation that Magdalene had limited skills to support active students' interaction and did not believe that she could influence changes in students' learning. I advised that she needed to maximise students' interaction to raise their interest in learning.

The growth in Magdalene's teaching skills was apparent when she linked note-taking to students' oral expression skills in the next lesson, in her attempt to broaden their understandings. She realized later that engaging her students more in their learning helped them to become more active, motivated and improve their note-taking skills. After teaching her second lesson, she admitted that she regretted not investing more time in PL and particularly, learning how to guide and encourage students to engage more. She commented: *"I feel like we were supposed to do SBPL since a very long time… It was interesting to learn… there are different ways of encouraging them [students] to learn" (Magdalene/FGD-2).*

Using the step-by-step processes of the inquiry cycle, Mourine also realised that students' learning relied on her scaffolding. For example, she scaffolded students to identify the main parts of an essay by using questions selected from two topics, which are "Anglo Boer wars and Assimilation policy in French colonies". She noted that her new questioning strategies also helped to raise students' interest in their learning. She also integrated physical energizers in her teaching, like '*stretching muscles*', which she believed made her students more actively engaged. She commented: "*I have realized that my class is becoming active" (Mourine/FGD-1);* "*the use of energizers in class can make them [students] active and interested".* She also observed that monitoring students' learning could promote their interest and positively impact their learning: "*When they start writing you can see the difference, as there were some students who could not do well. I keep making a follow-up to see the changes they make (Mourine/FGD-3).*

Tausi also indicated that her engagement in the first inquiry did not positively impact students' learning and therefore she wanted to engage more in learning so as to help them. "*Just like what you observed in the class… It is discouraging… even if after giving students an assignment and asked them to present it on the next day they didn't perform well… A lot need to be done" (Tausi/FGD-1).* Tausi learned several interactive teaching strategies to promote her students' learning interest based on her colleagues' suggestions. She also read an article entitled, "Strategies to Promote Oral Expression", which provided useful tips on using simple learning activities to teaching communication skills. She further discovered that preparing simple and interesting

learning activities helped in facilitating numerous opportunities for her students to share ideas in the classroom. She explained:

> *If I wanted to teach a topic, I prepared something in advance, like a story, just an interesting story…. I remember in the Maji Maji war topic, I prepared a story and read it. Later on I encouraged them to role play (Tausi/INT-F).*

Overall, the three teachers learned and practised different approaches that demonstrated a shift in their classroom teaching. By improving PL practices, the teachers indicated that were able to modify their teaching strategies and ways of interacting with students, so as to increase their students' participation and interest in the teaching and learning process.

6.4 Change in teachers' understandings of the SBPL

This section presents the findings regarding the changes in teachers' understandings of SBPL. These changes are reported with respect to the following aspects: developing understanding of SBPL; understanding about implementation of SBPL; and the impact of SBPL on students' learning as summarised in Table 6.2.

Table 6.2

Summary of Changing Understandings of Teachers in SBPL

SBPL themes	Understandings before and during SBPL	Understandings at the end of SBPL
Developing understanding of SBPL concept	Uncertainty about SBPL concept. SBPL as training. SBPL confined to school premises.	Developing understanding of SBPL (SBPL meaning changed from external training of teachers to teachers owning their learning)
Understanding about implementation of SBPL	Impossible to develop ongoing SBPL due to lack of government support.	Taking ownership. (Teachers understand that they have a role to play in their PL activities at school).
	Teachers not clear of SBPL processes.	IKBC widened teachers' understanding about SBPL processes.
	No SBPL without adequate resources.	Locally available resources facilitate PL. (Successful SBPL is possible if local resources are utilised).
Impact of SBPL on students' learning	PL doesn't have an impact on students' learning due to their poor ability.	SBPL facilitated students' learning.

6.4.1 Developing understanding of SBPL concept

Exploring initial understandings of SBPL was crucial in order to determine the shifts in the teachers' thinking about it as they engaged in their inquiry cycle. Teachers revealed some contradictory understandings of SBPL at the beginning of the study, but these uncertainties changed over time as teachers developed ownership of their PL. The teachers came to see SBPL as a process for their learning in the school and beyond the school premises, rather than seeing it narrowly as an external training.

6.4.1.1 SBPL is teachers' learning process

Initially, the three teachers found it difficult to explicitly articulate the concept of SBPL. For example, Magdalene stated: *"The school-based professional learning… the training based at school… I do not understand" (Magdalene/INT-I)*. It was challenging for them

to describe SBPL and to draw a clear distinction between SBPL and other externally driven PL programmes they had heard about or experienced.

At the start of the study, Mourine and Tausi also understood SBPL as the knowledge and skills that were offered to teachers to help them to undertake their duties more effectively. For example, emphasising the notion of training teachers, Mourine stated: "*I see school professional learning as a special training that helps teachers to acquire different skills to help in their teaching… a school can find an expert" (Mourine/INT-I).* Mourine confused the concept of SBPL with seminar training. Teachers were using the concepts SBPL and seminars interchangeably. For example, Tausi, understood that SBPL was a seminar when she said: *"I understand teacher professional development as techniques 'given' to teachers… through seminars you can be taught different things" (Tausi/INT-I).* According to the three teachers' views, SBPL involved an external provider and teachers were the recipients of their professional information. This perception suggests that teachers are not encouraged to take an active role in PL activities, and rather remain as passive recipients of information provided by an external expert.

After engaging in three cycles of inquiry, the teachers started to eliminate uncertainties about the meaning of SBPL. Magdalene's knowledge of IKBC helped to broaden her understanding of SBPL. After engaging in the second inquiry cycle she explained that SBPL was about teacher learning: "*SBPL is the learning by teachers when they are in the teaching profession. That is what I understand about it, up to this point" (Magdalene/FGD-2).* Magdalene did not clearly understand the meaning of SBPL at the start of the study because it was not a common formal practice at school. As she engaged in her third inquiry, she understood how in-school professional practice facilitated her PL. She finally commented: *"we had the idea that there was PL for teachers, but it was not to the level of doing it at school" (Magdalene/INT-F)"*.

Tausi's misunderstandings about SBPL persisted even after she implemented her first inquiry cycle. While it took a short time in the first inquiry cycle for Magdalene to articulate the SBPL concept and its procedures, Tausi was not able to describe how the inquiry cycles worked, saying that: "*It's too early to say about that. Maybe, my*

colleagues could have a correct answer... you better help me! Maybe I confuse it" (Tausi/FGD-1). Tausi began to understand the meaning of SBPL as more support was provided by her colleagues and the facilitator through the meetings and focus group discussions.

After participating in the second inquiry cycle, Tausi revealed that she now better understood the SBPL concept. Tausi came to see that SBPL was basically a learning process for her to explore her learning needs and to find out appropriate ways she could help to support her students to learn. As she was exposed more to PL practices, Tausi revised her definition of SBPL. Her shift in understanding is indicated as follows: "*I can say that teacher SBPL is the learning that is driven by teachers, so as to improve things, techniques for teaching. This is what I see from the practice" (Tausi/FGD-3).* She clarified her changed understanding in detail in the final interview:

> *You know when we started I didn't have a clear direction of what we were doing despite all the instructions you gave us. When other teachers [IKBC non participants] were asking me 'what are you doing there', I failed to give them a clear answer... I couldn't express myself, but now I know... I will say it all (Tausi/INT-F).*

In the same way, after completing the third learning cycle, Mourine also, came to realise that SBPL was a comprehensive form of teacher learning, which did not necessarily require an outside expert. She suggested that teachers should be helped to "*remove that poor mentality that it is a must for a teacher to be given training" (Mourine/INT-F).* She finally perceived SBPL as: *"the learning programme conducted by teachers... while teaching so as to improve her teaching" (Mourine/INT-F).*

6.4.1.2 SBPL can be beyond school premises

The findings revealed that prior to the study, SBPL was also understood as teacher learning activities restricted to specific school buildings or locations. Mourine and Tausi conceived that SBPL constituted few learning opportunities because it depended on available school resources. Magdalene, Mourine and Tausi thought that other PL programmes, which were not based at school, were better because they offered teachers a wider range of professional learning. Describing her views on in-school PL, while contrasting it with other traditional professional practices, Mourine commented:

> *PL practiced at school level can be too limited in terms of accumulation of knowledge and skills… because it involves teachers from the same school who might not have new skills to share… the same teachers from the same school meet, while having the same level of knowledge and skills. Therefore, it is difficult for them to gain something, which is very new to support their career (Mourine/INT-I).*

In the three cycles of inquiry, the three teachers were encouraged to engage in forms of PL that were affordable in terms of time, resources and supported according to school rules. I also regularly encouraged the teachers to explore available learning opportunities and to try them out during the inquiry cycles: *"You may get a lot of teaching tips just by networking with others" (Rehema/MT-2); "We need to think more about sources for getting information before we go to class" (Rehema/MT-3).* The continuous engagement in the inquiry cycles helped to shape their understanding of SBPL. In the following excerpt at the end of the study, Mourine indicates a shift in her previous understanding that SBPL was confined to school setting:

> *But with this SBPL, the PL is based at the school level… All learning should be done at school, or even if it is outside the school then the PL has to be directed to the school requirements. That means teachers are learning some skills for the benefit of the school (Mourine/FGD-1).*

Mourine concluded that the SBPL could be conducted anywhere, provided it aimed at supporting teachers with their job. Tausi also indicated a change of understanding as she explained that PL was referred to as school-based because it was done looking at school needs: *"I realized that it [PL] can be handled even in the normal school surroundings. This is due to the fact that it originates from there [school]" (Tausi/FGD-2).*

6.4.2 Understandings about implementation of SBPL

Since the school did not have an established PL programme, it was crucial to support the teachers to take lead and understand how effective SBPL could be implemented. Establishing an ongoing, adequate and relevant SBPL programme sounded complex and difficult for teachers when they heard about it for the first time. However, their understandings gradually changed as they engaged in their inquiry cycles.

6.4.2.1 Taking ownership

Prior to the study, teachers believed that it was a sole responsibility of the government to ensure the development of teachers and implementation PL programmes. Teachers knew that it could be difficult to establish a sound PL programme at school without direct support from the government:

> *And these [PL] practices are normally organized let's say by the Ministry or any other organization. But it is not individual teachers who conduct or organise them themselves. No! In our schools, I have never heard about that... programmes like these prove a failure (Mourine/INT-I).*

Initially, Mourine thought that a successful SBPL could not happen without support from educational experts and authorities. The teachers were not aware that their initiatives were crucial to establish and manage their own PL. Like Mourine, Magdalene was of the view that sound PL was impossible without government intervention or expert provision: "*Maybe, one day the government will see that the teachers need to refine their skills. Normally you need an expert to train you about something" (Magdalene/INT-I).* Tausi also contended that conducting ongoing PL at school would be too demanding. She doubted if the SBPL could be easily featured within tight school programmes: *"but it is not something which is very easy from the look of things. There are so many things that should be taken into consideration, in order for teachers to engage in PL" (Tausi/INT-I).* Therefore, initial findings revealed that the teachers lacked ownership of their PL and they were not aware of their role in promoting effective PL activities in schools.

While engaging in the SBPL as part of this study, the teachers found that the learning steps were well organized enabling them to have time and space to perform their routine duties alongside implementing PL plans. In addition, the teachers regularly modified PL practices in order to fit them into their work demands. The teachers also started to see that they were able to work with colleagues and address their issues in an organised way. This practice with me, the researcher had helped Tausi to understand the possibility of developing ongoing SBPL. She affirmed: "*At the beginning, I thought that it couldn't work... What matters is creativity and commitment" (Tausi/FGD-2); "learning can take place at the school and the relevant skills can be obtained" (Tausi/FGD-3).* Tausi also realised that effective SBPL could be established if teachers

would take ownership and they are able to create and manage their PL activities. The excerpt below is an evidence of her shifted understanding:

> *I never thought that it could be done in the manner… It is amazing!... Frankly speaking, before this programme, I never thought that it could be possible to do the professional learning at this level… As teachers, we can organize ourselves; we can put down our goals and use a few tools we have to improve the teaching skills… as long as, you [the teacher] decide willingly to engage in the learning programme (Tausi/FGD-2).*

When Magdalene completed her second inquiry cycle, she also became optimistic about the SBPL procedures. She said: "*Yes, it is encouraging! SBPL does not give the teacher a learning burden; rather it facilitates the teacher's job (Magdalene/FGD-3).* In addition, Magdalene revealed competencies and readiness to support other teachers at school to learn the SBPL participation. She described the inquiry process and emphasised that teachers need to continue learning until they find solution to their problems in practice:

> *Definitely, I can share the skills with the school! Well, it [IKBC] starts by finding out the problem… we need to have a focus or objective. We can't just jump on training teachers. What training do you provide and how... can be successful or not. If what I have applied was not successful [during IKBC], I had to find out the reason as to why it was not successful and start again (Magdalene/INT-F).*

What is revealed from these teachers' statements is their shift in understanding about the SBPL implementation processes. Teachers' statements also indicate enhanced sense of self efficacy and agency; that they could indeed effect change in their SBPL practice. They came to understand that regardless of the challenges around, an effective SBPL programme can be established if the activities are skilfully arranged and teachers taking their ownership and responsibility to learn and practice.

6.4.2.2 Locally available resources facilitate PL

At the beginning of the study, the three teachers insisted that lack of teaching resources was the major factor that hindered their engagement in SBPL. Reflecting on her experiences, Tausi argued that SBPL required adequate teaching and learning resources. She revealed: *"It is impossible for teachers to conduct SBPL with a very few resources available" (Tausi/INT-1).* Another teacher responded: "*School does not have sources of*

funds" *(Mourine/INT-I).* This view is supported by Magdalene, as she asserted: *"It is really difficult to implement PL in our school… If you ask me today to visit school X... or if you want to print… you have to get into your own pocket and do it… you will be told that it is out of our budget" (Magdalene/INT-I).*

While engaging in their inquiries, the teachers were advised to explore relevant resources within the school provision, or find alternative resources that might be affordable. It transpired that there were few resources in the school to facilitate their PL. Unfortunately; the school was not even in a position to buy books or offer cash to help teachers print learning materials.

Mourine discovered that she did not require additional teaching resources. She made a few photocopies of handouts, such as the examples of essays, which she needed for teaching her students. After Mourine participated in the first focus group, she revealed that her worries about inadequate resources had greatly been reduced. She acknowledged that it was possible to engage in an inquiry using a few locally available teaching and learning resources:

> *Those who have never engaged in professional learning might have poor assumptions like us before. Therefore, if they have an opportunity like the one we have got they will be changed people… the SBPL can be done by using the resources that can be simply accessed, just within your environment (Mourine/FGD-1).*

In the excerpt above, Mourine encourages other teachers to engage in their own learning inquiries confirming that lack of resources should not be the biggest hurdle. Alternatively, she encouraged teachers to change their attitudes and to start to explore resources in their local environment based on their PL needs. In her final interview, she suggested: "*According to my experience, a birth of successful SBPL is possible only if teachers will consider it as part of their life. That means as part of their job and make effective use of the opportunities around" (Mourine/INT-F).*

6.4.3 Impact of SBPL on students' learning

This following section examines teachers' perceived impact of their engagement in SBPL on students' learning. The three teachers noted that there were no positive changes in their students' learning when they taught them in the first inquiry cycle. However, considering what transpired in the first lessons, teachers believed that continuing to modify their teaching could help students' learn. For example, Mourine stated: *"As long as we have started this programme, I hope they [students] will be improving day after day… I think it is still too early to comment about the impact" (Mourine/FGD-1).*

Midway through the study, the three teachers reported that their application of different teaching techniques had interested the majority of students. Participating teachers explained that their engagement in inquiry resulted in learning many things, particularly improved teaching techniques. For example, Magdalene said: *"now we make use of the learned skills… using questioning techniques I could identify students with learning difficulties… when I helped them accordingly they showed some improvements" (Magdalene/FGD-3).* Thus, teachers' learning through their SBPL had served to improve students' learning, as reported below:

> *I have assessed my students' progress through the exercises I used to give them. I had some students who couldn't make even a single meaningful sentence, but this time they have written something that makes sense (Mourine/INT-F).*
>
> *I didn't believe that you can teach a Form One student how to write and then he/she can write something. We believed that this is a Form One, and therefore, he/she cannot… But that was not true. When assisted, students are teachable (Magdalene/FGD-2).*
>
> *I tried to help all students, but still there are weaker students who are also improving gradually. Try to compare the first time when we entered into my classroom, the students didn't know what was going on, seemed lazy… you can see them now even following me after class and ask some questions (Tausi/INT-F).*

By the end of the three cycles of teacher inquiry, the teachers realised that their SBPL had facilitated their students' progress. Magdalene was surprised to see for the first time a Form One student organise his lesson notes from her presentation. It was also interesting to note that finally Mourine perceived that her students had acquired some

basic skills for essay writing. The teachers' perception of their students' achievement was crucial in motivating them to keep reflecting and modifying their teaching practices through SBPL. The following section presents the factors that might have constrained and enabled the teachers' engagement in SBPL.

6.5 Barriers and enabling factors to teachers' engagement in SBPL

In chapter four, perceived barriers that constrained teachers' participation in PL were reported by surveyed teachers and the Heads of Schools. This section looks at the factors that constrained and enabled all four teachers from School L to engage in SBPL through inquiry cycles.

The four teachers' transformation in both practice and understanding of the SBPL process did not occur effortlessly. A number of physical, economic, social and cultural challenges were found to impede their participation in SBPL. However, six main factors were found to enable teachers to engage in their PL, as summarised in Table 6.3.

Table 6.3

Summary of Barriers and Enabling Factors to Teachers' Engagement in SBPL

SBPL aspects	Barriers to PL	Enabling factors
Availability of PL resources	Lack of funding. Limited teaching materials and facilities.	Using alternative PL strategies.
Time management	Lack of teachers' time for PL.	Effective time management.
Accountability by school leadership	Lack of greater accountability by school management.	School advised to maximise support in teacher PL.
Adapting PL experiences	Difficult adapting to new PL experiences.	Receiving expert support and encouragement
Professional commitment	Lack of commitment to PL.	Increased teacher commitment to PL.
Collaborative learning	Poor collaboration.	Promoting collaborative learning.

6.5.1 Availability of PL resources

Lack of funding and limited teaching/learning materials and facilities were identified as barriers to effective participation in teachers' inquiry cycles. However, using alternative PL resources and practices helped sustain teachers' engagement in SBPL. Lack of resources is underscored in the following section followed by measures taken to facilitate teachers' learning.

6.5.1.1 Lack of funding and other teaching/learning resources

Before starting the SBPL, the four teachers claimed that engaging in IKBC would be expensive and hence considerable funds would be needed to maintain their participation. Mourine asserted that PL required cash allowances which the schools could not afford: "*they do not have any sources of funds, because everything needs money" (Mourine/INT-I).* Lack of funding also appeared to be a problem during the inquiry cycles. Teachers were not pleased with the school's lack of funding for copying or printing their reading materials. For example, Lucy was unsuccessful when she tried to obtain funds from the school to copy book chapters for her reading lesson. However, she noted that the school was willing to support her, but the reality was, funding was unavailable. She commented:

> *I think it is necessary to have funds. With funds you can access other materials in a very simple way… It makes us consume a lot of time doing something very little… I shared with them about the issue of making copies, but they advised me to wait (Lucy/FGD-I).*

The teachers also suggested that it would be helpful if the school credited their mobile phones, as a way to access online learning materials, because access to the internet was currently at their expense. The school lacked a budget to assist teachers to engage in any form of PL, such as visiting other schools or educational institutions. The school also failed to cover the cost of transportation for the lecturer who voluntarily ran a school seminar on lesson planning. It is Tanzanian cultural practice to show appreciation by acknowledging an outsider's contribution. This lack of recognition left the teachers feeling uncomfortable and impeded future opportunities for networking with this outside expert.

Due to lack of funds, the school did not purchase adequate teaching and learning materials and facilities. For example, Mourine was concerned about the absence of evidence-based professional literature saying that *"I do not see any journal distributed in our department (Mourine/INT-I).* Shortage of teaching materials affected the IKBC implementation both for students' learning and for teachers' PL. Lucy's excerpt indicates that the shortage of books affected her teaching plan during the first inquiry cycle: *"But the problem is still on the availability of books. A few copies available… affect the implementation of the lesson" (Lucy/FGD-1).* She also explained that lack of books restricted her from using a greater variety of teaching strategies.

The school also had no computer facilities, as Magdalene confirmed: *"here we do not have computers and other related facilities" (INT-I).* Hence, lack of school computers, access to free internet services or power shortages acted as barriers to the SBPL. The teachers had to rely on their smart mobile phones and therefore complained that reading from such small screens was so exhausting. Lucy summed it up by arguing that "*phones were not meant for performing such serious reading. They can be used, but in reality they are tiresome" (Lucy/INT-F).* The teachers were also concerned that the school's lack of library facilities impeded their engagement in SBPL.

6.5.1.2 Using alternative PL strategies

The teachers were encouraged to find and use alternative teaching and learning resources to address their school's lack of resources. However, they were also advised to ask for reimbursement from me, the researcher, for activities that required money, such as printing. The following statement from Magdalene implies that lack of resources couldn't stop her from engaging in PL: "*We have been connecting pieces of what we have, so I am no longer considering the lack of resources as a big challenge" (Magdalene/INT-F).*

Teachers also employed other means of PL when they could not afford to practice the types of SBPL they wanted. For example, when the teachers were unable to do school visits, classroom observations or to organise regular seminars during their inquiry cycles due to financial and time constraints, effort was exerted into reading scholarly works and discussions about their teaching areas instead. Using these alternative

strategies was seen by Mourine to be better than nothing: "*In order to do something it is not necessary to start with a very big thing, instead you can start with something small (Mourine/INT-F).* This result suggests that establishment or maintenance of the SBPL at the school depends on teachers' knowledge and skills and in harmonising the fewer resources available.

6.5.2 Time management

Lack of time was also identified as a concern hindering teachers' participation in their SBPL as presented below. However, effective time management helped the teachers to maintain their PL during the inquiry cycles.

6.5.2.1 Lack of teachers' time

The teachers also indicated that engaging in SBPL would compromise their time to cover the subject syllabus they are required to deliver. They tended to avoid additional teaching activities that were unduly time-consuming. Lucy revealed that balancing her limited time for PL with her annual teaching scheme of work was challenging:

> *Time is also a challenge... we are trying to manage it... I am rushing to make sure that I finish topics in time and at the same time introducing the new skills to students. The topics are there to be covered (Lucy/FGD-1).*

It was evident that the teachers were rushing to complete their PL tasks such as their professional reading. This barrier was reflected in my field notes:

> *The teachers spend little time in reading. Sometimes, they seem to be in a hurry! They avoid doing extensive reading and try out more opportunities. None of the teachers responded to my suggestion about visiting the City library where they could access more materials and perhaps meet other scholars (Rehema/REF/J).*

Occasionally, changes occurred in the school timetable, which made it quite difficult for teachers to meet together for their PL or to discuss a new intervention in their teaching. This problem arose because SBPL was not timetabled in the school calendar. The teachers also claimed that it was difficult for them to conduct classroom observations because their teaching schedules often clashed.

Finding the time for SBPL was also found to be difficult for teachers, especially when there was interference of other teaching-related responsibilities. For instance, Lucy had other demanding teacher-related responsibilities, such as being the main spokesperson for the school. As a result, teachers' other duties have also acted as barriers when these interrupted their teaching and teachers' attempts to put their interventions in place. For example, Lucy was attending an external examination task once during the IKBC, which interfered with her classroom teaching. A further example occurred when Lucy and Mourine were unable to attend the lesson planning seminar session, which they participated in facilitating, because they had to attend official meetings outside the school. However, the teachers attributed these occasional interferences to limited time for engaging in PL, rather than for having a heavy workload.

6.5.2.2 Effective time management

PL was not allocated time in the school calendar. The teachers, therefore, worked with me to *make time* for their PL activities within the school timetable. One of the strategies used to make time was to use the normal classroom teaching periods and their existing scheme of work to implement their teaching. This strategy was found to be appropriate in two ways: the teachers were not required to change their schemes of work which could have resulted in additional time to cover the syllabus; and there was no need to have special sessions for implementing the teaching lessons in the classroom.

Another strategy through which time was created and managed was by utilising opportunities that already existed for the teachers to engage in their PL. For example, initially, the teachers and I, set aside every Wednesday for our inquiry formal meetings because teachers found that they had fewer periods to teach according to their normal school timetable. However, due to interferences in our PL timetable, the meetings had to be re-scheduled to another convenient day. The teachers also used available free time when they had no teaching periods, in any day at school to meet for their informal professional conversations and share their learning progress. The following quote from Tausi confirms that teachers were prepared to perform their PL activities whenever there was an opportunity to do so: *"you should be ready to study or work at any time. You can't sit down and wait for a special chance to engage [in PL]" (Tausi/FGD-2)*. In addition, Lucy reported how they made the most of every opportunity for PL:

As we are from the same department that is why it was possible, 'When do we have a free [period[?' we ask each other and then find the suitable time for all of us for doing something extra [PL]… find a time when everyone is free and that's how you can engage in PL (Lucy/FGD-2).

The teachers utilised what they considered 'extra time' to attend to their PL tasks. For example, in her final interview, Tausi reported that she tried to create time for PL from her teaching routines, especially, when she wanted to do individual reading. "*I can do it from home, especially when I had some materials to read. Therefore, I was using like a tea break time… Is that not extra?*" *(Tausi/INT-F).* Making use of time set aside for a break enabled the participants to learn at school or home.

6.5.3 Accountability by school's management

This section presents how school leaders' lack of accountability might have acted as a barrier to teachers' engagement in their inquiry cycles and the measures taken to encourage the school to support the implementation of teachers' PL.

6.5.3.1 Lack of greater accountability by school

Lack of greater accountability by the school's management also created a barrier to teachers' engagement in SBPL. As the teachers engaged in their inquiries, the school's management did not realise that the teachers' increasing PL activities required their considerable support. The teachers expected their school to provide at least one staff member to guide the implementation of their PL activities. For example, it was such a challenging task for the teachers to organise in-school seminars during the implementation of their inquiry cycles without an explicit school PL policy. Teachers considered that this situation arose as a result of the school's lack of accountability and commitment to PL. Lucy commented: "*Supervision is important. The main supervisor of PL is supposed to be an Academic Master. Why is the Academic Office not given this duty?" (Lucy/INT-F).* Lack of greater commitment from the administration's side made the teachers feel that the PL tasks would be their sole responsibility.

6.5.3.2 School advised to increase teacher PL support

The implementation of an IKBC intervention could not have been successful without any kind of support from the school's management team. Therefore, prior to the inquiry cycle intervention, I advised the school leadership to provide sufficient moral and material support to the teachers so that would engage in effective PL. In addition, after the second inquiry cycle, the four teachers invited the Head of School and his Deputy to their school-based seminar to share their PL progress and challenges as well. The school leaders were invited to this seminar so that to be informed of the teachers' PL practices and see the need for increasing support to their teachers with regard to engagement in sustainable SBPL.

Although the school's management team did not show sufficient support to teachers' PL during their inquiry cycles, they offered an office space for SBPL activities, which provided not only a conducive place for PL discussions, but also made the teachers feel that their PL efforts were valued. While lack of guidance and financial support from the school were key barriers to teachers' PL, the teachers reported that the success of the SBPL depended largely on the value and respect the management team attached to their PL programme. Lucy explained: *"the Headmaster is aware that there is this programme going on, he acknowledges our effort in this programme (Lucy/INT-F).* However, school leaders were urged to increase their commitment to teacher PL by improving their support system.

6.5.4 Adapting PL experiences

The four teachers revealed that they found adapting the new PL experiences quite challenging. However, expert support and encouragement were provided to enable them promote and maintain their practices in and understandings of PL.

6.5.4.1 Difficulty adapting to new PL experiences

As the facilitator, I observed the challenges teachers experienced to adapt to their PL practices. For example, the teachers were reticent to access readings from other education institutions, such as the City library or Universities despite being encouraged to do so in our meetings. I documented this teachers' reluctance in my reflective notes;

"It seems that none of the teachers want to visit the library" (Rehema/REF/J). Participants only needed to ask for permission from school and visit certain locations where they could get scholarly readings free of charge or at minimal cost. It seemed that during the inquiry cycles, the teachers preferred to stay at school.

I also invited the teachers to join me for my classroom observations. The teachers seemed to support the idea, but they made excuses about timetable clashes. It was important to find out if teachers had other reasons that prohibited them from participating in classroom observations and other related PL activities. Their comments ranged from 'no reason' to 'lack of time':

> *I didn't have a reason for not doing that... but I couldn't because I was held up with other duties (Magdalene/INT-F).*
>
> *I didn't have time… We agreed that immediately after completing this phase… we are going to conduct classroom observations (Lucy/INT-F).*

While shortage of time was a challenge for the teachers to engage in PL, it appeared sometimes that time being a problem was used as a cover to their reluctance. Failing to perform some PL practices like visiting the library was regarded as inflexibility or an outstanding uncertainty of teachers to learn new things. This passivity may have resulted from the pre-existing teachers' expectations that professional training should be provided to them. Teachers simply needed more time to adapt to their new PL experiences.

6.5.4.2 Receiving expert support and encouragement

Regardless of their notable passivity to adapt to some PL experiences, the teachers admitted that the assistance they obtained from me as the researcher facilitator had helped them to reduce their passivity and to learn various PL skills. For example, Lucy appreciated my exposing her "*to the heap of knowledge about reading" (Lucy/FGD-1).* She added: *"as the facilitator you were advising us about what to do… in a better way" (INT-F).* However, Mourine added that apart from my technical support, it was my encouragement to continue with her SBPL that mattered most. *"you encouraged us to do it" (Mourine/INT-F).*

Support also came from the University lecturer who delivered a seminar on lesson planning. Explaining the value of such support, Magdalene commented: "*I should say about the seminar facilitator. I think that is also the support" (Magdalene/INT-F).* Similarly, the History lecturer who was requested to comment on the teachers' content areas provided new insights about *what* they might teach but not about the *how,* as Lucy commented: *"another support is from a History consultant, you connected us with" (Lucy/INT-F).* Therefore, external expertise was helpful to teachers' engagement in PL practices and understandings of their SBPL.

6.5.5 Professional commitment

The teachers also revealed low levels of commitment to sustain the PL when they started to engage in the first inquiry. The use of support and encouragement again, enabled the teachers to make sense of their engagement in inquiry cycles, and hence increased their commitment to PL. These constraining and enabling factors are reported below.

6.5.5.1 Lack of commitment to PL

As reported in sections 6.4.2.1 and 5.5.4, before engaging in their first inquiry cycle, the four teachers seemed to have lacked a sense of professional commitment to their PL. Initial findings revealed that the teachers lacked commitment to their PL because they felt that it was the sole responsibility of the government and school to provide them with these services. This situation suggests that as individuals, teachers were not committed to initiate, plan or share PL experiences. However, this IKBC intervention could not have been successful without increased teachers' professional commitment to their learning, as presented below.

6.5.5.2 Increased teacher commitment to PL

In the course of the study, the teachers revealed an increased commitment to PL when they were offered technical support, verbal encouragement and realised some improvements in their teaching and students' learning. They became more willing to share their limited resources in terms of funds, time and energy to promote their PL. For example, Lucy reported that at one time, she was happy to spend her money to make a

few copies of readings for her students. Her positive response to lacking teaching materials implies her commitment to achieving her professional learning objective. She described her commitment to her learning in the following excerpt:

> *These are some of the challenges one can go through, but then you have to find a way out if you are really committed. For example, in my case, one time I had to spend my money, use cash from my pocket to make sure that we keep learning (Lucy/INT-F).*

Magdalene also added that their readiness to learn and desire to undertake PL practices during their inquiry cycles raised their commitment:

> *Just like what Madam Lucy did… SBPL requires volunteering, readiness and commitment. Otherwise, teachers can be good listeners than implementers…. readiness matters most, for example, you may identify the problem, but you also need to commit yourself to ensure that you seek solutions (Magdalene/FGD-3).*

Teachers' commitment to their PL was also evident when they shared their learning progress with their peers. The four teachers intended to inform their colleagues about their PL, as well as show them how SBPL could be organised. Each teacher presented her PL activities and the seminar participants asked questions and suggested ways to keep improving, which extended their PL conversations beyond the confines of this study. The teachers also revealed their commitment to PL when they helped organise for a University lecturer to come to school to support learning about effective planning.

This increased teacher commitment can be attributed to a number of factors, the key one being teachers' curiosity to learn and to understand how the SBPL could help them to address their problems of practice. However, it is worth noting that teachers dedicated more effort to the SBPL when they realised that it has improved their teaching skills, and that it facilitated their students' learning. Tausi confirmed: *"When the teacher is aware that he/she is doing something to make her/his job more efficient, I believe one can spare time for it… I was inspired by what we were doing" (Tausi/INT-F).*

6.5.6 Collaborative learning

This section presents how teachers improved the traditional practice of isolated teacher learning and how their skills for engaging in collaborative learning were enhanced, so as to strengthen their practices and understandings of the SBPL.

6.5.6.1 Poor collaboration

Initial findings revealed that most of the teachers' PL occurred in isolation. Even the PL that occurred in the whole staff and subject departmental meetings was not interactive, as it did not enable teachers to engage in ongoing collaborative learning. For example, Tausi indicated that the teachers at the school had opportunities to learn from their colleagues who attended training from outside the school, *"I can say that we just get feedback from those who attended training" (Tausi/INT-1).* This PL acted as a one-sided transmission type of communication. Lucy also reported before the inquiry cycle that she was not confident to share some teaching techniques she learned from outside the school when she participated in marking the regional examination because a well-established culture of collaborative learning seemed to be non-existent at her school (see section 5.4.3). Generally, the teachers had not experienced an engagement in a meaningful collaborative learning where trust, respect, continual support and mutual learning are important aspects.

6.5.6.2 Promoting PL collaboration

This study aimed to promote teacher engagement in collaborative learning in order to help them share experiences and motivate one another to address their problems in practice. For example, having guiding rules during the inquiry cycles enabled teachers to respect other people's ideas and develop trust among them. As a consequence, the teachers found that working as a team following clear procedures had helped them to sustain and take ownership of their engagement in SBPL.

Through exchanging knowledge and skills, and helping each other to develop skills, the teachers noted that their learning was improved. During group learning, the teachers' ideas were moulded through constructive challenges. Lucy commented: *"Once you share it in your group, the knowledge becomes more meaningful as you will listen to other people's comments" (Lucy/FGD-2).* Magdalene also revealed that learning

collaboratively was an important motivation for her PL during the inquiry cycles, recalling that: *"learning together creates a good learning atmosphere and you feel motivated" (Magdalene/INT-F).*

Through our collaborative learning, the teachers also learned how to evaluate the comments they received from colleagues, as Tausi described: *"Listening skills are important. You need to hear what others are suggesting and weigh it out" (Tausi/INT-F).* Teachers showed that they developed academic maturity, and were able to respect other people's opinions during their collaborative PL. In addition, Mourine believed that their collaboration made them feel relatively more responsible for their own and each other's PL. She elaborated: "*we wanted to do something collaboratively, then we divided the tasks, you go and do this, you do that and do that" (Mourine/INT-F).* Tausi added*: "When I knew that tomorrow we are having a meeting with colleagues I felt good and happy to share… what I obtained from my readings" (Tausi/INT-F).*

6.6 Chapter summary

The findings presented in this chapter reported the changes made by the teachers in their engagement in SBPL, as well as the factors that had possibly constrained and enabled their engagement. By using cycles of inquiry the teachers were able to establish clear goals for their PL practices. With respect to the types of SBPL employed by teachers in their learning, the teachers engaged mostly in discussions and independent study than in other types of SBPL. The participating teachers indicated that SBPL improved their teaching knowledge and skills to better facilitate students' learning. The findings also illustrated how the teachers' understandings of SBPL shifted as they participated in this practice through the inquiry cycles. Of interest, was the change in understanding that PL was not just training that happened externally to the school, but that they could own and regulate their PL as a community of learners.

The findings also identified several factors that acted as barriers to the teachers' participation in SBPL. Of all the barriers, lack of resources and funds was seen to be the most critical. Several factors were also shown to enable the teachers' engagement in SBPL. The support systems established during the inquiry enabled the teachers to plan and implement their own PL within their school context. Such support has relatively

sustained their motivation and commitment to SBPL. The next chapter discusses the findings of the study.

CHAPTER SEVEN

DISCUSSION

7.1 Introduction

This study has investigated the ways in which Tanzanian secondary school teachers have changed their understandings of and practices in a school-based professional learning (SBPL). The research responds to the need to develop more effective professional learning (PL) programmes for Tanzanian teachers (Anangisye, 2011; Hardman, 2009; Hardman et al., 2011; MoEVT, 2007). In this chapter, the findings from both phases of the study in relation to contemporary literature about teachers' PL are discussed. This chapter starts by discussing findings from the first phase about how teachers perceive and engage with their SBPL. The second phase findings are then discussed in relation to how the four teachers shifted both their understandings of and their practices in SBPL, having engaged in an inquiry and knowledge-building cycle (IKBC). Finally, the overall interpretation of the barriers to teachers' engagement in PL is juxtaposed with the enabling factors. The four research questions for this study provide a framework for the discussion.

7.2 Teachers' perceptions and engagement in professional learning

This section discusses Phase One findings about Tanzanian teachers' perceptions of and engagement in their PL in 2015. The major findings of the study are discussed according to Table 7.1

Table 7.1

Major Findings for Research Question One

Research question one	Major findings
How do Tanzanian secondary school teachers perceive and engage with their school-based professional learning?	7.2.1 Teachers' participation in traditional professional training 7.2.2 Teachers' engagement in alternative types of SBPL. 7.2.3 Teachers' perceived need for more effective PL

As presented in Table 7.1, the findings indicate that Tanzanian teachers' participation in PL can be conveniently categorized under two broad area: traditional PL formats, where teachers had minimal participation, and alternative PL formats, in which most teachers engaged to varying degrees. The survey findings also indicate that the majority of teachers perceived that their participation in existing professional learning practice was not effective. Therefore, teachers perceived that they needed more opportunities for PL, so as to enhance their effectiveness as teachers.

7.2.1 Teachers' participation in traditional professional training

A low level of participation in formal in-service training by Tanzanian secondary school teachers was identified. At the time the survey was administered in 2016, on average, 70% of the teacher respondents revealed that they had never attended formal in-service training in the previous year, i.e. a short course, seminar or workshop. These findings align with other Tanzanian studies that also indicate limited in-service training opportunities for teachers (Bermeo et al., 2013; Bhalalusesa et al., 2011; Kitta, 2004, 2015; Mkumbo, 2011; MoEVT, 2007). For example, a survey conducted by Mkumbo (2011) in six regions of Tanzania reported that only 15.3% of secondary schools teachers attended professional development programme "in the past two years" (p. 12). Similarly, a baseline study conducted in Tanzania by Hardman and Dachi (2012) found considerable variation in the way primary school teachers engaged in in-service training across seven local districts. Overall, the two researchers found that, as few as only nine percent of teachers in two districts attended training programmes, while the training attendance in the other two districts was over 80%. Hence, this variation implies less-than-desired participation in PL opportunities across Tanzanian districts.

Despite the 1995 Tanzanian Education Policy requiring all in-service teachers to engage in some form of training, a significant disparity between the policy and the reality reported here can be implied. Moreover, teachers, like the Heads of Schools interviewed in this study, indicated that these traditional PL training sessions were not offered on a regular basis. This finding aligns with a recent study by Donkor and Banki (2017) in Ghana, which showed that although teachers had opportunities to attend in-service training, it was not frequently organised. In the same vein, D. K. Cohen and Hill (2001) and Hiebert and Stigler (2017) in North America argue that regardless of how well these

traditional PL programmes are designed, the opportunities to continual learning are limited to only a small number of teachers.

Interviews with the four Heads of Schools also revealed that their schools had no control over the types of PL offered to teachers. It has been pointed out that training available is often provided externally by government institutions and private organisations, rather than in response to requests from schools or school districts. Training providers typically invite teachers to attend sessions through their school management. Such top down, imposed in-service training approach was considered by Anangisye (2011) to be one of the major contributing factors in preventing effective PL in Tanzania. In support of the findings in this present study, Smardon and Charteris (2017) in New Zealand indicate that these external PL providers can have ownership of the nature of training opportunities they wish to offer teachers. The fact that this professional training was imposed upon teachers from the outside, reinforced by management and again not responsive to their PL needs let alone students' learning needs, shows its ineffectiveness as a process of learning. This finding agrees with Lieberman (1995)'s view that direct training provided by an outside expert may not successfully address the issues of practice without involving teachers to organise their learning. As a result, the teachers and the schools had little influence over the PL focus or the style of PL and subsequently teachers saw little relevance to meeting their needs to improve pedagogical practices.

In a small scale study conducted in South Africa on the benefits of teacher PL, Mestry et al. (2009) indicate that a powerful PL programme is one that gives teachers ownership over their participation and builds on explicit communication between the schools and teachers about a relevant focus for learning. This view is supported by the social constructivist perspective in concluding that effective learning is often co-created by the people themselves, rather than being imposed from the outside (Schunk, 2012). Writing about schools creating effective PL, Darling-Hammond and Richardson (2009), suggest that "professional development is more effective when schools approach it not in isolation, as in the traditional one-shot workshop, but rather as a coherent part of a school reform effort" (p. 47).

Interviews with the Heads of Schools also revealed that most of the recipients of the few training programmes provided in Tanzanian schools were Science, Mathematics and, to some extent, English language teachers. This finding aligns with a recent small-scale study with History teachers in Tanzanian secondary schools, which reported that "most seminars and professional development workshops are for Science, Mathematics and English language teachers" (Namamba & Rao, 2017b, p. 188). As a consequence, teaching other curriculum areas such as Social Studies in Tanzanian schools is likely to be negatively affected by lack of professional development programmes (Mtitu, 2014; Namamba & Rao, 2017b). On the other hand, studies of Kafyulilo et al. (2016) and Mtebe et al. (2016) revealed that even in Science, lack of sufficient professional training has impaired Science teachers' pedagogical skills and content knowledge. These findings suggest that there is a lack of consistent provision of training to Tanzanian teachers across all subject specialisations.

The Heads of Schools in the present study revealed that while many teachers did not frequently attend formal PL, those who did mostly attended seminars. Consistent with these results, Bhalalusesa et al. (2011) and HakiElimu (2009) indicated that most of the in-service PL in Tanzania take the form of seminars or workshops provided to teachers by government institutions and other educational stakeholders. Similarly, in their case study of continuing teacher PL in South Africa, Ono and Ferreira (2010) clarified that certain forms of training, such as seminars through a 'cascade model', are popular in many African countries because new educational ideas or issues can be quickly 'transferred'. Likewise, seminar style PL in Tanzania is possibly employed to reach a large group of teachers within a short period of time. However, Tanzanian teachers' preference for seminars could not only be attributed to their perceptions of gaining professional skills from participating in these practices, but can also be associated with the financial benefit of getting an *allowance*, commonly known as "*posho*", as indicated by Head of School L in this study. Further to a comment made by URT and UNESCO (2014), short courses or seminars "are not recognised for promotion, and therefore attract teachers only when they are associated with allowances" (p. 45). Thus, it is important to help teachers to focus on effective learning for the intrinsic benefit of improving their teaching rather than in pursuance of the extrinsic rewards of "*posho*".

Another important finding from the present study was the minimal engagement by teachers in these traditional seminars or workshops partly due to lack of school-initiated workshops on offer by local schools. It was surprising to learn that the Heads of School B and D focused only on externally organised training activities because no internal seminars or workshops could be arranged (see section 4.2.1.2). In particular, Desta et al. (2013) in Addis Ababa, Ethiopia reported that "in-house workshops" worked well to facilitate teachers' participation in PL. Likewise, teachers in Botswana also indicated their preference for internal seminars provided by colleagues compared to outsiders for being familiar with their job challenges and in view of their professional relationship (Jojo, 2017). By using in-school staff expertise, school can also create more training grounds and facilitate continuing teacher PL. Therefore, these findings suggest that relying only on externally organised PL programmes can limit teachers' learning opportunities. International scholars show that regardless of their popularity, internal or external PL programmes, such as seminars cannot provide adequate PL for teachers unless they are associated with alternative forms of PL (Guskey, 2014; Jones & Dexter, 2014; Lieberman, 2000; MacNeil, 2004; Steyn, 2008). Therefore, these studies clearly indicate the importance of teachers engaging in a range of PL opportunities they see fit their needs.

7.2.2 Teachers' engagement in alternative types of SBPL

The findings also revealed that while many teachers were unable to attend traditional PL programmes, they did engage in other forms of SBPL. These alternative formats to traditional seminars and workshops, such as peer observations, classroom action research, networking, discussions and other conversations were less formal because they were not systematically organized in schools (see the excerpts in section 4.2.1.3-6). This finding reflects the comment by Choi and Jacobs (2011) that PL can be categorized as formal or informal depending on how learning opportunities are structured or interpreted in the workplace. In addition, findings from this study reflect the situation that a systemic school-based teacher PL approach is not yet officially established in Tanzania (Hardman et al., 2015). For that reason, it can be assumed that schools might have lacked guidance and accountability to organize a range of formal SBPL programmes. These alternative or informal PL formats indicated in this present study are discussed below.

The survey indicated that while a few teachers visited other schools for PL, the majority of them (60.9%) engaged in peer observations as an alternative form of PL in their schools. This finding contrasts with a previous study conducted by Kyaruzi (2014) in Tanzania showing that only a few teachers in the selected secondary schools conducted peer observations. However, Kyaruzi's finding aligns with the views of the Heads of Schools in the present study that a classroom observation was a useful kind of PL despite being infrequent. Similarly, a case study by Reinhorn et al. (2015) in North America showed that teachers conducted peer observations in diverse ways. Reinhorn et al. concluded that this practice positively contributed to improving teachers' teaching skills. Furthermore, in a review of international articles about how teachers learn to learn, Postholm (2012) indicated that teachers can learn "in school when they reflect on their own teaching and in observation of and reflection on others' teaching" (p. 406). These researchers concluded that the teachers found these practices to be valuable PL whether the observations were structured or occurred unintentionally.

Classroom action research was also found to be an alternative form of PL used by teachers in the present study for improving classroom practice. Just over one-third of the teachers (37.6%) indicated that they are occasionally engaged in classroom-based action research. These findings align with Desta et al. (2013) who reported that a considerable number of Ethiopian teachers considered action research to be a useful form of PL that enabled them to address their specific PL needs. The school leaders in this present study indicated that their teachers had *not* performed systematic classroom action research, but rather informal classroom inquiries. In relation to the views of the Heads of Schools, Beck (2017) clarifies that "the broad learning teachers achieve through informal inquiry can legitimately be called research since it comes about through their sustained attempts to understand and improve practice" (p. 42). This idea implies that although teachers may lack proper skills for conducting action research, they can assist each other in a shared inquiry (Burbank & Kauchak, 2003). Other studies also indicate that collaborative action research helps teachers to address their teaching difficulties (Herbert & Rainford, 2014; Sinnema et al., 2011).

Interviews with all Heads of Schools in this present study revealed that the majority of less formal PL activities in schools took the form of whole staff or departmental meetings. In particular, the teachers shared their experiences obtained from other

sources of learning in these meetings. School leaders also used these forums, particularly whole staff meetings to encourage teachers to update their teaching competencies. Similarly, Mukeredzi (2013) reported that Zimbabwean secondary school teachers used staff meetings and other school meetings as platforms to promote and to engage in PL, such as sharing ideas about classroom teaching and assessment practices. These findings suggest that schools use opportunities in staff meetings to engage in PL, as observed by Oweyo and Umoh (2016) in Nigeria. Another example is provided by Tan and Ng (2012) who found that many teachers in Cambodia attend departmental monthly meetings where they discussed matters related to their professional skills. Although the school leaders in the present study claimed that attending school meetings was mandatory, analysis of departmental meeting minutes at School L (Lisuli School) showed that these meetings were neither frequent nor scheduled in an annual programme, but mainly occurred during the review of National examination results. If formal departmental meetings are not regularly held in schools, then it might be difficult for teachers to develop professional relationship and continue reflecting in their classroom issues. As recommended by Melville and Wallace (2007), "schools can harness the powerful subcultures of subject departments to provide access to professional learning" (p. 1204). In her recent examination of well-established teacher education systems, Darling-Hammond (2017) reported that in countries such as Singapore it is common for PL activities to be implemented at a department level.

This study also showed that 80-90% of the surveyed teachers identified informal conversations as their predominant form of informal PL. Informal conversations involves engaging in informal PL dialogues with peers and chatting with another teacher to help a student; a finding which aligns with a number of international studies (Eraut, 2011; Hoekstra et al., 2009; Kyndt et al., 2016; Marsick et al., 2006). Moreover, interviews with the school leaders in the present study revealed that teachers had informal conversations with anyone perceived to be knowledgeable, but not necessarily in response to trying to understand and improve their practice. In another Tanzanian study, Bermeo et al. (2013) described this kind of dialogic informal PL as a socialization process in which many teachers engage automatically. Teachers' responses also reflected Borko (2004) view that teachers' PL "can occur in a brief hallway conversation with a colleague, or after school when counseling a troubled child" (p. 4). This remark indicates that teachers can help one another by talking to each other.

Holding dialogues among teachers is a sociocultural practice in which new ideas can be co-constructed (Jurasaite-Harbison & Rex, 2010; Wenger, 1998). However, in their case study of enhancing capabilities of teachers who worked with student teachers in New Zealand, Sewell et al. (2017) cautioned that even if teachers are knowledgeable in a classroom, they may not be skilled to provide appropriate support or mentoring for another teacher. The key point here is that competence in one area of teaching may not correlate with other areas, hence affecting the learning potential of professional conversations.

In conclusion, while a low level of teacher participation in traditional formal training indicates a dearth of PL opportunities in Tanzania; this may not be the case with considerable teacher engagement in alternative or informal SBPL. This finding suggests that Tanzanian teachers might be engaging in broad school-based PL formats, contrary to what has been highlighted in some studies (Komba & Nkumbi, 2008; Mkumbo, 2011; MoEVT, 2007). In addition, the current study and other Tanzanian studies by Anderson and Sumra (2002), Anney (2013), Kafyulilo (2013) and Msonde (2011) provide examples of PL projects in secondary schools that utilised the school as a site for PL with a range of PL formats. Likewise, an increasing number of studies in Africa show that SBPL can be successfully conducted in places with limited resources and organized or owned by teachers themselves (Hardman, 2009; Hardman et al., 2011; Mushayikwa & Lubben, 2009). Many developing countries are turning to alternative forms of teacher PL in response to the barriers they face (Clercq & Phiri, 2013; Crichton & Carter, 2017; Hennessy et al., 2015; Wabule, 2016) . In their study conducted in Singapore, Múñez et al. (2017) also recommended that both formal and less formal PL activities can be incorporated to form adequate and sustainable learning for teachers.

7.2.3 Teachers' perceived need for more effective PL

The findings reveal that teachers needed to engage in more PL activities to enhance their teaching skills. Effective PL is found to be crucial because students' learning in Tanzania largely relies on teachers (Komba & Nkumbi, 2008). Over half of the teachers surveyed (58.7%) considered formal PL to have a considerable impact on their competence to perform their teaching role. Similarly, the Heads of Schools believed that

when teachers engaged in any form of PL they were able to refine their teaching practice. Although it appears that school leaders focused on the *amount* of PL teachers practiced rather than its *quality*, the need for adequate PL was emphasised. More specifically, school leaders, particularly the Head of School L, emphasised that PL was not just supplementary to teaching competencies, as some teachers lacked the very basic teaching skills. This claim is further highlighted in a recent survey conducted by Bold et al. (2017) that some African classroom teachers lack basic teaching skills. Related arguments are reflected in another small scale study of Tanzanian and Malawian teachers indicating that teachers tend to experience a high level of incompatibility between what they learn in their initial teacher education (ITE) and the challenges they encounter in their actual workplaces (Mkandawire et al., 2016). These findings have important implications for emphasising the growing need for teachers to engage in ongoing job-embedded professional learning. The findings also raise intriguing questions regarding the nature and quality of current initial teacher education (ITE), and therefore calling for its provision to be critiqued and improved.

While not all teachers perceived their PL participation to be significant, 88.3% of the participants expressed that they needed more PL than they were currently engaging in. These findings imply that teachers were not satisfied with the amount and quality of their existing PL opportunities. These findings corroborate with the report by URT and UNESCO (2014) which shows that in-service teacher education in Tanzania has not yet attained the standards that could assist teachers to engage in high quality PL. Correspondingly, Kosgei (2015) reported a similar finding with Kenyan teachers who were eager for opportunities to participate in effective PL. In particular, the findings revealed that teachers in the current study needed help to upgrade competency to engage effectively in PL. Some studies have shown that encouraging teachers to take ownership to design and to implement their own PL can be quite effective, if teachers acquire the necessary skills. For example, Colbert et al. (2008) in California realised that "permitting teachers to construct their own professional development programs and empowering them to make choices about the content of that program…has implications about the way resources [such as teachers] are used for professional development" (p. 147). Researchers commented that the current studies in PL emphasise this self-management of teachers' PL. On the contrary, just less than half of those surveyed in the present study (47.9%) reported that they lacked support in their PL. Teachers' PL

can be enhanced if teachers are positioned as learners and are supported to manage and take on a leadership role to engage in workplace learning (Goller & Paloniemi, 2017).

7.3 New understandings and practices in SBPL

This section discusses the teachers' PL transformations with regard to SBPL. This discussion is based on Phase Two findings using the second and third research questions: "What changes do Tanzanian secondary school teachers make to their SBPL practices as they engage in an inquiry and knowledge-building cycle (IKBC) of PL?"; and "What changes do Tanzanian secondary school teachers make in their understanding of SBPL as they engage in an IKBC of PL?". Since the baseline findings generally revealed that the surveyed schools lacked effective SBPL knowledge and skills, the teacher inquiry and knowledge-building cycle was employed to enable four teachers to engage in and enhance their PL participation. This teacher inquiry is one example of effective SBPL that can lead to improved outcomes for students (Timperley et al., 2007) and enhance teachers' skills to conduct their PL. Before discussing the transformations demonstrated by the four teachers in their pedagogical skills and understandings of SBPL, it is important to interpret their general change process, which was progressive in nature.

All four teachers demonstrated a gradual shift in knowledge about the IKBC. This significant development was not immediately realised until the teachers engaged in the second inquiry cycle. Tausi, for example, confirmed in her final interview that it took her a considerable amount of time to comprehend the IKBC process (section 6.4.1.1). These findings are consistent with those of Msonde (2011) in Tanzania, who found that it was not until the PL model was implemented that the teachers began to understand its processes and value to support their PL. In the same vein, upon implementing the inquiry cycle for the first time, the teachers regarded this practice as a classroom teaching method, rather than a tool to help them to learn. In the course of time, the four teachers realised that their cycles were not a teaching method at all, but a comprehensive approach designed to facilitate their learning to teach to better support students' learning. A similar gradual change is reported by Butler et al. (2017) when scaling an innovative teacher PL framework about the use of new technologies in Irish secondary schools. These authors indicated that through engagement in PL, in the

course of time, both the participating teachers and their leaders shifted their understandings of the "digital technologies" from viewing them "as tools to support traditional practice… to tools that facilitate more progressive classroom practices" (p. 151). In another study examining primary school teachers in Singapore, Sun et al. (2016) reported that teachers needed a long term PL intervention to internalise their innovation of mobile learning.

The gradual shift in understanding of the IKBC in the present study implies that teachers needed sufficient time to experience a familiarisation process. This situation is reflected in the claim made by Borko (2004) that "meaningful learning is a slow and uncertain process for teachers, just as it is for students" (p. 6). Similar to Borko's claim, Lave and Wenger (1991) suggested that teachers start their PL as novice learners, but with time and support (see section 6.5 for the kind of support offered to teachers), they gradually adjust their learning experiences. Hargreaves (2013) also comments that "change isn't a drug" that can bring instant results; but takes time for teachers to appreciate new experiences (p. 230).

While teachers' change of their PL engagement through their inquiries was gradual, it is too difficult to ascertain the exact cause and effect relationship between practices and understanding. For instance, it is difficult to tell what exactly developed Tausi's knowledge and skills to engage in her peer classroom observation during the third inquiry cycle. She might have learned her skills through discussions, planning PL activities with colleagues or by listening to and be inspired by what Magdalene said she did with her students in class. Generally, the observed nature of teachers' understandings of PL and change in practices is reflected in the arguments made by Meirink et al. (2007). These scholars suggest that "a change in cognition does not necessarily have to result in a change in behaviour to be labelled as 'learning'. Likewise, a change in behaviour does not have to result in a change in cognition in order to be identified as learning" (p. 147). Their argument confirms those made by Hoekstra et al. (2009) who claim that changes in teacher learning cannot always be observed from outside performances. It might therefore be difficult to determine whether teachers have undergone any sort of change or identify the exact cause of their changes and the time at which transformation occurred. However, it can be argued that

transformation is inevitable when individuals interact in a social and cultural learning context (Lantolf et al., 2015). Although, Guskey (2002) comment that change in understanding is preceded by a development in PL practice, this was not always the case in the present study. Supporting the findings of the current study, other researchers, such as Opfer et al. (2011) and Opfer and Pedder (2011), observed that the changes in teachers' learning are not necessarily sequential. The section below discusses the changes revealed by teachers in their PL practices.

7.3.1 Changes in teachers' PL practices

This discussion focuses on the most significant changes in the four teachers' PL practices and associated competencies having engaged in three cycles of teacher inquiry. Learning as a community through inquiry enabled the teachers to share experiences that influenced their own and others' PL. In this regard, Lieberman and Miller (2008) comment that when teachers work as a community "new ideas and strategies emerge, take root, and develop, and where competence can be truly cultivated" (p. 2). This observation was certainly the case in the present study. Other scholars also commented that the most important strategy for developing meaningful and sustainable PL is to develop the competencies of individual teachers to function as a community of learners (DuFour & Eaker, 1998; Sewell, 2006). Likewise, by engaging in SBPL in this present study, the teachers developed core competencies indispensable for carrying out their PL, as indicated in Table 7.2 below.

Table 7.2

Major Findings for Research Questions Two

Research questions Two	Major findings
What changes do Tanzanian secondary school teachers make to their SBPL practices as they engaged in an IKBC?	7.3.1.1 Establishing clear and relevant PL goals
	7.3.1.2 Exploring teaching skills and resources
	7.3.1.3 Learning how to learn
	7.3.1.4 Applying new learning to teaching
	7.3.1.5 Reflecting on teachers PL

7.3.1.1 Establishing clear and relevant PL goals

All four teachers demonstrated shifts in their ability to prepare PL goals to guide a systematic implementation of a variety of learning activities. Although during the first

inquiry cycle, Lucy, Mourine and Tausi struggled to translate the students' learning difficulties into a specific and achievable PL focus, they later asserted that they learned to create clear goals to guide their engagement in formal and informal PL (see Table 6.2 for specific examples). The observations made by Gamrat et al. (2014) in their personalised teacher workplace learning research in North America serve to explain these findings. These researchers found that teachers who managed to state their PL goals could sustain their focus throughout the learning process. More importantly, other international scholars insist that effective PL goals have to begin with an in-depth understanding of the students' learning needs (Croft et al., 2010; Timperley et al., 2007). Their argument is extended by Fisher and Frey (2014) who explain that teachers' PL needs to be determined by a regular analysis of students' learning needs. In this sense, teachers' PL is mainly guided by students' formative assessment information. The significance of focused PL is also highlighted by social learning theorists, who posit that the social environment alone does not guarantee learning, unless intended learning outcomes are structured and directed by a clear goal (Bandura, 2006).

The value of teachers formulating their own PL goals, rather than having these imposed from outside was revealed in this study. Interestingly, after analysis of their learning needs, all four teachers concluded that their teaching/PL foci could be aligned with study skills related to reading for understanding History texts, essay writing, note-making and verbal expression. Surprisingly, the identified teaching/PL areas were not the same as those selected by the majority of survey respondents. These results suggest that it would be inappropriate for me as the PL facilitator to establish specific PL areas for teachers. These findings are in agreement with a review by Shaimemanya (2017) in Namibia, who showed that teachers become active participants when they are given opportunities to make decision about their PL matters. Similarly, in a study exploring PL practices of secondary school Mathematics teachers in Zambia, teachers' lack of autonomy in adopting personal learning needs and priorities was found to be among the factors that lowered teachers' participation in PL (Sinyangwe et al., 2016). These findings are also in line with those found by Louws et al. (2017) in Netherlands that teachers' learning needs can be different from what the PL organisers anticipate. Overall, these findings match with the suggestions made in earlier studies that effective PL content cannot be simply imposed on teachers, but rather should be established by teachers themselves through analysis of their professional needs which are linked to

students' learning needs (Butler et al., 2017; Guskey, 2007; Guskey & Sparks, 2002; Moswela, 2006).

7.3.1.2 Exploring teaching skills and resources

Another shift demonstrated by the four teachers was related to their ability to scrutinise learning tasks, in terms of teaching skills and resources needed to facilitate the learning process, so as to achieve their PL goals. The development of this exploration practice was associated with improvement in different practices that included: investigating learning tasks and related resources, making logical arguments on how to implement learning plans, and developing control over their PL.

As the teachers engaged in their inquiries, they learned to conduct a systematic analysis of the teaching skills they needed to learn and where to find resources to facilitate their learning. Interestingly, this process helped teachers to make comprehensive planning of their learning activities before investing their time and effort to execute them. In Lucy's circumstance, when she was assisted to explore the type of competence she wanted for teaching "reading for understanding", it was revealed that she needed to acquaint herself first with reading techniques (see section 5.3.2.2). This finding relates to Bae et al. (2016)'s study, which indicated that by engaging in professional discourse, teachers can deepen their understandings of the subject topics. This analysis of the teacher learning experience can possibly facilitate the achievement of PL goals. On the same note, Pella (2015) who conducted a study with teachers in North America indicated that teachers developed understandings of teaching their lessons, by collaboratively exploring learning activities and using different methods. This earlier step in the implementation of the SBPL is considered by Timperley (2011) as an analysis process, whereby teachers think about what teaching skills they need to learn. Therefore, teachers can perhaps ascertain PL strategies and alternative resources through analysis of their learning tasks (Joyce & Showers, 2002; Timperley et al., 2014; Timperley et al., 2007).

Rich dialogues were created when the teachers explored their teaching skills and planned learning tasks and resources to achieve their PL goals. Such discourse enabled the individual teachers to make logical decisions to plan their specific PL activities after the meetings and documented their lesson plans for classroom teaching at a later stage.

For example, Tausi's idea of using group discussions and presentation in her teaching was challenged by Magdalene who doubted that it could have an impact on students' learning (see section 6.3.2.1). Challenges like these are common in learning communities and they can provoke teachers to think more broadly about appropriate ways to learn. A similar scenario is presented by Lieberman and Miller (2014) whereby Mathematics teachers' learning was embedded in a PL community by enabling teachers to share a learning plan so that colleagues could suggest improvements. Therefore, when teachers share their PL plans prior to implementation they develop a clear understanding of what they need to do in order to achieve their goals.

Since the teachers in this study all worked in the same school, it was easy for them to comment upon one another's PL plans. Working in the same department can help to facilitate teachers' analysis of and, discussion about, proposed students' learning activities because they share common experiences and interest (Garet et al., 2001; Wineburg & Grossman, 1998). This practice advocates the idea that teachers can collaborate to draw a big picture of how to implement their learning as a result of shared analysis of learning activities from diverse perspectives. Teachers' discourse reflects the dialogic principle of sociocultural theory (Raphael et al., 2014; Russ et al., 2016).

The use of dialogue to explore PL skills not only strengthened the teachers' abilities to make sound pedagogical decisions, but also helped them to have control over their PL. In the first inquiry cycle, all four teachers indicated that they were not confident to engage with their colleagues' suggestions about ways to develop their learning skills, but their confidence improved by the second cycle. For instance, Lucy expected someone (particularly the researcher) to provide a perfect plan for her learning (see section 5.3.2.2). To build confidence in their PL potential, it was important to let the teachers know that they were expert enough to choose their own learning activities. Supporting this effort of developing teacher ownership of PL, Mokhele and Jita (2012) in South Africa reported that teachers were satisfied with their PL programmes when it encouraged them to take control of their learning. In another example in New Zealand, Sewell (2006) found that at the early stage of her PL project, teachers were uncertain about the expertise they brought to the research and they expected the researcher to tell them what to do. The researcher supported their learning by assisting them to learn

collaboratively to share pedagogical decision-making and reflections. Likewise, Dagen and Bean (2014) emphasised that a PL facilitator needs to provide follow-up support, rather than to provide the answers.

Mushayikwa and Lubben (2009) clarified these effective PL practices as supporting teacher transformation, from being told what to do to empowering them to control their learning. Mourine for instance, commented that by engaging in dialogue as part of her PL, she learned to examine comments from her colleagues and then make suitable decisions in relation to her own teaching context. This observation is explored by Sedova (2017a) that when teachers learn the new pedagogical tools from colleagues they "do not adopt them in a fixed form, but subject them to their own interpretation" (p. 287). Therefore, teachers can possibly create knowledge and embed it in their specific teaching contexts through discourses, as highlighted in the constructivist theory (Clancey, 1995; Gregory & Oliver, 2018).

7.3.1.3 Learning how to learn

One of the significant findings in this study is that, all four teachers were able to learn how to learn as teachers at their own pace. As commented by Darling-Hammond and McLaughlin (2011) that "teachers learn by doing, reading, and reflecting (just as students do)" (p. 83). This initial 'learning-how-to-learn' primarily resulted in all four teachers using different learning strategies or formats and being able to adjust their learning practices according to the PL opportunities.

The major change made by all four teachers was that they were able to use numerous PL formats such as discussions, independent reading, classroom peer observation, workshop, as well as the action research embedded in this study. These findings are significant, especially in the Tanzanian context as Hardman and Dachi (2012) identified that in-service teacher training has "little capacity to facilitate frequent, systematic and regular meetings and exchanges of scholarly materials, seminars and study workshops and colloquia" for teachers (p. 40). Consequently, arranging alternative PL experiences in schools could perhaps enable teachers to engage in extensive and sustainable learning. Moreover, there is considerable agreement in recent research that schools as

workplaces have the potential to provide workers, in this case the teachers, with continuous and wide-ranging types of PL (Oweyo & Umoh, 2016; Vermunt et al., 2017). However, the range of PL formats is usually determined by teachers' enthusiasm, teaching schedules and available opportunities (Avalos, 2011).

One unanticipated finding was that all four teachers continued to engage in different PL activities, such as informal discussions on PL related tasks, making phone calls to the facilitator to discuss any queries, and reading articles even outside the school premises. This finding implies that teachers continued to perform PL tasks at their own pace and in their own time even after completing a planning meeting. Consistent with the literature supporting this finding, situated learning theorists explain that learning occurs at any time and/or place when the human mind constructs knowledge through interactions within the social environment (Fox, 1997; Lave, 1991). The finding also confirms the possibility that teachers can make effective use of learning opportunities to promote their engagement in SBPL practices. Similarly, in their pilot study with Tanzanian primary school teachers, Hardman and Dachi (2012) reported that apart from structured learning activities and schedules during their SBPL "nearly a third of the teachers said they studied during school hours in breaks and at lunch time and a similar number stated they studied at weekends" (p. 35). These findings also corroborate those of Nawab (2011) in Pakistan who found that teachers acquired professional skills through their initiatives that included ideas obtained from talking with co-workers during the school break time. Likewise, Pitsoe and Maila (2012) in South Africa suggested that teachers' PL should focus more on the situation or nature of their work environment. In this regard, it has been suggest that effective teacher learning occurs when teachers are enabled to perform different learning activities based on the opportunities available or provided in workplaces (Choi & Jacobs, 2011; Desimone, 2011; Kennedy, 2011; Worsham, 2018). This extensive teacher learning practice suggests a way forward for Tanzanian teachers on the use of opportunities available to maintain their PL.

This study also found that teachers' engagement in IKBC required them to develop their internet skills so that they could read online resources such as newsletters, articles or watching tutorials on *YouTube*. For example, during the first inquiry cycle, three of the

four teachers struggled to search online reading resources as acknowledged by Magdalene (see section 6.3.2.2). These findings are similar to Mwalongo (2011)'s findings that some Tanzanian teachers owned computers but were incapable of using them to enhance their teaching. On this note, Olson et al. (2011) indicated that there are numerous barriers in developing countries that impede teachers from the use of information technology to promote school PL. The findings in the present study are contrary to those of Duncan-Howell (2010) in Australia who observed that teachers' participation in PL communities was intensified and sustained through online learning practices. Desimone et al. (2002) suggest that in the situation where teachers lack technological skills the best practice is for them to assist one another. At the same time, an example of this finding occurred in the present study when Mourine, who appeared to have some internet experience, assisted her colleagues to search online for learning materials. A number of studies are increasingly indicating that online learning provides teachers with a valuable avenue to engage in ongoing PL (Cordingley et al., 2007; Feng & Ha, 2016; Mentis & Kearney, 2017; Pachler et al., 2010; Zepeda, 2018). Therefore, one of the more significant findings to emerge from this study is that in order to build effective PL communities in Tanzanian school, teachers need assistance for them to benefit from the use of technology.

7.3.1.4 Applying new learning to teaching

Another change of practice revealed by teachers through the inquiry and knowledge-building cycle was their ability to apply new teaching approaches in the classroom. Several lines of evidence suggest that a successful teacher PL programme is closely connected to improving students' learning (Darling-Hammond, 2008; Darling-Hammond et al., 2017; J. Taylor et al., 2016). Similarly, while engaging in learning, the teachers were able to adapt their teaching practices as discussed below.

All four teachers indicated a shift in their classroom teaching strategies, from relying on prepared lesson notes to applying new techniques learned in their IKBC. This change in teaching practice occurred slowly because previously the teachers, especially Magdalene and Mourine, preferred teaching by reading their lesson notes to students (see section 6.3.3.1). The popular use of this passive teaching method in Tanzania is confirmed by other Tanzanian studies (Namamba & Rao, 2017b; Vavrus, 2009; Vavrus

& Bartlett, 2013), which found that secondary school teachers employed passive teacher-centred methods in order to save time in covering a broad examination dominated curriculum. These findings align with Chadwick (2016)'s comment that teaching in most African countries is examination oriented. As a result, the current study's findings suggest that PL guided by students' learning needs rather than what is tested in examinations can broaden teachers' thinking about their teaching strategies.

In the first inquiry cycle, it appeared that the teachers avoided applying some new teaching practices, especially when they thought that they were difficult to implement. For example, during the first focus group discussion Lucy identified several factors that prevented her from applying the teaching strategies she had read about, and she was unable to adapt her practices (see sections 5.3.2.3-4). In another scenario, regardless of the assistance given to her, Lucy was unable to change her lesson planning in ways that facilitate her teaching. The concern regarding lesson planning is partly explained in the study by Mkumbo (2014) in Tanzania who found that "lesson preparation was not a common practice… particularly for public secondary school teachers" (p. v). Teachers' inability to apply new practices resulting from PL was also revealed in a Dutch study by Bakkenes et al. (2010) who found that some teachers struggled to change their old classroom pedagogical practices. Sewell et al. (2013) in New Zealand also indicated that in some situations it is difficult for teachers to make a shift from their customary pedagogies. Thus, Timperley et al. (2014) and Webster-Wright (2009) argue that expectations for change need to be realistic because of the tensions involved in applying PL. Similarly, Sedova (2017b) in Czechoslovakia found that "the process of transformation may cause temporary emotional distress in teachers as they abandon their habitual methods" (p. 225). Therefore, generally, small changes in teaching should be viewed as positive beginnings for improving teachers' classroom practices.

In the present study, Magdalene, Tausi and Lucy acknowledged that after using a range of simple teaching techniques that encouraged mutual learning among their students they saw an increase in their learning interactions. Similarly, in a Tanzanian study by Msonde and Msonde (2017) indicated that when teachers employed new interactive pedagogical approaches their students' learning improved, which in turn encouraged teachers' further innovation in their practice. These findings are consistent with the

argument of Stoll et al. (2012) that effective PL is a great tool for changing teachers' traditional pedagogical practices because it challenges their choice and use of teaching strategies for the benefit of their students' development. However, Sewell et al. (2013) argued that developing interactive learning between students and teachers is a difficult process as few teachers are used to traditional teaching style. Extending this need for support, Livingston (2016) stated that "teachers need to be supported as learners to consider curriculum, assessment and pedagogy and the pupils' learning needs in a fluid and dynamic way" (p. 333).

7.3.1.5 Reflecting on teachers' professional learning

As the teachers applied their PL in the classroom, they needed to learn to reflect on their PL participation. Doing so served to improve the quality of SBPL. Development in the teachers' evaluation of their PL was primarily related to reflecting on classroom teaching and out-of-class learning activities to maintain their PL participation.

By reflecting on their new classroom practices, the teachers were able to identify aspects of their inquiry that they needed to address, so as to improve their teaching and serving to sustain their PL participation. For example, inviting a University lecturer to talk about lesson planning was the consequence of reflections made by Magdalene. As a result of this expertise coming into the school, the teachers' confidence in inquiry was increased. Tanzanian research by Msonde and Msonde (2017) also found in their qualitative study that the perceived teaching impact, resulting from assessment of teaching, motivated teachers to improve their participation in a PL model called "Learning Study". In a case study of Mathematics teachers' PLC in China, Wong (2010) also stated that reflection was considered as an important means for improving their classroom practices. These findings suggest that teachers' reflection on their classroom pedagogical practices can help to modify their inquiries and eventually raise their learning and capacity to teach. Other scholars also confirm that the value of teachers' reflection on their PL actions can lead to changes in their perspectives and practices (Hennessy et al., 2016; Joyce & Showers, 2002; Marsick & Watkins, 1990; Sedova, 2017a).

The present study also found that although the four teachers could not always document their ongoing PL reflection in their diaries, contrary to teachers in Msonde (2011)'s study in Tanzania, they regularly shared their experiences and feelings through informal discussions and planned meetings. Together with their ongoing reflections, all four teachers engaged in a comprehensive evaluation of the IKBC processes and offered different suggestions as to how it could be enhanced for teachers in schools (see examples in section 6.4.2). For instance, the reflection made by Lucy after the third inquiry cycle was much deeper compared to the one she provided in the earlier cycles (section 5.3.4.4). This shift in her ability to reflect implies that her knowledge of the inquiry cycle had developed enabling her to logically suggest ways to promote effective learning.

7.3.2 Changes in teachers' understandings of SBPL

While teachers improved their PL *practices* during the IKBC, there was also evidence of transformations in their *understandings* of SBPL. Such changes in practice generally, helped the teachers to develop a deeper knowledge about their participation in PL. Understanding of SBPL was unique to each teacher, but it was generally reflected in the ways the teachers perceived: the SBPL concept, their PL roles, application of the SBPL process, and the impact of effective teaching on students' learning. Table 7.3 summarises these major findings, according to the third research question.

Table 7.3

Major Findings for Research Question Three

Research question Three	Major findings
What changes do Tanzanian secondary school teachers make in their understanding of SBPL as they engage in an IKBC?	7.3.2.1 A deeper understanding of SBPL concept 7.3.2.2 Taking an active role in PL 7.3.2.3 Understanding the SBPL process 7.3.2.4 Understanding the impact of effective SBPL

7.3.2.1 A deeper understanding of the SBPL concept

All four teachers experienced a shift in their understandings of the SBPL concept from viewing it as a form of professional training provided by experts to understanding it as a learning process that could be led by teachers. As the teachers engaged in different professional practices in the current study, they began to see SBPL as a form of teacher learning. Such transformation was obvious after the first and second inquiry cycles, particularly when the teachers realised that SBPL was not restricted to seminar attendance. Studies by Namamba and Rao (2017a), Anney (2013) and Filipatali (2013) examining PL with teacher educators and secondary school teachers in Tanzania elucidate this finding. These Tanzanian researchers indicated that teacher engagement in PL is mostly regarded as seminars and workshops and that teachers lacked knowledge of other forms of SBPL such as action research, peer observations, informal dialogue and mentoring. In contrast, in the present study, SBPL was found to be a broad concept that embraced a wide range of learning in the context of their students' needs (see sections 6.4.1.1- 2). SBPL is context-based learning but it can be linked to external learning opportunities (Darling-Hammond & McLaughlin, 2011), such as networking with other experts, and thus it does not need to be restricted to the school premises (Little, 2012; Putnam & Borko, 2000; Stoll et al., 2012). This broader understanding of the SBPL concept is described by Clarke and Hollingsworth (2002) as an inevitable transformation that occurs when teachers participate in organised PL activities. Importantly, it can be suggested that developing a clear conception of SBPL can help to influence teachers' PL practices.

7.3.2.2 Taking an active role in PL

The teachers' change in their understandings of SBPL was also associated with improved knowledge about their role to engage in meaningful and sustainable PL. Teachers in this study came to realise that they needed to play an active role to facilitate their PL, instead of directing all their complaints to the government or the school as they previously had done. One good example of this change is indicated by Mourine in her final interview when she admitted that successful PL wouldn't be possible if teachers did not see it as their responsibility (see section 6.4.2.2). Similarly, in their small scale study with secondary school teachers in Zambia, Sinyangwe et al. (2016) found that one of the factors that affected effective PL was the lack of teachers' understanding of their roles. These researchers recommended that teachers need to

understand their PL roles "through giving them relevant information regarding CPD [continuous professional development]" (p. 59). By engaging in new PL experiences, such as initiating PL, planning for it, seeking support for it and mobilising available resources, teachers in the current study started to learn the wide extent roles of their PL. Developing SBPL is a collective responsibility that includes individual teachers (DuFour & Eaker, 1998).

7.3.2.3 Understanding the SBPL process

When the four teachers learned how to engage in their own inquiry cycle, new understandings of the different ways in which to implement SBPL were developed. This transformation helped them to learn how meaningful PL can be initiated and maintained by following a systematic process. For instance, in her final interview, Magdalene was able to describe the procedures used when teachers want to conduct SBPL through the IKBC (section 6.4.2.1). This finding differs from that of Abdou (2017) where Egyptian teachers reported that they lacked a clear structure to guide their engagement in SBPL. Thus, the IKBC can be used as a systematic tool to develop teachers' and school leaders' expertise to establish and monitor SBPL. For example, Lucy proudly considered herself as a SBPL expert because she was confident with the inquiry PL procedures employed (section 5.6). In another example, she acknowledged that she learned how to create networks with other teachers just by following the procedures learned during her inquiry. Supporting this finding, Opfer et al. (2011) reported that teachers' views or understandings can influence new kinds of PL participation.

7.3.2.4 Understanding the impact of effective SBPL

The four teachers perceived that modifying their teaching through inquiry helped them to improve their students' learning. This realisation subsequently changed their understandings about the impact of effective PL on students' learning. A good example is the previous beliefs held by two teachers of their students that their low achievement was a result of laziness. However, later in their inquiries, the teachers reported significant transformations regarding their beliefs about students as learners (see sections 5.5.2.2 and 6.3.3). Interestingly, the teachers began to understand that students' learning difficulties were attributed to a range of different factors including poor teaching pedagogies (Kitta, 2004). Likewise, Tabulawa (1998) in Botswana observed

that when teachers understood the factors that hindered their teaching they changed their practices in ways designed to help their students' learning. Therefore, engaging in PL can help teachers to understand the link between effective teaching and students' learning. The study of Meissel et al. (2016) in New Zealand and Cochran-Smith (2012) in North America also confirm that meaningful transformation in students' learning is possible, if teachers engage in effective teacher PL.

All four teachers in the present study indicated that their efficacy beliefs were raised when they realised that their engagement in SBPL had a positive impact on students' learning. Teachers' cognizance of their PL accords the argument of Hansen (2005) that through improved understanding, "efficacy belief[s] will, in large part shape teachers' performances and potentials to initiate new and exciting challenges for learners" (p. ii). One good example from this present study is when Magdalene raised her beliefs about her ability to impact her students' learning. She realised that her improved teaching could help her students to make their own meaningful lesson notes rather than relying on copying notes from her (section 6.4.3). These findings corroborate the findings of Haßler et al. (2015) in Zambia which showed that the use of technological resources facilitated interactive teaching and hence raised teachers' efficacy about improving students' learning. Other studies by Pella (2011) and Santagata and Bray (2016) in USA, and Park and So (2014) in South Korea, similarly found that teachers were able to modify their teaching when they believed that they could impact students' learning. These findings support the work of other researchers in the area of teacher self-efficacy. For example, Zee and Koomen (2016) indicated that there is a direct relationship between teacher increased self-efficacy and students' learning progress.

7.4 Supporting teacher participation in effective SBPL

This section discusses the final research question about factors constrained and enabled teachers to engage in SBPL. This discussion draws on findings in the first and second phases of this study. Baseline findings revealed that there were socio-economic, structural and cultural barriers that appeared to obstruct Tanzanian teachers' participation in SBPL, and that they needed guidance and support to enhance their PL engagement.

Likewise, the four teachers encountered a number of barriers, as they engaged in their inquiries. In this regard, sociocultural theorists indicate that learning in a social environment does not only happen automatically (Bandura, 1989; Webster-Wright, 2009), but through deliberate planning, designing, monitoring and shaping of the learning process (Fullan, 1985; Hargreaves, 2013; Killion & Crow, 2011). Thus, in this study the four teachers were assisted to successfully engage in PL through their inquiries. Table 7.4 presents the types of support needed by teachers in order to reduce the barriers that affect their participation in effective SBPL.

Table 7.4

Major Findings for Research Question Four

Research question Four	Major findings
What factors constrained and enabled Tanzanian secondary school teachers to engage in school-based professional learning?	7.4.1 Management of SBPL activities 7.4.1.1 Developing PL guidelines at the school 7.4.1.2 Creating a variety of PL activities 7.4.1.3 Organising time for PL activities 7.4.1.4 Scaffolding teachers' PL initiatives
	7.4.2 Availability and use of PL resources 7.4.2.1 Promoting the use of alternative resources for PL 7.4.2.2 Accessing and using professional readings
	7.4.3 Collaborative teacher PL 7.4.3.1 Promoting ongoing peer interactions 7.4.3.2 Development of teachers' leadership in PL 7.4.3.3 Enhanced teachers' self-efficacy and agency 7.4.3.4 Increased teachers' commitment 7.4.3.5 Developing trust and respect

7.4.1 Management of SBPL activities

The study showed that effective management of SBPL activities, particularly by schools, with the help from other educational stakeholders, can help to reduce the challenges teachers may experience in their PL. The following sections discuss the main themes in relation to managing SBPL, as indicated in Table 7.4:

7.4.1.1 Developing PL guidelines at the school

The findings from this study indicate that having a school policy or set of guidelines regarding the process of SBPL could facilitate teachers' participation in their ongoing PL. All four Heads of Schools who were interviewed during the first phase of the study reported that their schools did not have a specific framework to guide PL (see section 4.4). These findings were confirmed during the teachers' inquiry when the participating school (School L) had neither a PL policy nor guidelines for the teachers. These findings reflect the concerns of other scholars in Tanzania, for example, Anangisye (2011), Koda (2012) and Komba and Nkumbi (2008) that the 1995 Educational Policy has not provided guidance for the effective implementation of in-service teacher professional development. As a result, this policy is interpreted in different ways at the school level. Document analysis conducted by Monametsi (2012) in South Africa also found that the national policy framework was not informative to facilitate teacher PLCs at the school level. The finding from this study, therefore indicate that supporting Tanzanian schools to translate the national educational policy into a contextualised set of PL policies is crucial.

The IKBC model, and the rules formulated by the four teachers at the beginning of the inquiry, served as guidelines to their PL practices. However, more guidance was needed from the school management to enable the teachers to engage in some of their PL activities, such as organising in-school seminars. As indicated in the OECD (2010) report, some European countries have guidelines for teachers' SBPL. For example, in Scotland's schools, individual teachers were guided by school managers to plan their annual PL in accordance with their learning needs and the priorities set by the school and the nation. This finding implies that schools which have policies to guide teachers to participate and organise PL are committed to support their teachers' learning and ultimately their students' learning. In this sense, suitable PL guidelines need to be formulated by teachers and their school management. Furthermore, in the Netherlands, schools were required to draft programmes indicating how new teachers could be assisted to engage in training on the job (OECD, 2010). Likewise, schools in Hong Kong were encouraged to formulate their own PL with teachers to promote PL practices (Pow & Wong, 2017). These findings suggest a way forward for Tanzanian school leaders and teachers to develop explicit SBPL policies and guidelines to facilitate teacher engagement in PL.

7.4.1.2 Creating a variety of PL activities

Some school leaders interviewed in this study lacked awareness of the range of possible PL activities, and therefore needed support to enable their teachers to participate in relevant SBPL. Similar findings were reported by Komba et al. (2006) and Kaponda (2007) in Tanzanian schools, where Heads of primary schools indicated a low capacity to manage teachers' PL programmes. Similarly, Kuluchumila (2013) indicated that Heads of Schools in Tanzania demonstrated poor leadership skills to organise and manage their school activities because many do not receive training about these. Poor leadership of PL was also documented in other African studies by Mukeredzi (2013) and Moswela (2006) who found that school leaders lack the requisite competencies to promote their teachers' PL. As it is the case in Tanzania, teachers can be appointed to take administrative roles based on their academic qualifications, but this does not mean they necessary possess the necessary skills to manage comprehensive school systems, including teacher PL. Therefore, school leaders need local and national support to organise a range of PL opportunities available within and outside their school.

Teachers' PL opportunities can be promoted through an effective management of subject departments at school. It is worth noting that subject departments were useful as platforms to create a variety of PL opportunities, as indicated by the school leaders at the four schools in this study. These four Heads of Schools confirmed that the majority of teachers' SBPL activities occurred through whole staff and subject departmental meetings. Unfortunately, however, these PL activities were not well organised in these meetings to create a critical discourse and other learning opportunities. A possible explanation for this poor organisation may be that school administrators were not aware of the multiple functions of these meetings or the potential they held to provide teachers with ongoing PL opportunities (Darling-Hammond & McLaughlin, 1995). A number of studies have been undertaken which show how leadership and organisation at a subject department level can provide for effective PL. For instance, Vanblaere and Devos (2018) indicated that successful teacher PL in subject departments in Belgium was enhanced by the competence of the Head of department to organise teachers' PL opportunities. In another example, M. Zhang et al. (2011) recommended that if teachers were given sufficient time and were supported, they could participate in productive learning discussions. As Jones and Dexter (2014) observed, by using the department as

a PL site, teachers can organise themselves in learning teams because they can easily get a common meeting time and establish ongoing learning goals.

7.4.1.3 Organising time for PL activities

Shortage of time for teachers' PL was not only mentioned in the baseline findings, but it also acted as a barrier during the implementation of the teachers' inquiry in Phase Two (see section 6.5.2.1). Lack of time for PL has been identified as a barrier in a number of studies, for example, by Boudreaux (2015) and McConnell et al. (2013) from North America. Similarly, teachers in Korea could not easily get time for shared professional conversations (Park & So, 2014). However, the use of teachers' own non-teaching time appeared to be the best strategy that helped teachers during the IKBC to sustain momentum of their learning. Therefore, these four teachers were encouraged to spend some of their non-teaching time more productively engaging in their PL tasks and minimise wasted time. Creating time for PL was also a strategy applied in Korea to enable teachers meet for their learning activities (Park & So, 2014). This strategy appears to be supported by several international scholars who found that it is common for teachers to spend their non-teaching time in focused PL activities (Darling-Hammond, 2017; Lohman, 2006; Nawab, 2011; Tallerico, 2005). An OECD (2014) report also indicated that time is an important resource in SBPL and therefore special time has been allocated for this purpose in some countries. Teachers in Finland and Singapore have an allocation of time within their work hours to allow them to engage in adequate and regular PL (Schleicher, 2012; Wei et al., 2009). This allocation of time suggests a way forward for Tanzanian teacher PL.

7.4.1.4 Scaffolding teachers' PL initiatives

A common observation made by the four teachers was that they expected support from within and outside their learning team to initiate and maintain their PL activities. It appeared that these teachers lacked confidence to try new experiences and were influenced by a traditional culture in which PL services were passively *received* from school management or external authorities. The teachers were used to others being in control of PL, so they needed support to enable them change their practices in and understandings of SBPL. In my role as a researcher facilitator, I arranged the best way to support them; such as guiding the teachers to establish their learning goals and to

suggest related practices that could be held by teachers. This important process of scaffolding teachers in their PL was also documented in Tanzania (Juma et al., 2017) and Zambia (Haßler et al., 2015) as a useful strategy to help teachers to engage in SBPL. The notion of scaffolding is highlighted by Vygotsky as a process of helping learners, in this case teachers, to understand their SBPL and eventually become self-governing (M. Cole et al., 1978).

Interestingly, it became evident that the teachers in the current study had potential PL skills and plentiful opportunities in the inquiry cycle, nevertheless these needed to be identified, organised and supported. For example, Mourine, Lucy and Magdalene appreciated the expertise they received from the researcher and the two lecturers (see section 6.5.4.2). These findings, therefore suggest the value of external expertise in teachers' PL. Equally, Voogt et al. (2015) report that one factor that influenced teacher change during their PL in Tanzania and Ethiopia was external expertise. Likewise, Gamrat et al. (2014) in USA reported that teachers improved their PL practices when expert support was offered to guide them to engage in a process of reflection on their teaching. Therefore, providing external expertise to scaffold teachers especially, at the beginning of their inquiry may facilitate effective SBPL. It is now well established from a variety of studies that successful teacher learning programme initiatives are largely dependent on the level of support offered through external expertise (Cordingley et al., 2007; Sedova, 2017a; Wong, 2010). While external expertise can facilitate teachers' inquiries, it is vital to let teachers work collaboratively in a natural environment and exercise autonomy over their PL practices in order to sustain learning. Indeed, Stoll et al. (2012) extend that teachers need to be coached to engage in the meaningful PL practices. Therefore, it is important to create a supportive school environment to encourage and coach teachers' PL skills.

Scaffolding for the teachers may not necessarily be introduced by the researcher or an external expert, but it can come from among teaching colleagues. One example of this is when Lucy reported that she had started to share her inquiry skills with other colleagues in the department, and that she was happy to provide them with assistance if they wished to engage in their own IKBC. In another scenario, all four teachers were able to share their inquiry progress with other teachers during the school workshop. Poekert (2012) asserts that teachers tend to develop more control over their learning once they

realise that they are part of a PL programme. Another type of support from school leaders may include allowing teachers to engage in an environment of shared learning in their school. For instance, the permission offered to four teachers by the school to inquire into their practice was an important support that cannot be trivialised. A considerable number of scholars also indicate that effective PL practices are intertwined with a number of administrative supports that together provide favourable learning conditions (Boudreaux, 2015; Hardy, 2016; Ning et al., 2015; Parlar et al., 2017; Zepeda, 2018). Supporting and providing permission to teachers in their PL initiatives is critical to their engagement in and sustaining it.

7.4.2 Availability and use of PL resources

Teacher participation in SBPL in the present study was relatively influenced by the availability or non-availability of teaching and learning materials and facilities. Providing and facilitating access to resources was considered by the participants to be essential to enhance their PL practices. Facilitating the availability and use of PL resources included: promoting the use of alternative PL resources and access to professional readings.

7.4.2.1 Promoting the use of alternative resources for PL

Funding was identified as the most significant resource to ensure teachers' engagement in meaningful PL. Lack of funding acted as a barrier during implementation of the four teachers' inquiries (see section 6.5.1.1). Similarly, the four Heads of Schools stated that they rarely budgeted for PL because they often lacked sufficient funds (see section 4.4). Generally, meagre funds were used to finance a few teachers to attend PL outside the school. These findings concur with those of Kitta (2015) in Tanzania who found that only a few teachers were provided with a basic allowance when invited to attend external training. Other scholars have also pointed out that Tanzania does not have a sufficient budget for the development of continuous in-service teacher education (Koda, 2012; Komba & Nkumbi, 2008). In other words, teachers' learning needs are often ignored when PL is not allocated sufficient funds (Akiba et al., 2015; David & Bwisa, 2013).

Teachers' PL practices during the IKBC were enabled by the use of alternative available local cost-effective resources. This practice is acknowledged by Mourine and Magdalene who used alternative resources that served the same purpose of learning when funds and other materials such as textbooks were inadequate or unavailable (see section 6.4.2.2). In their action research study in Zanzibar, Tanzania, Juma et al. (2017) realised that teachers can develop alternative teaching and learning materials to sustain their PL by using affordable resources available within the local environment. Promoting the use of alternative PL resources is considered by scholars in PL to be essential to enhance their PL practice. More importantly, while it is necessary for the governments to increase their budgets for teacher education, a number of studies suggest that school leaders need to understand how resources can be better organised to improve PL activities (Baird & Clark, 2017; Hairon & Dimmock, 2012).

7.4.2.2 Accessing and using professional readings

Making professional literature available in schools and supporting teachers to use it is helpful to enhance quality PL. Although survey results indicate that a minority of teachers (18.8%) did not read any form of evidence-based scholarly literature, these teachers need support to access and use these important professional readings. Similar to survey findings, at the beginning of the PL inquiry, Tausi indicated that she was not aware of the scholarly readings and therefore needed assistance to access and use these resources (see section 6.3.2.2). These findings suggest that perhaps some teachers in Tanzania do not engage in evidence-based professional literature to enhance their PL because they do not know where or how to get them. However, the Secondary Education Development Plan (SEDP) of 2004 in Tanzania, directs schools to procure textbooks and also ensure that other professional readings are obtained (MoEVT, 2007). Indeed, the participating teachers believed that their school was supposed to assist them to get necessary PL resources. One efficient strategy employed during the inquiry cycles was to help the teachers to find a variety of the scholarly works through the internet. Assisting teachers to access online resources is also recommended by Bingimlas (2017) who studied teachers' PL and online usage in Saudi Arabia.

7.4.3 Collaborative teacher PL

The results of this present study indicate that most of the teachers' PL activities before the IKBC occurred in isolation because they lacked the opportunities and knowledge to engage in collaborative learning. In addition, the survey findings also revealed that poor teacher engagement in SBPL might have been contributed by the lack of knowledge regarding the significance of collaborative PL. These findings are consistent with those of Hindeya and Endawoke (2013) in their qualitative study with Ethiopian teachers. They also reported that lack of wide-ranging collaboration constrained teacher participation in PL. An international review of quality in teacher PL by Caena (2011) however, clarifies that while collaboration is considered to be the most powerful tool for effective teacher learning, it has been hard to promote it. Caena's review further indicates that meaningful collaborative learning can be achieved through increased teacher interest in PL, as well as enhanced teacher sense of agency and trust. Similarly, the present study revealed that participating teachers needed support to develop collaborative learning in order to facilitate their increased engagement in SBPL.

Collaborative engagement developed among the teachers, the researcher, school leaders and other experts to assist effective engagement in SBPL. Meaningful collaboration was promoted through ongoing peer interactions; development of teacher leadership skills; enhanced teachers' self-efficacy and agency; increased teachers' commitment; and developing trust and respect.

7.4.3.1 Promoting ongoing peer interactions

The collaborative culture among teachers during their inquiries was promoted through ongoing peer interactions that took place during and after teaching contact hours. Guided by PL goals, most of the collaborative online activities, such as when Mourine assisted her fellow teachers to use the internet, occurred at teachers' convenient time. Reflecting on the informal online learning in particular, Beach (2017) commented that "these just-in-time supports can include accessible and easy-to-use professional development websites [so] teachers can expand their professional knowledge… at their own time" (p. 67). In addition to this, Kennedy (2011) in Scotland and Wen and Wu (2017) in Singapore indicated that informal interactions provide a more useful source of information in teacher collaborative learning. Importantly, collaborative learning

activities undertaken by the teachers during their informal interactions were guided by their PL goals. This goal directed focus implies that informal discussions that teachers held prior to their IKBC, had less focus, and were not rooted in what Hord (1986) considered to be ongoing and focused shared PL.

Collaboration can be practiced in different ways, and thus, there are effective collaborations and weak collaborations (Little, 2012; McLaughlin & Talbert, 2001). Meirinka et al. (2010) in Netherlands found that the degree of sharing among teachers differed according to levels of interaction during their collaborative PL. The idea of informal peer collaborative learning is also seen by A. Wilson et al. (2008) as a key feature to develop a culture of PL in which teachers see themselves as learners who are guided by a common learning purpose. Teachers need to be encouraged to work as peers who can freely share their challenges and views freely in a PL dialogue (Joyce & Showers, 2002; J. C. Lee et al., 2011).

7.4.3.2 Development of teachers' leadership in PL

Teachers' leadership is their ability to influence change in their profession for school improvement, even if they do not have formal administrative positions (Boyaci & Oz, 2017; Demir, 2015). As the four teacher participants worked with other teachers at the school and started sharing IKBC experiences in their department and during the seminars held at the school, they began to recognise the importance of leadership. For instance, Lucy *led* her colleagues to share with other teachers in their History department meeting about the value of implementing SBPL. As it occurred in the present study, Boyaci and Oz (2017) commented that in a professional learning community (PLC) "teachers move from thinking individually to perceiving themselves as members of a community" and become responsible for both their own PL and that of their fellow teachers (p. 11). These findings are compatible with those of Clercq and Phiri (2013) in South Africa who reported that by engaging in a PL cluster the teachers developed leadership skills and worked together, rather than waiting for a leader to tell them what to do. Similar results were documented by Parlar et al. (2017) in Turkey.

Developing the ability to lead themselves in their learning activities during the inquiry cycles helped the teachers to work collaboratively. These findings suggest that working

in a PLC not only exposes an individual to the customs of learning together, but also makes them committed to improve their teaching actions (Hord, 1986; Kennedy, 2011). Similarly, Jojo (2017) underlines that effective PL programmes enables teachers to develop leadership capacity to maintain their new professional practices. The spirit of leadership among teachers in their learning teams also helps to expand and strengthen their collaborative learning. Poekert (2012) commented that "there exists a strong link between teacher leadership and professional development because professional development is both a cause and an outcome of teacher leadership" (p. 170).

7.4.3.3 Enhanced teachers' self-efficacy and agency

This study was designed to encourage teachers to be reflective in their PL and to act collaboratively. For example, all participating teachers worked together to plan and to implement their PL goals by learning about and using new teaching strategies. The consequence of this active collaboration was the development of teachers' sense of efficacy and agency. For example, the statements given by teachers, particularly those made by Magdalene and Tausi about the possibility of implementing effective SBPL, revealed their strong sense of self-efficacy in relation to engagement in sustainable PL (see section 6.4.2.1). When all four teachers were encouraged and assisted to engage in a collaborative inquiry, they came to realise that it was worth spending time on and their efforts increased, thus indicating a shift of their efficacy beliefs not only about their teaching (see section 5.5.2.1) but also regarding engaging in SBPL. Similarly, the observation reported by Moradkhani and Haghi (2017) in Iran showed that teachers' self-beliefs about their PL were raised through a variety of sources of self-efficacy, particularly verbal encouragement. However, the findings of the current study indicated that teachers' sense of efficacy of their PL practices was mostly raised by their perceived development in the mastery of classroom teaching skills with verbal encouragement playing a lesser role. In another recent study with Chinese elementary school teachers, Zheng et al. (2018) pointed out that engagement in collaborative PL enhances teacher self-efficacy because "in a PLC, teachers can discuss their experiences with their peers and observe the successful experiences of others, which may function as vicarious experiences" (p. 6).

Similar experiences were revealed in this present study when the teachers inspired one another in their inquiries through discussions and presentations. For example, by sharing experiences with Magdalene and Tausi who taught note-taking and verbal expression respectively, Lucy developed a belief that she could also successfully teach the aspects of 'note-making and expression' in her lesson of 'reading for understanding' (see section 5.3.3.4). Interestingly, a large scale study by Tseng and Kuo (2014) on teachers' participation in online PLCs in Taiwan, also indicated that enhanced self-efficacy belief helped to strengthen teachers' sharing of professional knowledge and skills. Even the revision made by Lucy with her students in the third inquiry cycle about the 'Maji Maji war' could be an influence from Tausi's lesson. Thus, it can be pointed out that teachers' sense of self-efficacy can be developed when they learn collaboratively and inspire one another. According to sociocultural learning perspectives, teachers can improve their practices by observing peer performance and then their "determined effort and positive self-thoughts overcome difficulties" (Schunk, 2012, p. 149).

Social cognitive theorists are of the view that self-efficacy is central to agency because individuals can be motivated to perform a given task once they are confident in their potential ability (Bandura, 1977, 1998, 1999, 2006; Schunk, 2012). It appeared in the present study that teachers' sense of agency was largely shaped by their raised sense of efficacy that resulted from learning in a PLC. This self-efficacy stimulated individual teachers to engage in new PL experiences. Over the course of their inquiry, the four teachers were determined to promote their PL and intended to support their fellow teachers who were not involved in the IKBC. The more opportunities teachers have to engage in learning with others in a social environment, the more their sense of agency is raised and their PL performance improves. For example, in their large scale study in China, S. Liu et al. (2016) realised that raising teacher agency was a useful strategy for supporting primary and secondary school teachers to engage in PL practices. Similarly, Charteris and Smardon (2015) in New Zealand also affirmed that "the designed and situated context of the professional learning project afforded teachers' opportunities to take up agentic positions" (p. 121). Consistent with these findings, Subitha (2018) in India recommended that PL programmes "should follow a changed perspective of lifelong learning that takes into consideration the agency of the teachers and situates learning within the schools' socio-cultural context" (p. 87).

7.4.3.4 Teachers' commitment

The current study found that the four teachers could not sustain their engagement in SBPL without being fully committed to enhancing their PL. It is worth noting that the teachers demonstrated enhanced self-efficacy and increased commitment to engage in PL, as they worked collaboratively in their inquiry cycles. In their review of a number of international studies, Zee and Koomen (2016) indicated that a high teacher self-efficacy can result in increased teacher commitment to work. These findings are in part, contrary to those of Mkumbo (2011) who highlighted poor working condition as the key factor for low levels of teacher commitment in selected Tanzanian secondary schools. It can thus be suggested that giving teachers support for their PL and ownership of their learning can ensure prompt and effective commitment. For example, Tausi underlined that her commitment to PL was due to its value in her teaching practice. A similar situation was reported by J. Cole (2018) where teachers in the USA indicated a strong sense of commitment to their collaborative PL, regardless of barriers they encountered because it impacted their classroom practice. Change in teacher perceptions of their PL and practice depends critically on their commitment and passion (Guskey, 2002). These findings suggest that teachers' commitment to their PL needs to be increased through strengthening their motivation and supporting their collaboration.

7.4.3.5 Developing trust and respect

Findings from this study showed that teachers' collaboration was maintained through the development of trust and respect between and among the four participating teachers. These findings are supported by a number of PL scholars who indicate that respect and trust are crucial aspects to develop teachers' autonomy and commitment to learn (Hargreaves & Fullan, 2012; Wahlstrom & Louis, 2008; Whitcomb et al., 2009). Moreover, as the researcher facilitator, I also had to persuade the teachers that I was entirely confident in their abilities and efforts to engage in PL practices, so as to motivate them to continue their learning. The most interesting finding in relation to trust was when Lucy, Mourine and Magdalene combined study areas as a strategy to make their students learn effectively (see section 5.3.4.2 and 6.3.1.3). At first, the idea appeared ambiguous, but I encouraged them to put it to test. In this sense, the teachers realised that they were trusted to enact their ideas and felt that they had the freedom to share and implement their initiatives. In their action research with Tanzanian teachers,

Roberts et al. (2015) reported that the rapport created with the researcher enabled the teachers to develop a culture of trust and freedom to air their feelings and views. These findings are further supported by those of J. C. Lee et al. (2011) in Hong Kong who found that being trusted gave the teachers the freedom to explore new learning and to try out new ideas because they were not fearful of making mistakes. The evidence reviewed here suggest that trust and respect are central to initiating and maintaining collaborative learning in teacher PL practices and change (Ahn, 2016; DeLuca et al., 2017; Greany & Maxwell, 2017).

This study also found that teachers needed respect and recognition of their performance during their PL at school from the school management, as well as from me, the research facilitator. The attention received by the teachers from the school leaders and their colleagues during the implementation of the IKBC also motivated their collaborative participation. These findings confirm those of Sargent and Hannum (2009) in China who indicated that teachers were more encouraged when the institution recognised and valued their PL practices. Also supporting the findings, is an analysis of several studies made by Vangrieken et al. (2017) who realised that "not only respect within the TC [teachers' community] is important, positive reinforcements and recognition of teachers' effort to improve their teaching practice when attending TCs is also important" (p. 55). Valuing teachers' professional skills and recognising their efforts will lead to successful PL (Clercq & Phiri, 2013; Kyndt & Baert, 2013).

7.5 Chapter summary

This chapter discussed the findings of the study with connection to teachers' changed understandings of and engagement in SBPL through inquiry cycles called IKBC. Surveyed teachers practised some SBPL to improve their teaching, but schools lacked competence to improve PL skills. When the four teachers from one school were assisted to engage in their PL inquiries as an example of implementing effective SBPL, they demonstrated positive changes in PL practices and understandings of how their PL might be situated in a school environment. However, it was realised that effective SBPL could not happen without assisting the teachers to overcome a number of barriers. The next chapter presents the conclusion and recommendations of the study.

CHAPTER EIGHT

CONCLUSION

8.1 Introduction

This chapter provides a summary of the key findings from the study that focused on how Tanzanian secondary school teachers can improve their knowledge and ability to engage in adequate, relevant and ongoing PL. This summary is followed by a discussion of the contribution this thesis makes to knowledge, as well as the limitation, implications and recommendations.

8.2 Summary of key findings

This study aimed to investigate ways to enhance the capacity of Tanzanian teachers' engagement in school-based professional learning (SBPL) in the light of sociocultural perspectives of learning, through an inquiry and knowledge-building cycle (IKBC). In-service teacher education in Tanzania has historically relied on ad-hoc provision of traditional training, which does not offer teachers sufficient nor frequent learning opportunities. This traditional approach to teacher professional development presents challenges for teachers to engage in meaningful ways to address their learning needs and improve their students' learning. However, from a sociocultural perspective, Tanzanian teachers as learners can engage in SBPL when they interact with others in the cultural context of their workplaces to address their teaching challenges. Facilitating SBPL, through inquiry cycles, was shown to embrace comprehensive PL opportunities that provide teachers with opportunities to deepen their understandings of their practice, and to apply their new professional knowledge and skills in the classroom. Using an embedded mixed action research design, the present study resulted in the following key findings in relation to each of the four research questions.

1. *How do Tanzanian secondary school teachers perceive and engage with their school-based professional learning?*

The findings showed that about 70% of surveyed Tanzanian secondary schools teachers did not engage in any *formal* traditional PL programme such as seminars, workshops or short courses. Formal PL programmes that were offered were mainly provided by government institutions and private organisations, but rarely located within schools. In particular, the opportunities to attend externally-based training were limited to a few Science and Mathematics teachers. The rate of participation in these formal PL opportunities was poor because most of them were externally provided and schools relied on receiving an invitation from an external provider. These structured PL activities, especially seminars, were commonly perceived by teachers as the main source of their PL. Teachers, therefore, believed they had a restricted range of PL initiatives in which to participate.

While teachers reported minimal participation in *traditional formal* PL activities, which were not teacher-driven, they did engage in *alternative* or *informal* PL formats. Teachers' engagement in alternative PL formats had quite a wide range, between 18% and 90%. These formats included visiting schools, peer observations, networking, classroom action research, team teaching, independent reading of teaching-subject related texts, informal conversations and reading research-based scholarly works. The majority of teachers indicated that they had engaged in reading teaching-subject related texts and informal conversations as part of their routine teaching roles. Some of these informal professional activities were incidental, but others were deliberately sought out by teachers as individuals, or collectively, with an intention of addressing a particular challenge in their teaching. These informal PL activities provided teachers with opportunities to improve a particular aspect of their teaching, especially when formal PL programmes were not available.

While over half the surveyed teachers and all four Heads of Schools were of the view that participating in formal and informal SBPL practices had considerable impact on improving teaching, they were unable to consider how the PL activities might be effectively organised at their school level. The schools had no explicit arrangements or

guidance about how to organise their teachers' PL opportunities. As a result, most of the PL activities, whether formal or informal, were haphazard and occurred without a well-thought out approach. Importantly for this study, the teachers revealed a great need to engage in more PL that was manageable, ongoing and teacher-driven.

2. *What changes do Tanzanian secondary school teachers make to their school-based professional learning practices as they engage in an inquiry and knowledge-building cycle?*

In the second phase of the study, the four teacher participants demonstrated improved practices in SBPL when they used an IKBC. The inquiry intervention with the four teachers (Lucy, Magdalene, Mourine and Tausi) was designed to provide insight into how an effective SBPL might be implemented in a Tanzanian context. When the teachers engaged in the inquiry cycles as a community of learners, they gradually developed new competencies for carrying out their own SBPL. Multiple sources of evidence are summarised below to show how the teachers changed their participation in their inquiry-focused SBPL practice.

All four teachers were able to establish relevant PL goals to guide their participation in the inquiry cycles. Although at the beginning of the inquiry cycles, three teachers (Lucy, Mourine and Tausi) struggled to translate their students' learning challenges into personalised PL goals, they later learned how to formulate achievable goals. The teachers also realised that their earlier PL practices were ad hoc because they were conducted haphazardly in response to a need. Moreover, it was revealed that achievable PL goals can be developed by teachers themselves through analysis of their students' learning needs.

In each inquiry cycle, the four teachers engaged in dialogue with the researcher to decide the best learning practices that might enable them to achieve their PL goals. Each teacher proposed her own learning strategy and other participants shared ideas and reached consensus about how to address their PL goal. Throughout the analysis process, Mourine indicated that she developed the ability to welcome and evaluate comments from her colleagues and teach differently from this basis. This opportunity to talk

together enabled each teacher to justify and develop a clear understanding of what they needed to do to learn and to sustain their new practices.

At varying levels of success, all four teachers did learn how to conduct their learning through different activities available during the inquiry cycles such as, discussions, independent reading of scholarly works, classroom peer observation, seminars, as well as the action research embedded in the study. In general, all four teachers expressed that being positioned as a learner was a new experience, especially when their focus of learning was to support their students' learning. Most of their learning using an inquiry cycle occurred in face-to face discussions and via the internet at the teachers' convenience. Teachers made effective use of these learning opportunities outside the formal meetings.

The teachers' change in their PL practices was also in part related to their ability to apply new learning to their classroom teaching. Lucy and Magdalene, whose teaching pedagogies before the inquiry cycles relied mostly on giving lesson notes to students, were able to apply more effective teaching approaches based on their new learning. Although all the teachers indicated a degree of difficulty in shifting away from their traditional classroom practices, they learned to investigate their students' learning needs and tried out new interactive teaching techniques in direct response to these needs. As a result, the teachers observed increased student interaction in their learning, and their own PL skills as teachers were enhanced.

Another shift in PL practices was related to an increase in the teachers' ability to self-evaluate and self-reflect. Their participation in SBPL activities was further motivated when they evaluated their teaching progress and identified new PL needs. The teachers were able to provide a comprehensive evaluation of the SBPL when they participated in the third learning cycle. These evaluation skills were critical because they enabled all the teachers to sustain the learning process.

3. *What changes do Tanzanian secondary school teachers make in their understanding of school-based professional learning as they engage in an inquiry and knowledge-building cycle?*

Through the inquiry cycles, the teachers were able to utilise learning opportunities afforded by their co-learners. However, the teachers' change in their understandings of SBPL was a gradual process, as it was linked to the transformations they were making in their PL practices. While engaging in different stages of the inquiry cycles, the teachers gradually became more confident in the PL process. Teachers' confidence appeared growing, especially when they saw small changes in their classroom practices and when they saw their students' positive responses to this, which in turn, changed their understandings of SBPL experiences. Changes in the teachers' understandings of SBPL were evident across the three inquiry cycles as summarised below.

First, as the four teachers engaged in SBPL practices, they developed deeper understandings of these experiences. They began to understand it as a broad concept that embraced a range of learning activities all focused on achieving their learning goals. This shift in understanding was noted after the first and second inquiry cycles, especially when Magdalene, Lucy and Mourine acknowledged that SBPL was not restricted to the school physical environment or to a specific form of learning, such as attending seminars.

Second, Mourine, in particular, admitted that she better understood her role in SBPL. She understood that as teachers they were supposed to initiate, collaborate and monitor their own learning. Before engaging in the inquiry cycles, the teachers thought that 'training' teachers was solely the responsibility of the government and school management.

Third, Magdalene and Lucy indicated that their knowledge of the SBPL process was broadened after engaging in three inquiry cycles. All four teachers came to understand that it was possible for them to implement PL programmes or activities within their school environment if the proper procedures and support were in place. Importantly, it

appeared that teachers' success in learning during their engagement in the inquiry cycles raised their sense of efficacy for engaging in ongoing PL.

Fourth, teachers, particularly, Magdalene and Lucy, came to understand and appreciate that engaging in effective PL had an impact on their classroom pedagogical practices and that these changes helped the teachers to know how to assist their students to learn better.

4. *What factors constrained and enabled Tanzanian secondary school teachers to engage in school-based professional learning?*

The main barriers that hindered the teachers' engagement in effective SBPL during the first and second phases of the study included:

- Lack of financial budgets to assist teachers to engage in different PL activities.
- Limited teaching and learning materials and limited facilities, such as books and computers, respectively.
- Lack of school leaders' greater sense of accountability and understanding that teachers' PL activities required their immediate attention and support.
- Lack of leaders' awareness about how to create manageable PL activities.
- Lack of teacher time for PL due to other teaching-related responsibilities.
- Inability of teachers to adapt to new PL experience because of the schools' pre-existing culture of 'receiving training' from an external source.

The findings also showed that teachers need a broad range of supports including the availability of PL resources, effective management of PL activities and promoting collaborative learning to enhance their participation in SBPL. These kinds of support will go some way to address the socio-economic, structural and cultural barriers summarised above. With reference to the second phase of the study, below is a summary of the kind of support that the teachers needed to enable successful participation in SBPL.

- Effective guidelines needed to be developed to create numerous opportunities for promoting teacher participation in SBPL

- School management needed to work *with* the teachers to organise suitable times for their PL.
- Teachers' PL initiatives needed to be organised and supported through internal and external expertise.
- The use of alternative PL resources needed to be promoted.
- Access needed to be provided for using extensive professional reading materials.
- Collaborative learning structures for peer interaction, school leadership and educational researchers and other experts needed to be developed. This collaboration helps to promote teachers' sense of leadership, commitment and self-efficacy in their PL.

8.3 Contribution to knowledge

An essential aim of research is to create new knowledge (McNiff, 2010). This study makes three key contributions to knowledge with regard to teacher engagement in ongoing and quality SBPL, especially in poorly resourced schools in Tanzania. These contributions are related to the teachers' PL, the IKBC model of PL and the research methodology.

8.3.1 Contribution to teachers' professional learning

This study has served to deepen understandings about the nature of teacher PL practices in Tanzanian secondary schools. While SBPL communities are not formally organised at the national level in Tanzania, teachers attempt to improve their teaching by either consciously or unconsciously engaging in ad hoc PL. This study raised awareness of the potential of formalised PL opportunities that could be promoted within school environments to encourage teachers to engage in systematic learning to address their students' targeted learning needs.

This study also contributes to our understanding about how Tanzanian teachers might organise or implement their own SBPL using an inquiry model. However, for this agency to happen, teachers need to develop their knowledge and skills to manage their inquiries systematically. For instance, they need to know how to: plan their PL goals,

identify and analyse learning needs, become learners, apply new learning in the classroom and reflect on their PL practices.

The teachers' changed practices in their PL shaped their understandings of SBPL. Raising teacher agency with regard to PL can develop teacher autonomy, which in turn helps to sustain their PL (Goller & Paloniemi, 2017; S. Liu et al., 2016; van der Heijden et al., 2018). Teacher agency is also strengthened when participation in SBPL leads to improved classroom pedagogical practices. Teacher engagement in SBPL can be enhanced to promote their teaching performance, and more importantly impact the teaching and learning of their students. Thus, the unique contribution of this study is the knowledge it brings to the field of teachers' PL to support students' learning in Tanzania.

While agency is important for teachers' engagement in PL, teachers cannot maintain their participation in SBPL without receiving official support. This study has shown that school management needs to play a vital role to ensure that the school environment is favourable for teachers to exercise influence over their PL practices. This study agrees with other researchers such as, Timperley (2011) and Timperley et al. (2007) who claim that school leaders make a significant contribution to effective teacher PL. The notion that SBPL cannot be done unless schools have adequate resources may not be completely true. However, engaging in regular PL practices requires leadership skills in order to mobilise and maximise the few resources available at the school.

Collaborative learning is increasingly emphasised in the teacher learning literature. In line with sociocultural learning theories, this study showed that teacher learning can be enhanced by promoting a culture of collaboration wherein each teacher contributes to the learning of the others in a professional learning community (Lave, 1991; Little, 2012). It is important to encourage teachers to engage with their peers in these mutually responsive and meaningful collaborative learning activities within their school environment.

8.3.2 Contribution to the IKBC model of professional learning

The IKBC model, as adapted from Timperley et al. (2007), contributed to knowledge by providing the four teachers in this study with an effective tool to guide a collaborative PL in the context of a poorly resourced secondary school in a developing country. This model was designed to support these teachers to engage in cycles of inquiry by focusing on their students' learning needs, their PL needs, the use of new pedagogical approaches, and an assessment of the impact of these changed teaching actions.

Timperley's inquiry cycle was successfully employed to enable the teachers to build their competencies to engage in SBPL. This study also highlighted some PL skills that are not directly indicated in the original inquiry cycle, such as how to establish a learning team, making time for PL and how to organise support for teachers' PL.

8.3.3 Contribution to research methodology

The mixed methods approach used in this study was crucial to investigating the teachers' PL and their changed practices. The quantitative data were used to establish a broad picture of the research problem, especially in an environment where little was known about how teachers did engage in PL let alone SBPL. While some studies incorporate the quantitative data at the beginning and end of the action research so as to compare the results, this study utilised the quantitative data at the start to understand the magnitude of the problem, which in turn enabled a focused and detailed investigation with a small group of teachers. This research methodology is useful, especially when the researcher wants to obtain the big picture of the problem that might guide an intervention.

Collaborative action research methodology also enabled the teachers to engage in the research process as co-participants in in the data gathering and interpretation. This methodology empowers teachers' learning by positioning them as part of the research process and part of the process to find solutions. An inquiry cycle of PL can be embedded in this collaborative action research to help teachers to identify and address their own PL needs and to further build their SBPL understandings.

Engaging teacher participants in this collaborative action research could lead to some ethical issues and thus, it was important to identify them and protect participants from any psychological or physical harm. This study provides an example of how the insider-outsider roles can be played in order to mitigate potential ethical issues. Defining insider-outsider roles, establishing ethical relationship with participants, and negotiating with participants about study procedures, are some of the strategies that can be employed to address ethical issues in collaborative action research.

8.4 Limitations of the study

This section outlines five limitations of this study. These limitations include: limited analysis of statistical survey data, generalizability of data, bias from the researcher and teacher participants, use of Swahili and English languages, and lack of student data.

Survey data were restricted to the rate of teacher participation in PL activities, rather than the actual nature of that engagement. However, the findings provided insights about the different PL activities available in schools. The interview data retrieved from school leaders also helped to understand how the teachers participated in PL. Descriptive data analysis was used only to provide a baseline about the extent of teacher engagement in SBPL, the challenges encountered in their participation, suggestions for improvement, and the need for more PL.

Survey data were also limited to two categories of participants (teachers and the Heads of Schools) so as to explore their perceptions about teachers' engagement in the SBPL. However, if this study had involved a wider group of participants, such as the Educational officers from the District level or Ministry of Education, then the findings might have revealed a different picture of PL provision. However, the decision was made to focus primarily on the school leaders and teachers in order to generate data that could be managed within a given time. Moreover, the teachers and their leaders were expected to provide relevant data regarding the nature of the problem in order to guide an intervention in the second phase.

Another limitation relates to the generalizability of the data. Since this study is largely qualitative, it only employed a sample of four teachers in the IKBC intervention, which is not sufficient to generalise to the entire Pwani population of teachers. The findings of the study in one school cannot be generalised to another school. However, the study provided much descriptive data to help portray a rich description of the school so that teachers and learners in other schools might establish any convincing connections with their schools.

Furthermore, bias from the researcher and participants always need to be considered in action research. This study is grounded in a sociocultural perspective and an interpretivist philosophy, in which knowledge is socially constructed through observing and interpreting participant experiences in their cultural context. Particularly, in the second phase of the study, despite being cautious, the researcher might have been subjective in the way the teachers' comments and actions were interpreted. However, the use of different methods of data collection and asking the participants to verify and validate their transcripts helped to reduce the possibility of this bias.

Another possible limitation was the use of both Swahili and English languages as a medium of communication during the study. For the convenience of the participants, Swahili was predominantly used in interviews, questionnaire, discussions, meetings and other informal conversations. As the researcher translated the questionnaires and the transcripts into English, the original meaning might have been lost. However, the participants were allowed to ask for clarification if they found the questions to be unclear and their validation of the transcripts also helped the researcher to gain a clearer understanding of what they intended to communicate.

This study relied on teachers' self-reporting of changes in their classroom teaching so as to generate manageable data that could be processed within a given time. However, the teachers' self-reporting of their student' achievements helped them to build their capacity of reflecting on their PL practices. Student achievement data were not used to affirm the teachers' beliefs about their enhanced professional practices because teachers' change of their PL practices may not necessarily result in immediate improved students' learning outcomes. However, the use of other data collection tools such as

classroom observations and focus group discussions helped me to see the changes demonstrated by teachers.

8.5 Implications and recommendations

The following sections provide the implications of this study and make recommendations to teachers, school leaders, policy makers and teacher education curriculum developers for developing teacher-led SBPL.

8.5.1 Implications and recommendations for teachers

The perception and practice that in-service teacher education in Tanzania is the sole responsibility of experts has served to limit teachers' participation and thwarted their initiatives towards PL practices. When teachers are guided by a framework such as the IKBC, they can collaborate and organise their PL within their school environment. Based on the findings of this study, recommendations are made in relation to teachers.

- Teachers need to take a leadership role in their PL activities. Using their subject departments or other organisational structures, it is important that teachers have opportunities to engage in organised PL to directly address their students' learning needs. Teachers need to understand that engaging in meaningful PL is their responsibility and that to do so is part of their professional commitment. In other words, PL is not a service that has to be done to them. Teachers can initiate their PL, lead it, share in it and also seek support to sustain it.
- Teachers need to regard themselves as life-long learners throughout their teaching careers. They also need to know that the opportunity to engage in regular PL is within their capacity. Teacher self-efficacy and agency can be raised through collaborative learning as they see one another's efforts to learn and change.
- PL needs to directly focus on student' learning needs. Teachers will continue to have little understanding of their teaching, until they take a lead in their PL and put their students' learning at the heart of their own learning.

8.5.2 Implications and recommendations for school leaders

The findings from the study showed that the Heads of Schools were not aware of the existence or the potential of, broad PL opportunities in their schools. Although these school leaders acknowledged that teachers had performed some forms of PL, they were not able to assist them appropriately. The Heads of Schools, however, insisted that the government needed to support the implementation of SBPL. Based on these findings, the following implications and recommendations are made for school managers with regard to SBPL.

- School leaders need to understand that supporting teachers in their SBPL needs to be a priority if the school is to improve student learning and achievement. Supporting teachers in their PL is more than offering them access to experts or to resources; it is about mobilising teachers and encouraging them to take a lead in their PL in the school setting. The literature in this study has shown that school leaders as employers have a great influence on teachers' PL (Timperley, 2011; Zheng et al., 2018).
- School leaders need to establish systematic arrangements of SBPL activities to provide teachers with a clear framework to follow and offer them time for collaborative PL.
- School leaders need to involve teachers in planning their PL activities based directly on their students' learning needs.
- Subject departments need to be strengthened by stimulating communities of learners to enhance teachers' PL (Melville & Wallace, 2007). Similarly, department leaders need to be empowered in order to manage teacher PL effectively (Vanblaere & Devos, 2018).
- National governments as the overall managers of schools need to strengthen their partnerships with schools to facilitate effective implementation of teachers' PL. As Dail et al. (2018) commented "schools cannot accomplish everything on their own" (p. 25).

8.5.3 Implications and recommendations for policy makers

The effective implementation of SBPL needs the support of the national educational policy makers particularly in countries such as Tanzania that are planning to establish

structured SBPL framework for in-service teachers. The findings from this study support a rethink about ways to promote teacher engagement in effective SBPL as recommended below:

- Tanzanian educational policy makers need to develop well-defined PL policy and plans that can guide active teacher participation in SBPL.
- Implementation of a SBPL policy at the Tanzanian school level needs to be supported and monitored by the Ministry of Education Science and Technology through its institutions in order to guide the work of school as stated above. Policy makers might follow the work carried out by the government of Hong Kong where they used a "'soft' approach that allows schools to decide on policies about their own professional development strategies and allows teachers to have professional autonomy" (Pow & Wong, 2017, p. 69). Giving attention to teachers' voice is important because they have valuable experiences to draw on in their PL.
- Policy makers need to establish a mechanism to encourage teachers to engage in regular PL to enhance their teaching skills. For example, they might provide certification to recognize teachers' engagement in SBPL, and/or use teachers' PL as a means of appraisal leading to promotion.
- The Tanzanian government needs to improve financial support to schools to further enhance the SBPL efforts made by teachers.

8.5.4 Implications and recommendations for Tanzanian Initial Teacher Education

The design and implementation of the initial teacher education (ITE) curricula need to promote ongoing teacher participation in SBPL. Some teachers in this study were not aware of different PL practices that could be engaged in at the school, therefore, the following points are recommended.

- Curriculum for ITE at certificate, diploma or degree levels in Tanzania should identify theoretical concepts and practical aspects that promote teacher understandings and experiences of SBPL.
- ITE courses should be developed around an inquiry model to assist student teachers to develop a sense of inquiry and agency in their teaching and PL.

- Knowledge of SBPL should be emphasised and observed during teaching practice, so that student-teachers can begin to engage in a process of PL and see it as their professional responsibility.
- During practicum, student-teachers should be under the supervision of qualified associate teachers to help them to experience PL practices and observe experienced teachers engage in PL. In their case study of enhancing the capabilities of associate teachers in the practicum in New Zealand, Sewell et al. (2017) argued that building "relationships between universities [or teacher colleges] and schools" in PL programmes, can deepen student-teachers' PL (p. 37). When student-teachers experience appropriate PL during their ITE programme they are more likely to develop effective PL culture in their future work places.

8.6 Recommendations for future research

This study revealed shifts of PL practices and understandings of four teachers after engaging in three cycles of inquiry using IKBC. The following recommendations are made to guide the direction of future research in order to enhance teachers' sense of agency in the promotion of SBPL and lifelong learning.

The present study utilised both quantitative and qualitative data to investigate the nature of the problem in the first phase, and only qualitative data were used in the second phase of the study to examine the process of change when the four teachers participated in a SBPL. Future studies may apply the survey data at the beginning and end of the study with the participants of the PL programme, so as to develop a statistical difference between the pre and post findings. In so doing, the objectivity of the results can be enhanced.

In this study, there was insufficient time to check on the sustainability of the teachers' participation in the PL activities. It is recommended that a longitudinal study be conducted in the future in order for teachers to engage in a sustained period of PL. A follow up study may also be undertaken to check on the progress of the four teachers who participated in this study.

This study relied more on teachers' self-reporting about the changes and development of their classroom teaching as part of their PL experiences. Therefore, for a deeper understanding of the teachers' transformations in relation to classroom pedagogical practices and their impact on student achievements, future studies may include student achievement data as one indication of the efficacy of the teachers' changed practices.

Future studies could utilise larger sample sizes with teachers using an IKBC model from a range of subject specialisations. Such a range will help to provide greater validity to the study findings. In addition, future studies could examine the role of school leaders in order to gain more understanding of how schools can support teachers to implement SBPL.

8.7 Final comments

In my research learning journey with the four teacher participants, I realised that teachers can change their perceptions and practices pertaining to PL if they are willing and able to do so. Realistically, the best teachers are the best learners. Teachers need to seek out new opportunities to learn and utilise resources they have to update their teaching skills.

In this study, I realised that using an IKBC as a means to structure the action research, suited the teachers' own working environment, and could help them to improve their PL practices. I found that these four teachers were committed to learning, especially when they found that the learning was meaningful to their daily teaching practice. The notion of "*teachers as learners*" needs to be promoted to encourage PL. Once teachers understand how the SBPL process can work, they might take a lead in their own and others' learning.

Working together with teachers was an educative process, not only for them, but also for me as the researcher. I first approached the teachers with the IKBC framework, but through our collaborative learning process, we all shared ideas about how to develop it, and this put us all in the role of learners, co-constructing new understandings about PL and SBPL together. I also realised that when working in a social environment there was no need to control the learning situation, but rather to keep a focus on the learning goals

and to listen and guide and to be part of the learning. I was not the expert. The competencies developed by teachers with regard to conducting their SBPL offered me greater insights about how teachers are enthusiastic and capable of making a difference in their PL undertakings, while performing their routine teaching job. The new experiences and understandings acquired during the study may be long lasting for the teachers and for me also.

Change takes time and the teacher change in this study may not be big as or as dramatic as it was initially anticipated. However, this study suggests that change is possible and that meaningful SBPL can be implemented when teachers are engaged in a collaborative knowledge-building process that promotes their sense of agency and enhances their professional capabilities.

My thesis concludes with the voices from each of the teachers to show how their experiences in this collaborative research has changed not only the way they understand and engage in SBPL, but also the way they now see themselves as professional teachers who are capable of and accountable for developing their own practice.

> "*SBPL does not give the teacher a learning burden; rather it facilitates the teachers' job" (Magdalene/FGD-3)*
>
> *"it [SBPL] has encouraged us as teachers to change our perceptions… it is possible to do SBPL" (Lucy/INT-F)*
>
> "*At the beginning, I thought that it couldn't work… What matters is creativity and commitment" (Tausi/FGD-2)*
>
> *"According to my experience, a birth of successful SBPL is possible only if teachers will consider it as part of their life. That means, as part of their job and make effective use of the opportunities around" (Mourine/INT-F).*

8.8 Chapter summary

This study presents the summary of the key research findings drawn from the guiding research questions. The chapter also documents the contribution of the study to the field of teacher education and particularly, to continuous professional learning and development. Limitations of the study are analysed before presenting the implications and recommendations to teachers, school leaders, policy makers and initial teacher

education for developing teacher-led SBPL. Finally, recommendations for guiding future research and the final comments from the researcher are provided.

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APPENDICES

Appendix 1 Massey University Research Ethics Approval

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA

29 October 2015

Rehema Mwakabenga
Keiller Place
Single Room Keil 12/1
Massey University
Private Bag 11 222
PALMERSTON NORTH

Dear Rehema

Re: HEC: Southern A Application – 15/67
Enhancing teachers' skills for engaging in school-based professional learning through a knowledge building cycle in Tanzania

Thank you for your letter dated 28 October 2015.

On behalf of the Massey University Human Ethics Committee: Southern A I am pleased to advise you that the ethics of your application are now approved. Approval is for three years. If this project has not been completed within three years from the date of this letter, reapproval must be requested.

If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

Yours sincerely

Dr Lesley Batten, Acting Chair
Massey University Human Ethics Committee: Southern A

cc A/Prof Sally Hansen
Institute of Education
PN500

Dr Alison Sewell
Institute of Education
PN500

Prof John O'Neill, Director
Institute of Education
PN500

Mrs Roseanne MacGillivray
Institute of Education
PN500

Massey University Human Ethics Committee
Accredited by the Health Research Council

Research Ethics, Research and Enterprise

Massey University, Private Bag 11222, Palmerston North 4442, New Zealand **T** 06 951 6841; 06 951 6840
E humanethics@massey.ac.nz; animalethics@massey.ac.nz; gtc@massey.ac.nz **www.massey.ac.nz**

Appendix 2 Research Clearance- Tanzania

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION AND VOCATIONAL TRAINING

Tel.: 2134134, 2110150/2 and 2111679.
Fax: 2113271
Website: www.moe.go.tz:

7 STREET MAGOGONI
S.L.P. 9121
11479 DAR ES SALAAM.

In reply please quote:
Ref. No: HA.97/294/01A/28

23rd November, 2015

The: Regional Administrative Secretary - Coastal
ATT. Regional Education Officers

RE: RESEARCH CLEARANCE FOR MS. REHEMA JAPHET MWAKABENGA

The mentioned is a bonafide student of the Massey University - New Zealand who is conducting a research on the topic entitled **"Enhancing Teachers Skills for Engaging in School-based Professional Learning in Tanzania"** as part of her course program for the award of PhD.

Specifically a researcher would like to know about how to help secondary school teachers to develop skills that will assist them in engaging in regular professional learning at school level. This will help to understand about school-based professional learning and their participation in it.

For the purpose of accomplishing this study, a researcher will therefore need to collect data and necessary information related to the research topic in your offices.

In line with the above information you are being requested to provide the needed assistance that will enable her to complete this study successfully.

The period by which this permission has been granted is from **December 2015 to May 2016.**

By copy of this letter, **Ms. Rehema J. Mwakabenga** is required to submit a copy of the report (or part of it) to *the Permanent Secretary, Ministry of Education and Vocational Training* for documentation and reference.

C. K. Tandari
For: PERMANENT SECRETARY

cc: **Ms. Rehema J. Mwakabenga** - The Massey University, New Zealand

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION, SCIENCE, TECHNOLOGY AND VOCATIONAL TRAINING

Tel.: 2134134, 2110150/2 and 2111679.
Fax: 2113271
Website: www.moe.go.tz:

7 STREET MAGOGONI
S.L.P. 9121
11479 DAR ES SALAAM.

In reply please quote:
Ref. No: HA.97/294/01A

04/05/2016

The: Regional Administrative Secretary - Coastal
ATT. Regional Education Officers

RE: RESEARCH CLEARANCE FOR MS. REHEMA JAPHET MWAKABENGA

The mentioned is a bonafide student of the Massey University - New Zealand who is conducting a research on the topic entitled **"Enhancing Teachers Skills for Engaging in School-based Professional Learning in Tanzania"** as part of her course program for the award of PhD.

Specifically a researcher would like to know about how to help secondary school teachers to develop skills that will assist them in engaging in regular professional learning at school level. This will help to understand about school-based professional learning and their participation in it.

For the purpose of accomplishing this study, a researcher will therefore need to collect data and necessary information related to the research topic in your offices.

In line with the above information you are being requested to provide the needed assistance that will enable her to complete this study successfully.

The period by which this permission has been granted is from **June, 2016 to December, 2016.**

By copy of this letter, **Ms. Rehema J. Mwakabenga** is required to submit a copy of the report (or part of it) to *the Permanent Secretary, Ministry of Education, science, technology and Vocational Training* for documentation and reference.

Makuru Petro
For: PERMANENT SECRETARY

cc: Ms. Rehema J. Mwakabenga - The Massey University, New Zealand

Appendix 3 Research Information Sheet for Schools

MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MĀTAURANGA

RESEARCH INFORMATION SHEET FOR SCHOOL

Project Title: Enhancing Teachers' Skills for Engaging in School-based Professional Learning through a Knowledge Building Cycle in Tanzania.

Researcher Introduction

- This project is conducted by Rehema Japhet Mwakabenga who is working with Dar es Salaam University College of Education (DUCE) in Tanzania. Currently, she is a PhD student at Massey University in New Zealand.
- The project is conducted in fulfilment of the requirements for the degree of Doctor of Philosophy in Education at Massey University, New Zealand.
- This project is supervised by A/Prof. Sally Hansen and Dr. Alison Sewell.

Project Purpose and Description

The researcher developed an interest in teacher professional development during her time as a secondary school teacher in Tanzania. Considering the teaching challenges observed and experienced, as well as the increasing demand for quality education in the country, the researcher was convinced that promoting teacher professional learning opportunities would significantly help to develop teachers who are competent to meet the country's educational goals. Teachers in Tanzanian secondary schools need adequate and continuous professional learning for them to deliver quality instruction. However, there is little or no attention given to school-based professional learning which would be cost-effective, needs-oriented and ongoing.

The overall aim of this study is to help teachers develop skills that will assist them to engage in regular professional learning at school level. The project will start by surveying secondary school teachers' understandings about school-based professional learning and their participation in it. The findings from this survey will provide a holistic picture of the professional learning opportunities available for Tanzanian teachers. Following the survey, an action research phase will enable a small group of teachers and the researcher to engage in a school-based professional learning experience.

Please, you are invited to participate in this research

Participant Identification and Project Procedures

Heads of schools

Heads of School are invited to participate in the study, because they supervise school programmes including teacher professional learning. They will be interviewed.

Format for Information Sheet (2015) Page 1 of 3

Te Kunenga ki Pūrehuroa | Institute of Education
Cnr Albany Drive & Collinson Road, Private Bag 11222, Palmerston North 4442, New Zealand T 06 356 9099 www.massey.ac.nz

Teachers

Teachers with at least six months teaching experience in this school are invited to participate in the survey questionnaire. Teachers will be stratified based on subjects' categories such as Language, Social Science, Science and Mathematics to ensure that each subject category is represented. A sample of 21 teachers will be selected to complete the questionnaires.

Also, four teachers with at least one year teaching experience in this school will be invited to participate in action research in order to develop school-based professional learning skills to address classroom instruction challenges. These teachers will participate in interviews, focus group and keep a Reflective Journals. Below is the description of time that will be spent by participants in the study:

Survey Questionnaires- approximately 40 minutes; **Individual interview-** approximately 45 to 60 minutes; **Focus group discussion-** approximately 2 hours; **Classroom observation-** approximately 40 minutes; **Non-classroom observation-** approximately 45 minutes to 2 hours

Total time that will be spent in the research by participants who will be involved in the action research is approximately 27 hours throughout the year.

In addition, the researcher would like to look at the school policy and inspectorate report to find any additional information related to teachers' participation in professional learning.

Data Management

- All data collected will be used for research purposes only and will be accessed by the researcher and her PhD supervisors only. Data will be kept safely and will be disposed after five years in accordance with Massey University policy.
- The information that will be gathered from interviews, focus groups and observations will be transcribed and returned to participants for editing before further processing.

Participant's Rights

- A participating school will protected against disclosure of its information and harm to participants to the extent allowed by law.
- The researcher will use pseudonyms in all transcribed data to avoid disclosing the identity of the participants and school.
- All rights to individual participants are indicated in the participant Information Sheets.

Should you have any questions, please, do not hesitate to contact the following:

1. A/Prof. Sally Hansen (Research Supervisor)
   Palmerston North 4474, Institute of Education, Massey University, New Zealand
   S.E.Hansen@massey.ac.nz

2. Dr. Alison Sewell (Research Supervisor)
   Palmerston North 4474, Institute of Education, Massey University, New Zealand
   A.M.Sewell@massey.ac.nz
3. Rehema Japhet Mwakabenga (Researcher)
   Dar es Salaam University College of Education, Box 2329, Dar es Salaam, Tanzania.
   rmwakabenga@gmail.com (+255 754 206 748)

If you agree to participate in this project, please, sign and return the Consent Form

Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 15/67. If you have any concerns about the conduct of this research, please contact Mr Jeremy Hubbard, Chair, Massey University Human Ethics Committee: Southern A, telephone +64 4 801 5799 x 63487, email humanethicsoutha@massey.ac.nz.

Thank you

Rehema Japhet Mwakabenga

Appendix 4 Consent Form for Schools

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

CONSENT FORM

THE SCHOOL

Project Title:

Enhancing Teachers' Skills for Engaging in School-based Professional Learning through a Knowledge Building Cycle in Tanzania

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

On behalf of the school administration, I agree for ……………………………………… school to participate in this study under the conditions set out in the Information Sheet.

Signature: ………………………………………………………… **Date:** ……………

Full Name - printed …………………………………………………………………………

Title …………………………………………………………………………

Appendix 5 Consent Form for Heads of Schools

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

CONSENT FORM

HEAD OF SCHOOL INTERVIEW

Project Title:

Enhancing Teachers' Skills for Engaging in School-based Professional Learning through a Knowledge Building Cycle in Tanzania

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

Please mark a tick (√) *where appropriate for each statement*

I agree/do not agree to the interview being sound recorded.
I wish/do not wish to have my recordings returned to me.
I agree/do not agree to participate in this study under the conditions set out in the Information Sheet.

Signature: .... **Date:** ....

Full Name - printed ....

Appendix 6 Consent Form for Teachers

CONSENT FORM

TEACHER PARTICIPANT INTERVIEW

Project Title:

Enhancing Teachers' Skills for Engaging in School-based Professional Learning through a Knowledge Building Cycle in Tanzania

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

Please mark a tick (√) *where appropriate for each statement*

I agree/do not agree to the interview being sound recorded.
I agree/do not agree to the observation being photographed.
I wish/do not wish to have my recordings returned to me.
I agree/do not agree to participate in this study under the conditions set out in the Information Sheet.

Signature: .... **Date:** ....

Full Name - printed ....

Appendix 7 Consent Form for Teachers' Focus Group Discussion

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

FOCUS GROUP PARTICIPANT CONSENT FORM

TEACHER PARTICIPANT

Project Title:

Enhancing Teachers' Skills for Engaging in School-based Professional Learning through a Knowledge Building Cycle in Tanzania

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

Mark a tick (√) *to indicate your decision*
I agree/do not agree to the interview being sound recorded.
I wish/do not wish to have my recordings returned to me.
I agree not to disclose anything discussed in the Focus Group.
I agree to participate in this study under the conditions set out in the Information Sheet.

Signature: .... **Date:** ....

Full Name - printed ....

Appendix 8 Authority for the Release of Transcripts

AUTHORITY FOR THE RELEASE OF TRANSCRIPTS

Project Title:

Enhancing Teachers' Skills for Engaging in School-based Professional Learning through a Knowledge Building Cycle in Tanzania

I confirm that I have had the opportunity to read and amend the transcript of the interview(s) conducted with me.

I agree that the edited transcript and extracts from this may be used in reports and publications arising from the research.

Signature: .... **Date:** ....

Full Name - printed ....

Appendix 9 Teacher Survey Questionnaire, 2016

Completion and return of the questionnaire implies consent. You have the right to decline to answer any particular question.

The purpose of this survey is to gather information on- **Teachers' Perceptions and Engagement in School-based Professional Learning (SBPL) in Tanzanian Secondary Schools.**

Instructions to participant:

- All guidelines on how to answer the questions are typed in *italics*.
- The survey will take you about 40 minutes to complete.

SECTION A: BACKGROUND INFORMATION

Please circle the appropriate box

1. **What is your gender?**
   □ Female □ Male

2. **What is the highest level of your teaching qualification?**
   □ Certificate □ Diploma □ Degree
   □ Postgraduate Diploma in □ Education Master of Education □ Other (Please, specify)…

3. **How long have you taught in this particular school?**
   □ Less than 1 year □ 1 – 2 years □ 3 – 5 years,
   □ 6 – 10 years □ 11 – 20 years, □ More than 20 years

4. **Which of the following subject specializations do you teach in this school?**
   □ Social Science □ Mathematics □ Science
   □ Business studies □ Language □ Other (Please, specify) ……

SECTION B: TEACHERS' PARTICIPATION AND PERCEPTIONS OF SBPL

In this survey, SBPL refers to learning undertaken by teachers within a school context so as to improve their professional knowledge and skills for pedagogical practices.

5. **During the last year, how often did you participate in any of the following kinds of SBPL?** *For each question below, please mark one choice.*
   Regularly (after every week/month); **Sometimes** (2-3 times per term); **Rarely (**once per Term); **Never** (Certainly not).

How often have you participated in the following Formal SBPL?	Regularly	Sometimes	Rarely	Never
Short course training on pedagogical practices				
Seminars/workshops on pedagogical practices				
Visiting schools/institutions to learn teaching				
Peer classroom observation at school				
Networking with other teachers to share challenges in classroom teaching.				
Conducting classroom action research.				
Getting assistance from experienced teacher on how to handle pedagogical aspects (mentoring).				
Discussions with other teachers (in meetings)				
Engaging in team teaching				
Other? (Please specify)				

6. **How would you describe the impact of the professional learning you participated on improving your pedagogical practices?**
   Please mark one choice.
    Big impact A moderate impact   A small impact   No impact Not applicable

7. **Did you receive any support (e.g release time, financial, supervision) from school leadership for undertaking the professional development you indicated in question No. 5?**
   Please mark one choice.
    A great support   An adequate support   Little support   No support

8. **To what extent are you satisfied with professional learning programmes for teachers at school as organized by school leadership?**
   Please mark one choice.
   Highly satisfied Moderately satisfied Lowly satisfied Not satisfied Not applicable

9. **Thinking about <u>less formal</u> professional learning during the year, did you participate in any of the following activities?**
   Regularly (after every week/month); **Sometimes** (2-3 times per term); **Rarely** (once per Term); **Never** (Certainly not).

Please mark one choice in each row.

How often have you participated in the following informal professional learning activities to improve pedagogical practices?	Regularly	Sometimes	Rarely	Never
Reading research-based professional literature (e.g. journal articles, research reports)				
Reading other literatures to improve teaching e.g. books, newspapers, modules from pamphlets, search materials from internet)				
Engaging in informal dialogue with your colleagues on how to improve your teaching.				
Chatting with another teacher to help a specific student				
Other? (Please specify)				

10. **How would you describe your participation in professional learning at this school?**
     High participation Moderate participation Little participation Poor participation

11. **In the last Term, did you want to participate in more professional learning than you did?**
    Yes No

12. **Which of the following reasons best explain what prevented you from participating in more professional development than you did?**
    Please mark as many choices as appropriate.
     Professional development was too expensive, so I could not afford it.
     There was a lack of employer support
     Professional learning conflicted with my work schedule.
     I didn't have time because of heavy teaching workload.
     There was no professional learning programme that suited my needs.
     There was lack of necessary resources to implement my professional learning
     Other (please specify): …………………………………………………..

13. How often have you practised the following in your professional learning at school?
Please mark one choice in each row.

Skills for engaging in SBPL	Regularly	Sometime s	Rarely	Never
Prepare your professional learning plan				
Seek assistance to improve your professional learning. For example from school leaders				
Participate in professional conversation with others				
Engage in a teacher discussion group				
Systematically, identify professional learning needs				
Identify a suitable type of professional learning				

SECTION C: SBPL AND PEDAGOGICAL PRACTICES

14. Thinking of your own professional development needs, please indicate the extent to which you have such needs in each of the pedagogical areas listed.
Please mark one choice in each row.

In what pedagogical practices do you need more professional knowledge and skills?	High level of need	Moderate level of need	Low level of need	No need at all
Teaching specific controversial concepts of the subject.				
Planning teaching documents that reflect on the nature of students				
Integrating technology media in teaching				
Improvising teaching and learning resources to support student learning.				
Engaging students in effective classroom discussions				
Support students who perform poorly in class				
Providing constructive feedback to students				
Other (please, specify				

SECTION D: TEACHERS' PERSPECTIVES OF PARTICIPATION IN SBPL

15. This question asks about your perceptions regarding teacher engagement in SBPL. Please indicate how much you disagree or agree with each of the following statements.
Please mark one choice in each row.

What is your perception about SBPL?	Strongly Agree	Agree	Disagree	Strongly Disagree
Teachers can address teaching challenges by sharing their professional skills.				
Strong professional learning cannot be supported by school resources available.				
The school is responsible for arranging professional learning programmes.				
Teachers need to plan for their professional learning at school.				
School-based professional learning embraces different forms of learning.				
Successful teacher professional learning should focus on students' learning needs.				

16. **In your opinion, what changes do you think need to be made to SBPL to make it more relevant and sustainable?**
    …………………………………………………………………………………………………
    …………………………………………………………………………………………………
    …………………………………………………………………………………………………
    …………………………………………………………………………………………………
    …………………………………………………………………………………………………

17. **Would you like your school to be involved in a professional learning programme that enhances teacher' skills for managing school-based professional learning?**
    □Yes □No

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

Appendix 10 Semi-structured Interview Guide for Heads of Schools

Semi-structured interview was used to collect detailed data from Head of Schools regarding the ways in which teachers engage in professional learning in their schools. The interviews were scheduled for approximately 40 to 60 minutes. The following guiding questions were used.

1. What do you understand by professional learning (PL)?
    a) How do you describe it?
    b) What is SBPL?
    c) What do you understand by teacher inquiry cycles of professional learning?
    d) How do you differentiate SBPL from other teacher professional training?

2. What types of professional learning activities are conducted by teachers in this school?
    a) What teacher PL programmes are organized by the school?
    b) What other types of PL do teachers engage with?
    c) What skills are employed by teachers in managing their PL?
    d) How well do teachers conduct their PL?

3. How do the following factors prevent teachers from engaging in effective SBPL?
    a) School timetable
    b) Finance
    c) Teaching workload
    d) Learning resources
    e) Other factors

4. How often do teachers participate in PL to improve their pedagogical practices?

5. What pedagogical practices of teachers affect student learning?
    a) How does the teachers participation in PL influence student learning?

6. How does your school support teachers in their PL?
    a) In what ways do you support teacher engagement in PL?
    b) Does the school has a policy for teacher PL?
    c) Who pays for teacher professional learning?

7. What are your views on SBPL?
    a) Do you think SBPL is important? Why?
    b) How is it possible to implement effective SBPL?
    c) Would you like your teachers to be involved in an intervention that could promote their ability of conducting their SBPL?

Appendix 11 Initial Interview Guide for Teachers

Initial interview was conducted with four teachers who volunteered to participate in the inquiry and knowledge-building cycle of PL. These questions were asked before starting an inquiry cycle intervention in order to understand participant's understandings of the SBPL and ability to practice it. An interview was scheduled for approximately 60 minutes. Five main questions were asked with probing questions:

1. What do you understand by SBPL?
   a) How do you describe it?
   b) How do you differentiate SBPL from other professional training programmes?

2. How did you engage in professional learning in this school?
   a) What forms of PL were organized by the school?
   b) What forms of PL were arranged by yourself or with other teachers?
   c) What types of skills helped you to participate in PL?
   d) What do you know about engaging in inquiry cycles?

3. How effective was the PL you engaged with, to your pedagogical practices?
   a) How well the PL addressed student learning difficulties?
   b) What skills do you need more to improve your pedagogical practices?

4. What kind of support did you get when engaged in your PL?
   a) From the school management
   b) From colleagues
   c) From outside the school

5. How do the following aspects prevented your participation in effective PL?
   a) School timetable
   b) Finance
   c) Teaching workload
   d) Learning resources

6. What are your perspectives on school-based professional learning?
   a) Do you think school-based professional learning is important? Why?
   b) How can effective PL programmes be implemented at this school?
   c) What changes would you like to see in your PL practices?

Appendix 12 Final Interview Guide for Teachers

The following questions guided the final interviews with teachers to investigate the changes in their practices and understandings of SBPL, after engaging in an inquiry and knowledge-building cycle (IKBC).

1. Based on the experience obtained from the IKBC, how would you describe SBPL?
   a) What do you understand by teacher SBPL?
   b) Do you think that the SBPL offers teachers an opportunity to practice different types of PL beyond their school premises? Why?
   c) In what ways does SBPL concept relates to other professional training that have been provided at the school?

2. In what ways have you participated in the following practices during the IKBC?
   a) Seminars/workshops
   b) Group discussion
   c) Peer classroom observation
   d) Networking
   e) Action research
   f) Educational visits
   g) Other practices

3. How do the following aspects facilitated your participation in the IKBC/SBPL?
   a) Sharing knowledge and skills with other participants
   b) Listening to other participants' views
   c) Planning your own PL with the help of other participants
   d) Commitment in independent reading
   e) Scheduling your PL practices
   f) Ask for PL support from the school and outside the school
   g) Sharing with other teachers about your PL progress
   h) Arranging PL activities at the school such as seminars

4. In what ways were you supported to engage in your PL during the IKBC?
   a. What kind of support did you receive?
   b. Did you get any expert support? How?
   c. How did the school management support your participation in the PL?
   d. What kinds of support did you receive from outside the school?
   e. What other types of support do you think would be needed for your PL?

5. What worked or didn't work well for you in the following parts of the IKBC?
   a) Planning of your PL
   b) Implementation of the PL plans in and outside the classroom
   c) Evaluation and reflections in and on your PL practices

6. What is your perception of the impact of engaging in the IKBC/SBPL?
    a) Improvement of classroom pedagogical practices
    b) Understanding about students' learning needs and ability
    c) Analysis of your own professional learning needs
    d) Meeting your expectations for this programme

7. What factors enabled or prevented your engagement in the SBPL?
    a) Time
    b) Funds
    c) Workload
    d) Skills
    e) Others

8. What do you think need to be done to improve implementation of SBPL and particularly, the use of the IKBC in the future? How?

9. What skills would you like to share with other teachers about conducting SBPL through IKBC?

Appendix 13 Focus Group Discussion Guide for Teachers

The focus group discussion was conducted with four teachers after completing an inquiry cycle. The aim of the discussion was to co-construct understanding with teachers about the progress of their professional learning and modify it where necessary.

1. How successful was the aspects of the inquiry?
2. What aspects do you think need to be improved?
3. How do you think improving the aspects you identified will help to achieve your professional learning goal?
4. What factors do you think affected the implementation of the whole professional inquiry cycle?
5. What changes should be done to improve the implementation of the next professional inquiry cycle?
6. What are your perspectives of participating in professional inquiry programme at the school level?
7. Would you like to continue engaging in the next inquiry cycle to improve your PL practices and understandings?

Appendix 14 Classroom observation guide

The observation was conducted by the researcher to see how teachers implemented the professional learning plans in the classroom. The aim was to learn how teachers participated in the PL process and how they were transforming their classroom practices.

PRELIMINARY INFORMATION	
Teacher	
Class	
Number of students	
Date	
Subject	
Topic	
Lesson main objective	
Specific objectives	
Duration	
Skills to be developed	

LESSON PRESENTATION		
Stage and Time	**Teaching and learning activities**	**Comments**
Introduction		
Teaching and learning process		
Conclusion		
General comments for reflection		

Appendix 15 Guiding Questions for Teachers' Reflections

Teachers kept their research diaries during the IKBC intervention in order to reflect and record their thoughts, values, assumptions and other experiences related to their participation in the study. The following questions used to guide teachers to reflect on the PL process:

1. What are my expectations in this professional learning process?
2. What are my views on the progress of this professional inquiry cycle?
3. What challenges affect the implementation of new learned professional skills?
4. What shall I do to improve this PL process?
5. What classroom practices have I improved by engaging in this SBPL?
6. In what ways does this inquiry change my understandings of and practices in SBPL?
7. How do I differentiate the SBPL through inquiry cycles with other types of PL I have experienced before?
8. What more strategies should be employed to improve our SBPL?

Appendix 16 Summary of PL Activities Conducted in the IKBC Intervention

Summary of Activities Conducted During the Implementation of the Action Plan

Period	Inquiry cycles	Data collection	Teacher PL activities
The end of February, 2016		Initial interview Familiarization meeting- 1 (MT 1).	An overview of PL activities
March- April, 2016	IKBC- 1	Planning Meeting- 2 (MT-2). Observations Informal talks Field notes Focus group	PL activities planned. Teachers engaged in learning. Classroom teaching conducted and evaluated IKBC implementation evaluated.
April-, 2016	IKBC- 2	Planning Meeting- 3 (MT 3). Observations Field notes Informal talks	PL activities re-planed. Teachers engaged in learning. Classroom teaching conducted and evaluated. Reflection on PL progress.
School Holiday			
July- October, 2016		Informal talks and reflection Focus group Field notes	One day workshop about lesson planning conducted at the school. Teachers discussed and prepared a peer observation guide. A SBPL policy was adapted and recommended for the school. Reflections and evaluation on IKBC implementation A seminar conducted by teacher participants to share their PL activities with colleagues.
October- November, 2016	IKBC- 3	Planning Meeting- 4 (MT 4). Observations Focus group Informal talks Field notes Focus group	PL activities re-planed Teachers engaged in learning. Classroom teaching and evaluation conducted. PL progress evaluated.
The end of November		Final interview	Overall implementation of SBPL through IKBC evaluated

Appendix 17 Data View in NVivo 11 Showing Samples of Nodes Created

SECOND FOCUS GROUP.nvp - NVivo Pro

Nodes

Name	Sources	References
BARRIERS TO SBPL	0	0
Commitment	1	3
Communication	2	2
Fund	1	1
Motivation	1	2
Resources	0	0
Skills	1	2
Time	0	0
IMPLEMENTING SBPL	0	0
Impossible	2	3
PL to other teachers	0	0
Possible	3	10
PEDAGOGICAL PRACTICES	0	0
Attitudes to students	3	9
Teaching methods	4	13
SBPL COMPETENCES	0	0
Collaboration	4	8
PL assessment	0	0
PL organisation	3	5
PL planning	4	9
Readiness	1	2
Time managemnet	2	2
SBPL FORMS	0	0
SBPL IMPACT	0	0
SBPL SUPPORT	0	0
Other support	1	1
School support	2	2
Encouragement	3	3

PL organisation

<Internals\\LuciaSECONDFGD> - § 3 references coded [0.81% Coverage]

Reference 1 - 0.34% Coverage

Therefore, professional learning requires more to look at the needs of challenges and then again how to improve your teaching or how to learn to modify your teaching.

Reference 2 - 0.32% Coverage

We base on the needs of students, at school. What are the needs of students? What are the problems of students? So these needs or problems start from school.

Reference 3 - 0.15% Coverage

you understand very well and you know how to break it down for your students

<Internals\\MourineSECONDFGD> - § 1 reference coded [0.24% Coverage]

Reference 1 - 0.24% Coverage

Is it necessary that we should have a documented plan? I can see that everything is well organized since we started

<Internals\\TausiSECONDFGD> - § 1 reference coded [0.26% Coverage]

Reference 1 - 0.26% Coverage

As teachers, we can organize ourselves, we can put down our goals and use the little tools we have to improve the teaching skills