IN-SERVICE TEACHER TRAINING AND LEARNERS’ ATTAINMENT OF EDUCATION IN PRIMARY SCHOOLS IN WESTERN UGANDA

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OCTOBER 2018
DECLARATION

I, Jackson Nzirirwehi, hereby declare that this is my original work and has never been submitted for any diploma, degree or any other award in any university or other institution of higher learning.

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DEDICATION

This dissertation is dedicated to my wife Generous Nalinya.
ACKNOWLEDGEMENT

First, I thank the Almighty God for His unending mercy and for protecting and guiding me from the start of this course to the end. My appreciation goes to Kampala International University for sponsoring the course and all my lecturers, course mates and colleagues for the part they played in sharing knowledge and encouraging me on this journey. I owe my deepest gratitude to my supervisors Assoc. Prof. Ijeoma Anumaka and Dr. Maurice Tamale for their invaluable advice and comments to finalize this work. I am indebted to all individuals that assisted me towards the completion of this dissertation. I extend heartfelt thanks to my daughter Faith Atuhumuze for guiding the statistical and structural organization of this report. Finally, I acknowledge the patience and understanding of my family members; my wife Generous Nalinya, my son Jason Kamusiime and my daughter-in-law Catherine Hope who provided me with moral support during the time they needed me most. Thank you and may God reward you so much.
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<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>DEO</td>
<td>District Education Officer</td>
</tr>
<tr>
<td>DIS</td>
<td>District Inspector of Schools</td>
</tr>
<tr>
<td>EPRC</td>
<td>Education Policy Review Commission</td>
</tr>
<tr>
<td>ETTA</td>
<td>Education and Teacher Training Agency</td>
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<td>MoES</td>
<td>Ministry of Education and Sports</td>
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<td>PLE</td>
<td>Primary Leaving Examinations</td>
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<tr>
<td>PTC</td>
<td>Primary Teachers College</td>
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<tr>
<td>SAT</td>
<td>Systematic Approach to Training</td>
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<tr>
<td>SEP</td>
<td>Science Education Project</td>
</tr>
<tr>
<td>TDMS</td>
<td>Teacher Development Management Systems</td>
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<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
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<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<td>UPE</td>
<td>Universal Primary Education</td>
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<td>USA</td>
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ABSTRACT

The purpose of this study was to evaluate the effect of in-service teacher training on learners’ attainment of education in primary schools in Western Uganda. Specifically, the study was guided by the following objectives: to assess the effect of in-service teacher training on teachers, to assess the effect of in-service teacher training on learners’ attainment of education and to examine the process by which in-service teacher training is designed and delivered. The assessment was made using primary data collected from the districts of Bushenyi, Rukungiri and Sheema in 2016. From total populations of N=2,364 education stakeholders including teachers, tutors, head teachers, district inspectors of schools and district education officers and N=12,000 primary seven pupils as of 2016, samples of 610 and 332 respectively were drawn. Questionnaires and key informant interviews were used in data collection. The research instruments were pilot tested to ensure their validity and reliability. Analysis was carried out using frequency distributions, Pearson chi-square distributions, and Mann Whitney tests. The Cronbach’s alpha was computed to ensure reliability of the Likert scale used in measuring the objectives with 0.773, 0.795 and 0.834 for objective one, two and three respectively. Qualitative analysis was done by incorporating verbatim accounts within the wider context. Results show that in-service teacher training had a significant effect on teachers particularly on their academic qualifications, performance and professional ethics. In-service teacher training also significantly improved learners’ attainment of education whereby trained teachers promoted knowledge sharing in an improved teaching-learning environment. With regard to the in-service teacher training process, findings reveal that there was no established system in place through which in-service teacher training is designed and delivered. Generally, in-service teacher training contributes to the building of a qualified teaching workforce and improved quality of education. The findings demonstrate that the process of in-service teacher training is marred with discrepancies and weaknesses in implementation that hinder it from realizing its objectives. To this end, targeted interventions such as sensitization of teachers on the significance of in-service teacher training towards education and development of an effective training system are recommended. The study recommends a revamp of school environments to create a conducive environment for the teaching-learning process.
CHAPTER ONE
INTRODUCTION

1.1 Introduction

In-service Teacher Training is a central component of professional development in the education sector towards the overall goal of improving education. It is a tool that has been adopted by many policy makers and education departments globally to orient teachers and equip them with skills aimed at improving the quality of education. While in-service teacher training programs share a common overall goal of advancing teachers’ proficiency and learners’ attainment, implementation practices vary according to country, institution as well as through time. This study presents perspectives on these three components. It examines the impact of in-service teacher training on teachers including attitudes, practices and professional grounding. It also explores the effect of professional development, as a result of in-service teacher training, on classroom practices and pupils’ learning. Finally, the study examines the procedures followed in selection of trainees and order of implementation of in-service teacher training in Uganda. This chapter presents a comprehensive overview on these questions along four perspectives namely historical, theoretical, conceptual and contextual perspectives.

1.11 Historical perspective

In-service teacher training is globally practiced with the belief that it increases teachers’ capacity to teach learners. In Britain, shortage of teachers after the second world war led to the formation of a number of emergency training colleges in addition to those already in existence to train ex-service personnel who had already graduated with a purpose of expanding and accommodating post-war expectations (Richards, 2002). Richards’ study further reported that from the late 1940s, all professors and readers at the Institute of Education were required to pursue research and cultivate higher degree status, which contributed to the growth of
education as an academic research focus. Wiley and Maddison (1971) also noted that in the period between 1969 and 1970, a one year course was made compulsory in Britain for all graduates to attain post graduate qualification through in-service teacher training to be able to teach in state schools. This training presented an opportunity for teachers to upgrade their qualifications and also equipped them with new teaching approaches such as mixed ability teaching and integrated humanities. Wiley and Maddison (1971) further noted that the British government played a big role in the teacher training by imposing strict pre-entry requirements such as recent and relevant experience of successful teaching amounting to one terms’ experience in every five years.

In the United States of America (USA), Guskey, (1995) reported that professional development in the form of in-service teacher training consisted of workshops and short-term courses aimed at providing teachers with new information on specific aspects of their work to foster systematic growth and development in the teaching profession. Accordingly, professional development and other organized in-service teacher training programmes were designed to further advance teachers’ capacity to perform.

In Uganda, in-service teacher training has been part of the education system since independence in 1962 with a main objective of raising teachers’ qualifications from the lowest grade I (vernacular teachers) to, subsequently, grade II, grade III, grade V, graduate and postgraduate qualifications. A Ministry of Education and Sports (MoES) report indicates that the Ugandan government has, since the 1970s, put in place measures, particularly in-service teacher training, to eliminate low qualified teachers starting with the phasing out of vernacular teachers for grade II teachers in the 1970s that were in turn phased out by 1986 in preference for grade III teachers (Ministry of Education and Sports., 2010). From 1962 to 1972, the majority of primary teachers in Western Uganda were grade II teachers (Bushenyi Core Primary Teachers College., 1995). The inception of Teacher Development Management
Systems (TDMS) in 1994 through its implementation of a number of outreach activities through core primary teachers’ colleges to support and enhance quality teacher training marked the start of renewed effort in in-service teacher training. TDMS was initially focused at training head teachers but later extended to enable grade II teachers qualify as grade III teachers.

In-service teacher training programs in Uganda are typically conducted during school holidays where teachers attend face-to-face sessions in teacher training colleges and universities of their choice. A report by Makerere University shows that in-service teacher training programmes in Uganda include; training licensed teachers to grade III teachers, Primary Teachers’ College (PTC) certification reforms, PTC curricular modules, grade II teachers upgrading to grade III, grade III teachers upgrading to grade V and grade V teachers upgrading to graduate and post graduate teachers (Makerere University, 1990). To train as a grade III teacher, one must have attained a grade II certificate or an Ordinary level certificate. In order to upgrade to the accepted qualification of grade III, the majority of vernacular teachers and grade II teachers participate in in-service teacher training courses provided by the government through distance learning.

Other in-service teacher training activities aimed at equipping teachers with new skills and knowledge include trainings, seminars, workshops and refresher courses spearheaded by Center Coordinating Tutors (CCTs) at host institutions. According to Ezenne (2012), CCTs are also charged with organizing and conducting continuous professional development for teachers, head teachers, Parents Teachers Associations (PTA) as well as School Management Committees (SMC).

1.12 Theoretical perspective

The theoretical grounding of this study was based on two theories namely the McClelland Human Motivation Theory (1961) and Herzberg’s two-factor theory (Herzberg, Mausner, & Snyderman, 1959). According to the McClelland Human Motivation Theory, three motivators
drive every individual namely a need for achievement, a need for affiliation and a need for power (McClelland, 1961). He argues that people’s motivation patterns reflect their cultural environment, including family, the school, the church and the work place. According to him, the need for achievement or “achievement motivation” is a drive that workers have in order to overcome the challenges and obstacles that they encounter in the process of goal attainment. McClelland further notes that the motivators are learned through culture, age and experiences. Because of this, the theory is at times referred to as the Learned Needs Theory. McClelland’s Theory is relevant in educational organizations because professional development and attainment of quality education are driven by all of the three proposed motivators. In-service teacher training is driven by a need for achievement, power and affiliation. Based on McClelland’s argument, these motivators could be transferred from teachers to learners inspiring a need for achievement.

However, McClelland’s Theory only focuses on the preliminary stages of the training process and thus does not address the evaluation process and outcomes. This implies that impact of the training is only implicit rather than explicit. To this end, this study also adopted Herzberg’ two-factor theory (Herzberg et al., 1959) which is based on the assumption that dissatisfaction leads to avoidance of work while satisfaction leads to attraction of work. The theory assumes presence of two separate unipolar continua that reflect people’s dual orientation to work. Based on this theory, we argue that factors that promote satisfaction of both teachers and learners must be put in place to improve the learning process.

Education is a highly result oriented discipline where employees and service providers as well as learners are judged by their performance and grades on their certificates. As a result, the need for achievement is crucial in educational organizations seeing as it is the key ingredient towards provision and attainment of quality education. Education managers must thus strive to motivate teachers and other education service providers and learners towards enhanced
achievement. This need is primarily addressed through upgrading teachers’ qualifications through in-service teacher training, which in turn increases productivity and learners’ attainment of education. When teachers derive satisfaction from their job, they too create a friendly and conducive learning environment that motivates learners, which in turn improves learning outcomes. From the above arguments, the most successful institutions are those that manage their human factors in the most effective and efficient way.

1.13 Conceptual perspective

Bramley (1991) describes training as a systematic development of attitudes, knowledge, skills and behavior pattern required by an individual to perform adequately a given task or job. This emphasizes a systematic process for improving work based performance and outcomes. Pre-service training and in-service teacher training as professional development tools are initiated with an ultimate goal of fostering effectiveness among teachers and in effect, improving learners’ performance.

The International Labor Organization, ILO (2012:4) defines in-service teacher training as the process through which teachers partake in training activities aimed at refreshing and/or upgrading their professional knowledge, skills and practices within the teaching process (as cited in United Nations Educational, Scientific and Cultural Organization, UNESCO, n.d). In-service teacher training encompasses all the formal and informal activities and experiences that enable a person to assume the responsibilities of a member of the education profession or to discharge his responsibilities more effectively (Good, 1959). It is the process through which teachers undergo further training to acquire, retain and apply knowledge.

Learners’ attainment of education is accordingly defined as the learners’ mental strength and their abilities to perform well in academics, make good decisions, become sociable and perform better at co-curricular activities. Good academic performance in this study refers to the
situation where learners pass highly (Division one) in their Primary Leaving Examinations (PLE). Baguma (2003) asserts that academic performance of pupils is dependent on several factors surrounding them such as availability of reading and teaching materials, pupils and teachers’ input and the influence of peer groups. Further, learners are said to make good decisions towards their future if they can identify and choose alternatives based on their values and preferences. Co-curricular activities on the other hand refer to all activities such as games and sports done alongside the normal curriculum that enable development of a range of skills and attributes that are essential in learners’ physical and intellectual life. Co-curricular activities enable learners to develop discipline and follow rules and regulations not only in the activity but also in other school programmes.

In-service teacher training is associated with three forms of development namely professional career of individuals, school performance and policy as well as societal impact (Lazarová & Prokopová, 2004). According to Sulimani, (1977), the in-service education system develops a stable feedback system associated with the ‘continuous evaluation’ approach through which educational innovations are channeled. He argues that the stock of knowledge of teachers and their pedagogical skills become obsolete in a short time in this 21st century technologically advancing world and thus demands constant upgrading to keep up with modern knowledge (Wesch, 2009).

In-service teacher training has been placed at the core of improving teachers’ performance as well as learners’ attainment of education. In-service teacher training is a setting through which experiences that enable teachers to effectively assume their responsibilities are imparted. Odoki, Asante, & Bossa (1995) observe that new methods of teaching introduced through in-service teacher training facilitate effective impartation of knowledge and skills which in turn improves learners’ attainment of education.
In-service teacher training is further viewed as critical to provision of quality education. The United Nations Children’s Fund (UNICEF) defines quality education along five dimensions namely; learner's outside experiences, learning environment, content of education, learning processes, and education outcomes (UNICEF, 2000). Rena (2011) notes that quality of education is dependent on curricula, instructional materials and educational infrastructure. In-service teacher training equips teachers with skills and techniques that enable efficient use of instructional materials and curricula which play a significant role in arousing pupils’ attitude towards learning (Tilak, 1993) and improve quality of education.

New innovations have come to play and the education system along with other sectors has to revolve to keep up with changing knowledge. Professional development (both pre-service and in-service) is adopted as a means to upgrade teacher competence in providing learners with up-to-date information. Pre-service training is however not sufficient in preparing teachers to meet the current demand for quality education in the light of evolving conditions in this technology era. Quality education is, in this context, defined as development aimed at improving the learning of all students which deepens educators’ knowledge of content, provides them with research-based instructional strategies that enable students to meet necessary academic standards, and provides them with knowledge of proper use of various types of classroom assessments” (Learning Forward).

1.14 Contextual perspective

Education departments worldwide have implemented in-service teacher training with an ultimate goal of improving provision of quality education. Specifically, in-service teacher training has been adopted for purposes such as; promoting continuous improvement of the professional staff within the school system, eliminating differences within the background preparation of teachers and other professional workers in the education sector, keeping the teaching profession abreast of new knowledge, enabling realization of creative innovations and
giving the much needed support to teachers to tackle further responsibilities associated with the changing learning environment among others (Sheth, 2004). Nuova’s 2009 study supports this notion positing that in-service teacher training is far detached from the traditional perceptions of the teaching profession and takes into account key aspects such as learners’ education attainment, training aimed at establishing professional culture, relationships (teacher-teacher, teacher-pupil and pupil-pupil) and social responsibility (Nuova, 2009).

In an alternative hypothesis, Atac (2003) points out the complexity and contradictions embedded within in-service teacher training processes which compromise the efficiency of the program in its objective to provide quality education. Tarhan (2015) observes that some of these challenges are associated with the lack of proper planning of teacher education asserting that teaching positions are occupied by people from other academic backgrounds than education graduates, a perception he believes increases unemployment and underemployment as well as frustration amongst professionally trained teachers.

In Uganda, reforms in the education sector such as in-service teacher training were reignited in 1987 when, after years of political turmoil saw to the collapse of the education system, the Education Policy Review Commission (EPRC) was appointed to assess the education system and give recommendations towards policy restoration and improvement. Eilor (2003) notes that key indicators of quality of education in Uganda such as cohort survival rates, pupil/teacher ratios and teacher attrition had exacerbated and as such the existent education system could not fulfill anticipated objectives. As such, primary education reform came to center stage in the early 1990s to instigate organizational amendments in education service delivery. The inception of Teacher Development Management Systems (TDMS) in 1994 and Universal Primary Education (UPE) in 1995 were the two core reforms adopted by the Ministry of Education and Sports (MoES) and they would serve to implement some of the policy suggestions and interventions (MoES, 2010). Such interventions and reforms initiated into the
education system introduced alternative practices to enhance quality of education service provision.

TDMS was implemented with a single main objective of improving quality and equity in provision of primary education through improved school management and quality of instruction (teaching). The burden of this work was and is still undertaken by Core Primary Teachers’ Colleges (Core PTCs) and other tertiary and management training institutions. These institutions have the mandate to provide pre-service training for untrained and under-trained teachers as well as in-service teacher training for all serving teaching and education service personnel. This is done through a number of outreach activities aimed at supporting and enhancing quality teaching and learning in education institutions. Different stakeholders such as head teachers and coordinating center tutors at school and training institution levels respectively play key roles in overseeing policy implementation to ensure successful reforms and interventions.

Kajubi (1989) emphasizes that education systems are heavily reliant on adequate training of teachers and all grades of teachers play a key role in the proper implementation of various education policies and programs. His findings indicated that the Uganda Education System had not been able to provide the necessary number of trained teachers, stressing that by 1988, there was a high proportion of untrained teachers, that is, 56% of primary teachers were untrained while 40% of the secondary teachers were also untrained. According to the report, the problem of shortage of trained teachers at various levels of education became worse due to the failure of in-service teacher training institutions to attract capable and interested candidates. This instigated a need to design appropriate programs for effective in-service teacher training with a vision to identify, attract and retain suitable persons into the teaching profession.
As earlier indicated, in-service teacher training is a practice that has been adopted globally as a tool to increase teachers’ capacity to teach learners. In Uganda, in-service teacher training was reinforced under the Teacher Development Management Systems which started with a training of head teachers in 1995 thereafter extending to grade II teachers who were trained to attain grade III qualification (Bushenyi PTC, 1995). New programs, methods, strategies, technology and motivations were put in place to bring about improved education quality, but only little success has come by this far. The Ministry of Education and Sports still faces a challenge of under achievement particularly on the effect of in-service teacher training on learning outcomes. Now, more than ever before, greater attention is being focused on the providers of education, particularly, teachers. It is urged that, perhaps the education service providers be critically analyzed to evaluate their effect on learning outcomes and establish actions to improve the performance of both teachers and the learners they teach.

Another challenge faced by in-service teacher training in Uganda is the lack of enough trained teacher trainers (tutors) or sufficient resources to train trainers of trainees. As a result, institutions and education sector planners cannot organize regular in-service teacher training activities which stifles its efforts in bringing about desired results. Furthermore, in-service teacher training needs to be matched with infrastructure development, provision of instructional materials, sensitization of other education stakeholders, motivation of teachers through increased salaries and timely disbursement of grants. Taking into consideration the financial constraints associated with specialized training, Farrant (1964) suggested that African governments should assist teachers in their endeavor of seeking more knowledge and skills needed on the continent to instigate economic, cultural and political development. According to his study, governments should offer financial support to teachers to enable them conduct research and update their knowledge in specified fields towards saving their society from intellectual deterioration and decline in its capacity to produce new knowledge.
In Uganda, different stakeholders such as government and nongovernment organizations, teachers, parents, individuals and communities are apportioning enormous resources in the education sector. New programs, methods, strategies, technologies and motivations have been put in place to improve the quality of education. However, results are yet to be seen. Much of this effort has been focused on providers of education, that is, teachers with the urge to analyze the effect of their qualifications on academic performance of the learners they teach.

Studies such as Morrison (1993) and Hussain (2004) on effectiveness of in-service teacher training programs in the United States of America and Pakistan respectively found that teachers trained through in-service teacher training programs were better performers realizing better learner outcomes compared to teachers without in-service training. However, in Uganda particularly in the South Western districts of Rukungiri, Sheema and Bushenyi, despite employing more in-service trained teachers, the number of learners failing to get grade one at primary leaving examinations in the five years prior to this study remains very low (Appendix 7).

1.2 Statement of the problem

Teacher performance and learners’ attainment in Uganda continue to fall below expectations of the Ministry of Education and Sports. Although in-service teacher training has been advocated for as a stimulant to both teachers and learners’ performance (Guskey, 1986; Johnson, 2011), research on the effect of the training, particularly, on learners is still limited. In-service teacher training and development activities in the education system have only focused on teachers with the intention that the training will enable them increase their effectiveness.

Kajubi (1989) asserts that enhanced teacher effectiveness subsequently leads to improved quality of education provided to learners. According to the Ministry of Education and Sports, in-service teacher training has motivated teachers into upgrading their academic qualifications
and increased the pool of skilled teachers. In South Western Uganda, a substantial number of teachers has, in the last decade, undergone in-service training to upgrade from Grade III to Grade V status. However, this has not been followed by a significant improvement in learner performance as indicated by poor PLE performance with averages of only 16.7%, 18.5% and 12.9% of pupils passing in division one in Bushenyi, Sheema and Rukungiri respectively in the five years prior to this study (Appendix 7). This pauses a question into why in-service teacher training in these districts is not achieving expected results on learners’ attainment of education.

1.3 Purpose of the study

The purpose of the study was to assess the effect of in-service teacher training on learners’ attainment of education in Western Uganda.

Within the broad aim were the following specific objectives:

1. To assess the effect of in-service teacher training on teachers
2. To assess the effect of in-service teacher training on learners’ attainment of education
3. To examine the process of designing and delivering in-service teacher training

1.4 Research questions

On the basis of the objectives, the following research questions were formulated:

1. What is the effect of in-service teacher training on teachers?
2. What is the effect of in-service teacher training on learners’ attainment of education?
3. How is in-service teacher training designed and delivered?

1.5 Hypotheses

Appropriate hypotheses were formulated from research questions 1 and 2 as indicated below

1. There is no significant effect of in-service teacher training on teachers
2. There is no significant effect of in-service teacher training on learners’ attainment of education

1.6 Significance of the study

The rationale of this study was to assess in-service teacher training and learners’ attainment of education in western Uganda. The study findings provide an in-depth understanding of the process of designing and delivering in-service teacher training from selection of participants to procedures followed in the training and its effect on teachers and learners’ attainment of education. The results could be extended to evaluate reforms and interventions by the Ministry of Education and Sports and guide further policy development in Uganda’s education sector. Findings will further be used by different education stakeholders to evaluate and revise current in-service teacher training programs to fit desired outcomes. Education policy makers will appreciate the value of in-service teacher training and put in place measures to improve in areas where its performance has not been sufficient. Findings will also aid school administrators to improve on the methods used to select teachers for in-service teacher training.

By shedding a light on the effect of in-service teacher training on teachers in form of promotion, better qualifications and other incentives, the study findings will motivate more teachers to partake in the training. The findings also give an elaborate portrait of the effect of in-service teacher training on learners’ attainment of education to other society members directly or indirectly affected by education such as pupils and parents. This will garner communal support to education service personnel and generate positive attitude toward the profession. Finally, the study forms a basis for further research on in-service teacher training in Uganda.

1.7 Scope of the study

1.7.1 Geographical scope

The study was carried out in Western Uganda, in the districts of Bushenyi, Sheema and Rukungiri as shown in Appendix 8. A total of 196 schools; 66 in Bushenyi, 65 in Sheema and
65 in Rukungiri were visited where a total of 332 pupils from selected primary schools and 610 education stakeholders including District Education Officers (DEOs), District Inspectors of School (DISs), head teachers, teachers and tutors were evaluated using questionnaires. The study was conducted in both government and private primary schools. The study also included a total of 18 key informants including Head teachers, DEOs and DISs whose views were collected using key informant interviews.

1.7.2 Content scope

The study focused on assessing the effect of in-service teacher training on both teachers and learners’ attainment of education and examining the process of designing and delivering in-service teacher training in Uganda.

1.7.3 Time scope

Fieldwork for this study commenced in September 2016 after acquiring permission to conduct a research study from the College of Education, Open and Distance E-Learning. Data collection took a period of four months. The first draft report was submitted to the supervisors in June 2017 followed by monthly submissions with corrections based on the supervisors’ recommendations and advice. First departmental defense was done on 19th October 2017 and the second on 21st March 2018. The dissertation was successfully defended on 12th September 2018.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter consists of a review of literature from different sources on in-service teacher training and learners’ attainment of education in local, regional and global contexts. It presents a conceptual review of in-service teacher training and learners’ attainment of education. It also presents a detailed review of the effect of in-service teacher training on both teachers and learners’ attainment of education. Further, it provides an account of literature available on the process of designing and delivering in-service teacher training. The chapter concludes with an outline of identified gaps in the literature.

2.2 Conceptual framework

Taking into consideration that the single main objective of professional teacher development is to improve learners’ achievement (Mundry & Loucks-Horsley, 1999), the conceptual framework was developed based on two models; a model of teacher change by Guskey (1986) and its modification by Rogers (2007).

According to Guskey (1986), teacher development programs instigate change in teachers’ classroom practices which in turn lead to a change in learning outcomes which results into a change of beliefs and attitudes as shown in Figure 2.1 below
Guskey’s framework proposes student learning outcomes as an indicator for effectiveness of a teacher’s teaching. Professional development has a secondary impact on learners because teachers are the main influences of student learning (Tinoca, Lee, Fletcher, & Barufaldi, 2004). However, as Hein (1997) notes, there are no adequate measures in place to evaluate the association between teacher behavior and student learning. This study considers Guskey’s framework because it explains the impact of professional development including in-service teacher training on both teachers’ approach to teaching as well as learners’ attainment of education. However, it falls victim to the assumption that the associations are one-directional which leaves certain variations unaccounted for.

As such, the study adopts Rogers (2007)’s modification of the Gusky model which, on the other hand indicates that the teacher change process is not linear and suggests that there is multidirectional causality between the variables as shown in Figure 2.2 below.

**Figure 2.2: A Re-worked model for Teacher Change (Rogers, 2007)**

The model argues that professional development leads to a change in teachers’ classroom practices, which results, into change in student learning outcomes. Rogers (2007) suggests that a change in teachers’ beliefs and attitudes, however, happens only after a significant change in
student learning outcomes is achieved. Further, this is a slow and time-consuming process. Rogers’ model proposes that change in learning outcomes has an impact on teachers’ classroom practices which could result in teacher professional development. Based on the models above, the researcher proposes that professional development of teachers, can also be a result of a change in teachers’ beliefs and attitudes. As such, professional development is a recurring process instigated by changes in teachers’ beliefs and attitudes, which could be a result of change in student learning outcomes or other causes such as peer influence.

The conceptual framework of this study is a modification of the two models by Guskey (1986) and Rogers (2007). While Roger’s model puts emphasis on the bidirectional causality between variables such as between professional development and change in teachers’ classroom practices, as far as learners’ outcomes are concerned, it does not account for the effect of teachers’ beliefs and attitudes on learning outcomes. Further, by cramming both pre-service and in-service teacher training under the ‘professional development’ label, it suffers the same weakness as Guskey’s of generalization, an issue that this study addresses. Under this section, the researcher developed a conceptual framework to assess the effect of in-service teacher training on teachers and learners’ attainment of education.

Figure 2.3 below presents the conceptual framework of the study.
Figure 2.3: Conceptual Framework for the effect of in-service teacher training on teachers and learners’ attainment of education (Modified by the researcher)

The conceptual framework presented in Figure 2.3 above assesses the effect of in-service teacher training on teachers and learners’ attainment of education. Here, the independent variable, in-service teacher training, is explained by teacher outcomes and includes new skills and knowledge, mastering content, promotion, improved teaching methods, professional ethics and teaching ability among others.

The dependent variable, on the other hand, is learners’ attainment of education which is measured by academic achievement, appreciation of teaching methods used by teachers, co-curricular activities, teacher-pupil relationship and decision-making skills among others.

The framework further suggests the inclusion of intervening variables that may influence the magnitude of effect of in-service teacher training on learners’ attainment of education such as
the availability of instructional materials, teachers’ salaries, learning environment, school leadership and curricula among others.

The framework in Figure 2.3 demonstrates that in-service teacher training has an effect on teachers which in turn have an effect on learners’ attainment of education. However, this effect fluctuates with the presence or lack thereof of certain intervening variables.

2.3 Related Studies

2.3.1 In-service teacher training and its implementation in Uganda

Education is a highly result oriented discipline because employees are judged by the grades on their certificates. Education institutions on the other hand are judged on their capacity to manage their human factors in the most effective and efficient way. Therefore, education managers must strive to enhance achievement motivation among teachers, students and other employees so as to provide quality education. Improved academic teacher qualifications should motivate teachers to increase productivity and quality of education. This can be attained through professional development.

Cooper (2004) defines professional development as all categories of training (pre-service and in-service) focused on building knowledge, skills and attitudes among teachers and other education service sector workers towards improving learning outcomes (Cooper, 2004; Sparks & Richardson, n.d.). Glattenhorn (1987) describes professional development as the development of a person in his or her professional role through increased experience in one’s role. According to Speck and Knipe (2005), professional development comprises all forms of learning opportunities situated in practice such as college diplomas, conferences and informal learning opportunities. Professional development, in education literature, encompasses all activities focused on increasing teachers’ ability to perform well at their job and is often used
interchangeably with the terms staff development, pre-service training and in-service teacher training. This study focuses only on the latter, that is, in-service teacher training.

European countries have advocated for in-service teacher training since the mid 20th century with the argument that quality of education is dependent on teacher training (EURYDICE, 1995). Further, the report indicates that in-service teacher training enhances professional development which in turn instigates education reforms and innovations. Though the training was initially a one-period exercise, the persistent demand by teachers and teacher groups for professional growth opportunities led to subsequent formulation of new approaches that facilitate lifelong learning (Dutto, n.d.). The training process has thus undergone vast transformations to match the prevailing organizational needs of the time. Knowledge and skills become obsolete through time and as such do not fully address the needs of the education sector (Blackburn & Moisan, 1987). Joyce and Showers (2002) note that for teachers to develop required skills, professional development strategies such as in-service teacher training have to be tailored in line to research practices. This in effect improves effectiveness of teachers.

In-service teacher training is concerned with enhancing the quality of teachers through continuous processes aimed at enabling teachers develop their capabilities to improve their on-job performance. According to Farrant (1964), in-service teacher training can be attained when teachers remain on the job as they receive their training by means of corresponding lessons, and occasional face-to-face meetings with tutors. This is however subject to availability of facilities necessary for the training process (EURYDICE, 1995).

In-service teacher training programs involve any aspect of teaching in which the teacher is constantly learning and adapting to new challenges on the job. The Oxford advanced learners dictionary, describes in-service programs to encompass all learning/studying programs intended to help people (in this case teachers) to upgrade their qualifications while still on their job (Hornby, 1984). They consist of specific learning experiences sanctioned and supported by
the nation, district or school and are aimed at achieving specific goals. These include courses through which teachers acquire basic skills, attitudes and knowledge towards improving quality and effectiveness of the education system. The training is considered effective if it creates a knowledge base that transforms and restructures the quality of schools and fosters the growth of teachers (Guskey, 1995). However, according to Mahmood (1999), involvement in in-service teacher training is voluntary and its success and effectiveness depends on the good will of the teacher. Kedzior and Fifield (2004) define in-service teacher training as effective if it is a prolonged facet of classroom instruction that is integrated, logical and on-going and incorporates experiences that are consistent with teachers’ goals and best practice, aligned with standards, assessments, other reforms initiatives and best research evidence.

A report by Makerere University (1990) states that the education process of teachers in Uganda is gradual and continuous. In this respect, in-service teacher training begins with Grade III teachers attending courses to enable them attain Grade V qualification. Grade V teachers then join universities for degree programs through distance learning which is one of the most direct and effective channels through which universities provide in-service teacher training. Bameka (1996) notes that certificates are devalued in favor of diplomas, as the first degree is devalued in favor of a second degree. According to him, a time had come when certificates of low grade were considered worthless academic qualifications necessitating acquisition of higher-grade qualifications for a teacher to command academic status.

In Uganda today, in-service teacher training is an important and a necessary aspect of teacher education as it provides opportunities for academic development in the field of education. In Uganda, Kyambogo University manages training of Grade III teachers on behalf of the Ministry of Education and Sports. Thereafter, recognized institutions of higher learning maintain independent syllabuses for trainees at Grade V and higher levels. This implies that in-service trained teachers from different institutions have different skills and experiences. As
such, the in-service teacher training process leaves a lot to be desired because recruiting schools are then challenged with trying to harmonize the vast skills into the learning process.

Okiror, Hayward, and Winterbottom (n.d.) note that in-service teacher training is crucial in equipping teachers with new pedagogical skills towards the country’s bid to shift the education system towards an outcome-based one. This study argues that such rapid changes in the approach of education provision calls for subsequent changes in teaching methods which validate the need for teachers to be exposed to in-service training programs from time to time. This process portrays in-service teacher training as a continuous, never ending process focused on acquiring and maintaining knowledge. Though education departments and other stakeholders such as training institutions continue to advocate for professional development particularly in-service teacher training, researchers have mostly focused on learners’ outcomes such as performance and dropout. This study argues that without a comprehensive understanding of teacher training in their role as the providers of education, one cannot fully explain variations in learners’ attainment of education.

2.3.2 Learners’ attainment of education

Learners’ attainment of education encompasses learners’ mental strength and their abilities to perform well in academics, make good decisions, become sociable and perform better at co-curricular activities. Learners’ attainment of education is often used interchangeably with student achievement, learners’ outcomes and in effect quality of education. According to UNICEF (2000), learners’ attainment of education should address five key areas namely: ensuring learners’ nutrition and physical health both in the home and at school, promoting inclusiveness and safety of the physical and gender environment, comprehensiveness of the curricula in areas of literacy, numeracy, knowledge and basic life skills, the setting of realistic goals focused on imparting knowledge, skills and attitudes as well as encouraging community participation in line with the national goals for education, and supporting approaches through
which trained teachers can manage their classes, facilitate the learning process while reducing disparities. The paper views the learning process as a complex system that steps beyond the teacher and learner to address the physical, cultural, social and economic environment (UNICEF, 2000).

Williams (2001) asserts that learners’ attainment of education is first and foremost dependent on children’s personal characteristics, background and experiences before they go to school. According to his study, these take the form of health, age, caretakers’ attitudes and early childhood development programmes among others, which may influence the child’s motivation to learn and their attainment of education. Boocock (1972) makes emphasis on a family’s socioeconomic status as the most important predictor of learners’ attainment of education. The 1966 Coleman report makes the declaration that school characteristics have little or no impact on learners’ outcomes, which they argue are mostly dependent on learners’ background and the social environment (Coleman et al., 1996). In addition to pupil characteristics, Heneveld and Craig (1995) identify supporting inputs from outside the school, enabling conditions, school climate and the teaching-learning process as potential factors that affect learners outcomes and in turn hinder quality of education.

Though education stakeholders continue to address all the five areas in their effort to improve learners attainment of education, other stakeholders especially parents place the total responsibility of learners’ attainment of education on the teacher’s role in the teaching-learning process. Teachers have been placed in a position where learners’ performance is boosted or retarded in accordance to the teacher’s ability. In Uganda, teachers are presented as the key stakeholders in the education process without whom learners’ attainment of education cannot be fully addressed (Teachers Initiative in Sub-Saharan Africa (TISSA), 2013). As such, teachers always find themselves in the constant search for new knowledge and skills toward improving their capacity to mentor their students. Craig (1995) identified measures of teachers’
capability to include knowledge of the teaching material and content, ability to use the language of instruction, years of teaching experience, job stability, commitment to both the job and the students, confidence in their abilities and staff cooperation among others.

Scholarship asserts that the learning process is a complex phenomenon that should not be unilaterally addressed. Craig (1995) notes that all causal factors of learners’ attainment of education must be addressed together and not as independent of each other if the desired goal is to be achieved. The study adds that in fact teacher training in itself cannot significantly improve learners’ outcomes if other conditions such as instructional materials, school leadership, curricula and the school environment among others are not improved. Marzano (2000) reports a medium effect size of 0.593 of in-service teacher training on learners’ attainment of education. This concurs with Craig’s finding that though in-service teacher training positively affect learners’ attainment of education, the effect is not very substantial.

However, teacher training can be structured in a way that improves teachers’ capacity to manage other aspects of the learning environment such as gender sensitiveness, curricula and co-curricular activities, which may in turn improve learners’ outcomes (Craig, 1995). Lockheed and Verspoor (1991) listed improving teaching quality through in-service teacher training among other ways as one of the avenues through which learners’ attainment of education can be improved. According to their study, in-service teacher training on classroom management practices and strategies focused towards improving instructional effectiveness lead to improved teacher skills as well as the teaching/learning process. Though in-service teacher training has been incorporated into the education system as a means of improving quality and ability of teachers, it appears that its end goal is to improve learners’ attainment of education.
2.3.3 Process of designing and delivering in-service teacher training

Providing quality primary education is a major focus of all education stakeholders today. However, this cannot be realized without improving the quality of teachers. The quality of the teachers can be enhanced through in-service teacher training, which is a continuous process through which teachers develop and improve their capability to perform their job and tackle responsibilities associated with equipping learners with knowledge. Head teachers and other stakeholders in the education service sector should create opportunities for in-service teacher training where teachers are encouraged to develop teamwork and self-reflection so as to improve their skills and performance. Bramley (1991) observes that changing the performance of people on the job is rather more complicated and advocates for the “increased effectiveness model” planned at the organization than individual level. Goldstein (1989) agrees with Bramley arguing that training in organizations should not be for the individual in the hope that it will benefit the whole organization. He notes that induction training of new employees and in-service training of current employees should be designed to prepare workers for the social context, the frustrations and opportunities of learning on the job and to learn how their contribution would fit into the organization.

Training is described as a systematic approach to “development of knowledge, skills and attitudes required by an individual to perform adequately a given task or job” (Armstrong, 1997). The training process is a systematic cycle planned using a systems approach. This implies existence of subsystems within which the cycle interacts, going from step to step in a Logical fashion. However, the subsystems rarely interact with other organizational subsystems like job design, reward systems or organizational restructuring. The result of this is often efficient and effective because the training objectives, once defined, become synonymous with the training needs, and the training subsystem becomes the closed cycle.
Training is perceived as a way of enhancing organizational effectiveness. This training process typically starts with an analysis of the existing situation to identify organization needs. The needs identified are then phrased in terms of new work practices focused at enhancing the effectiveness of a given section of the organization.

The management of the identified section of the organization must be involved at all stages of the cycle and be committed to changing organizational structures and/or practices which conflict with the new practices that are being introduced. This implies that the managers should be involved in the design and delivery of the training with the ultimate responsibility of encouraging new behaviors in the work place by appraising performance through coaching and providing necessary supervision to ensure that learning becomes incorporated into standard work practices.

Fowler (1997) posits that for an organization to perform its duties well, it must have adequate capacity in five areas, each of which must be consistent with the other. The first two areas relate to organizational design and systems, which link vision to action through appropriate development strategies, programs and projects. The next three capacities link the organization to the outside world through mobilization of necessary resources, maintaining a variety of external relationships and producing results consistent with the mission. A training function is, in this respect, crucial in developing these capacities and creating the right organizational set-up to enhance effectiveness. Fowler (1997) adds that capacity building must, however, not be separated from assessing external change arguing that while we may examine the many factors that contribute to capacity such as human resource, finances, physical infrastructure and procedures and systems, these ingredients must not be rated over capacity itself and must be viewed in line with the organizations results. Capacity is defined in this context as the ability to achieve an impact in terms of satisfying and/or influencing stakeholders while effectiveness
refers to achieving this impact with appropriate levels of effort and cost and well within available resources.

To ensure acceptable levels of effectiveness, one must start at identifying what tasks to do, why and how they must relate to each other. To achieve this requires a reasonably logical set of steps that start from the organization’s vision of a changed society to the actions or activities required to achieve it. Technically, this encompasses a sequence of events from reaffirmation of the mission using strategic analysis to ensure its relevance through to operational planning and development activities.

Education departments in their organizational capacity need to acquire and develop skills and competencies to enable them effectively carry out in-service teacher training tasks within a competitive environment. Moving from vision to action calls for two forms of consistency; first, between the department’s vision and concrete development activities by stakeholders and second, between deliberated activities, organizational structure and the principles of participation and empowerment. Ineffectiveness normally arises from inconsistency within the department’s vision; what it says it wants to do and what it does. Contradictions when actions do not agree or support each other in optimal ways result in loss of focus and dissipation of energies. This creates conflict between the education departments, stakeholders and the outside community. It is therefore important that the path from vision to action hangs together.

According to Morgan (1996), achieving this condition has three essential stages namely; re-examination and confirmation of what the organization, in this case education department, stands for in terms of coherence between vision, mission, identity and roles in society, linking these to longer term strategic choices that give it overall direction and maximize impact on society and finally, transplanting choices into tangible actions and tasks to be carried out by staff, volunteers and others in collaboration or perhaps in opposition to some stakeholders. In summary, ensuring departmental consistency eases complications to the relevance and
sustainability of knowledge and is crucial to ensuring coherence between the vision, mission, identity and role and overall effectiveness of the department.

Training has been implemented in different organizations based on different models, each based on different assumptions to suit different purposes. While some models encourage discourse and assume that useful learning takes place as a result of interaction between persons of varied experiences, some are based on the individual development principal with successful job performance assessed on an individual’s level of skills. Other models focus on improving effectiveness within the organization context. In deciding what training model to follow, one should evaluate how consistent it is with the purpose.

In developing countries, teachers only get exposure to professional development opportunities under formal training schemes contrary to developed countries where the workspace is more engaging (Goldstein, 1989). In fact, this is the case for in-service teacher training which has in most developed countries been designed to follow the systematic approach training (SAT). Dhawan (n.d.) defines the SAT as “a methodology for managing training programs” that follows a systematic logical approach to identify and equip people with necessary knowledge, skills and attitudes required to perform at a given task or profession. Bramley (1991) reasons that any training process is carefully designed and delivered in logical steps, each of which should be evaluated against examples of good practice. A report by the U.S. Department of Energy (2014) indicates that the SAT model consists of five phases namely analysis, design, development, implementation and evaluation discussed below.

**Analysis:**

The analysis phase consists of identifying performance requirements using needs analysis, job analysis and task analysis. The accurate identification of the training needs for any organization is crucial to its success and development. This involves making informed decisions not just on
the location, scope and magnitude of the needs but also on priorities that have to be set and linked to other functions within the organization. Analysis is often done using opinion surveys and requests by line management.

According to Cross’s 1981 study, needs analysis requires much more than “armchair” cerebration. The study proposes that needs analysis should consist of three distinct investigations into the organization, the job and the individual (Cross, 1981). Furthermore, these investigations should be interrelated so that they build on each other to produce a complete training needs assessment.

Investigation at the organizational level focuses on the total enterprise to determine where training can and should be used. The analysis examines and recommends performance standards, knowledge, skills and attitudes required to achieve the organization’s objectives. The investigation allows for analysis of organizational goals and objectives, which helps in setting targets for various functions within the organization. It provides a demographic basis for identifying gaps in the manpower plan caused by retirements, promotions and turnover. In light of these gaps, the investigation navigates into the organization’s skill pool to identify available knowledge and skills and recommend training to develop lacking skills. Finally, organizational analysis further identifies other conditions that may alter aspects of the work situation and worsen efficiency indices and these may include turnover, absenteeism, short term sickness, attitude surveys, grievances and strikes, machine downtime, late deliveries, repairs and customer complaints among others.

Organization analysis is fundamental in linking the training to the organizational context in which the work is done and can be conducted based on critical incident analysis. The procedure starts with targeting a function within the organization and interviewing a representative sample of line managers and supervisors. Here, it is advisable to interview respondents in a
descending order of authority with senior managers first. Aspects of organizational
effectiveness are then discussed with each respondent. Questions asked take the form of;
describing incidents when things were going particularly well or badly; how the incident
developed, what criteria were being used to address the incident as well as the impact of the
incident in organizational terms. Organizational effectiveness can then be classified based on;
achieved goals in terms of product/service quality, output and productivity; customer
satisfaction through improved organizational image and reduced complaints; improved internal
processes through increased team cohesiveness, increased quality of supervision, reduced
interdepartmental conflicts and increased managers’ ability to set realistic and tangible
objectives for their departments and finally increased resourcefulness through increased market
share and increased employee versatility. These measures aid in the discussion of the extent to
which training helps an individual to achieve the key areas of effectiveness and alternative
forms of training that might increase organizational productivity.

Job analysis on the other hand evaluates how well a particular employee is carrying out the
various tasks necessary for successful performance of duty. This stage involves identifying
tasks that need to be done, how they should be performed and what needs to be learned to
ensure quality performance. According to Goldstein (1989), job analysis should yield a job
description showing an outline of the job specifications, requirements and a list of typical duties
and responsibilities. It should also include a list of targets and standards for judging satisfactory
performance in the set tasks and expected limitations that might hinder effectiveness on the
job. Finally, job analysis should propose measures to remedy anticipated challenges.

Design:
The design phase involves use of yielded information to draft training programs, learning objectives, tests and training standards. This stage is key in defining criteria by which changes towards the predefined goals can be measured, necessary resources and aspects of the job situation besides individual skills required to achieve the desired improvements.

**Development:**

This phase uses output from the design phase to complete lesson plans and training aids. Most development activities focus on the individual with the intention that the learning will enable them become more effective either in the present or future job.

The ability to access a variety of development opportunities allows for required skill sets to be matched with planned events, moving them from one time moments to learning that permeates into the person’s skill set and utilizes the 70/20/10 rule. This rule holds that 10% of knowledge is obtained from formalized opportunities (off the job), 20% through interactions within the work environment such as coaching and mentoring, feedback and self-development, and the bulk 70% is knowledge achieved on the job through job-related experiences.

On the job training refers to a form of training where an experienced employee (trainer) teaches a trainee skills related to the job and is widely used in school as an in-service teacher training approach. Maicibi (2007) notes that to yield maximum results, managers must find effective ways to support their staff by removing obstacles that may be holding them back thus helping them develop their answer and find their feet. These could take the form of on job training techniques such as counseling, coaching and mentoring which enhance skills of employees and subsequently improve work practices and increase the organizations competitive advantage. Saleemi (1997) supports on-job training noting that only on the job can the learner experience the conditions and requirements of the actual workstation. This is in disagreement with
Cushway (1994) who states that most effective learning is achieved when the trainee has to find out for him or herself, that is, through do-it-yourself training.

Accordingly, training objectives for development should be reviewed regularly by top management and particularly whenever a change in direction or emphasis is planned in order to deliver results and to contribute materially to implementing organizational strategies and achieving organizational objectives.

**Implementation:**
This phase consists of conducting training with the expected outcome of trained personnel. This includes the teaching and learning process between the instructor and student (Dhawan, n.d.). It utilizes output from the development phase and experiences attained from the previous stages. Competence of learners is assessed through administered tests.

**Evaluation:**
This phase encompasses a periodic review of the training materials and methods through assessment of feedback from trainers and trainees on the effectiveness of the intervention. This phase evaluates the training outcomes and feedback against the originally identified needs within the section of the organization where it existed. Evaluation should be part and parcel of each stage of the training process to ensure that the training is working in line with set objectives and redirect it where it veers off course (Dhawan, n.d.) In Uganda and many developing countries, this is often not done due to financial and resource constraints.

**Conclusion:**
Contrary to the developing world where in-service teacher training is a less harmonized process, most developed countries tailor their in-service teacher training programs to cover the five phases of training discussed above. The training process typically starts with identifying of training needs. According to Mbiti (1990), teacher-training programs must be based on an
understanding of the underlying defects in the present education system. With this in mind, specific aims and learning objectives are defined and the training planned. The next stage is implementation of the training, which includes interaction between the trainer(s) and trainee(s). Training results are then evaluated using designed oral, written or practical tests. The last stage involves a review of the training to determine whether it answered the predefined objectives after which further training could be conducted if there is further need.

Finally, we note that there are cases when training may fail to have impact. From the discussion above, the work context is represented as an interaction between the situation and the people in it. However, this is only successful if the people are sufficiently autonomous to change the interaction and thus the work situation. Other challenges may take the form of supervisory problems, organizational structure (who reports to whom, how many levels and whether people can communicate horizontally and/or vertically), cultural relations (in what spirit people relate to each other, to what extent is individuality valued, the identity, norms and beliefs), the design of the work (the extent to which this is frustrating or stress-inducing) and whether good performance is actually rewarded (by recognition, praise and promotion as well as financially).

2.3.4 Effect of in-service teacher training on teachers

Emphasis is placed on the role of Education and Teacher Training Agency (ETTA) towards national social and economic development. This calls for continuous development and improvement of professional competence of education stakeholders. A 2013 European Union report states that in-service teacher training is pursued with the primary goal of ensuring continued improvement in the education system (European Union, 2013). According to the report, in-service teacher training fosters improvement in the capacity of academic institutions and enhances overall quality of education. According to (Sabri, 1997), in-service teacher training equips teachers to adopt varied and improved teaching methods, use improved
technology and integrate new ideas, knowledge and experiences into classroom practices. This enables the development of quality human resource in the pedagogical process.

In-service teacher training is recognized as an essential part of the overall process of teacher education and can be achieved through attending events such as lecturers, films, exhibitions, conferences, seminars and workshops in which practical solutions to current difficulties are introduced and materials required for implementing these solutions produced. The events also provide platforms through which teachers are introduced to new textbooks and teaching materials and new developments like new curricular, new methods and innovations and specific equipment to help them in their work. Amadi (n.d.) noted that pre-service training does not adequately prepare teachers for the continued changes in teaching techniques and materials which warrants continued learning processes. The study however showed that most schools in Nigeria continued to achieve low performance because most in-service teacher training programmes used approaches that were not practical and as a result coerced teachers into just listening but not putting into practice. Just like Nigeria, in-service teacher training in most developing countries such as Uganda also fall victim to such shortcomings where teachers are not equipped with transferable and hands-on pedagogical skills.

In-service teacher training programs aid unqualified teachers upgrade to qualified teacher status (Junaid & Maka, 2015). According to Hersey and Blanchard (1988), in-service programs result in teachers upgrading from course “A” teachers of village schools to course “B” teachers of higher training courses for fully qualified native teachers. Teachers train further to upgrade and qualify for bigger positions (Morrison, 1993). Mbiti (1990) points to the need to upgrade teachers’ education to enable them rectify the faults, superficiality, duplication and irrelevance of life in the schools in relation to real society. According to him, most educators agreed that training programmes must engage in the search for the underlying factors associated with complex issues in present society to enable development of a realistic system. Some of these
factors may take the form of curriculum, school infrastructure, scholastic materials and funding among others. The researcher hypothesizes that if these factors are unified across academic institutions, it would enable transferability of teacher skills as well as development of an inclusive in-service teacher training programme across training institutions.

Upgrading is one of the major drivers of teachers into pursuit of in-service teacher training. According to Harris (1985), upgrading is characterized by increased amount of knowledge available in a given field. This is achieved through further reading, increased library procurement and generation of new knowledge through information retrieval systems. Passi (1989) notes that new ideas and facts of life are some of the topics covered during ISTT. At any one time, people are exposed to learning. However, they learn better and more if they are trained inside their fields of specialization. According to Glickman (1990), staff development and in-service teacher training improve the capacity of personnel on instruction. He however notes that good results depend on the quality of the teachers involved, their level of interest, commitment and needs.

A report by the National Staff Development Council indicates the significance of in-service teacher training workshops towards advancing their careers (National Staff Development Council., 2007). It further sets out a set of standards that should be followed by all in-service teacher training institutions which include; content knowledge, quality teaching, research basis, collaboration, diverse learning needs, student learning environments, family involvement, evaluation, date-driven design and teacher learning. The researcher argues that the report however sidesteps crucial factors such as individual interest and other background factors that continue to motivate or demotivate teachers into partaking in in-service training. Most interventions in Uganda’s education sector have ignored credible training processes that start with a needs assessment and analysis of underlying factors that might hinder success of the intervention.
For in-service teacher training to achieve its aim; it should be a systematically planned and controlled process of learning, should focus on instigating a change in skills, concepts and attitudes of teachers, should result in the trainee’s improved on-job performance and enhance the effectiveness of the organization where the trainee works.

Mahmood (1999) asserts that the intention of in-service teacher training has always been to enhance professional as well as personal development of teachers so as to provide its benefits to the students they teach, their classes and schools where they serve. The study insists that the ultimate goal is to improve the teaching-learning climate and establish systems that absorb various changes that concern education. According to Zaman (2004), teacher development is fundamental to the quality of the education system and as such demands urgent, careful and continued attention to improve and maintain the quality. Ololube (2005) notes that competence of teachers can be assessed by their command of their academic subject and asserts that in-service teacher training gives them adequate groundwork on the needs of learners and provides them with a well-integrated general education, professional training and academic orientation.

In-service teacher training also aids teachers to get a good grasp of the curriculum. In their study on performance of science teachers in secondary schools, (Shakoor et al., 2013) found that by raising awareness of curricular changes to teachers, in-service teacher training improved the effectiveness of implementation of curricula. Their study shows that in-service teacher training leads to better competence in understanding subject context which in turn led to better planning of content and delivery.

Further, in-service teacher training is a capacity building task that stimulates organizational growth and development. The training engenders change in human behavior, attitudes, knowledge, skills and capabilities focused on cultivating professional etiquette required by teachers to perform adequately at given tasks. A change in knowledge may be characterized by
having a firm grasp on job requirements and increased ability to make the right decisions in selecting the most appropriate procedure in accomplishing given tasks while a change in skills encompasses ability to communicate and increased capacity to perform simple procedures and physically grounded actions.

Besides improving teachers’ abilities, in-service teacher training is directly associated with promotion, salary increment and a transparent criteria for career advancement (Lockheed & Verspoor, 1991). According to their study, in-service teacher training is pursued as a predetermined form of equipping teachers with the capacity to take on responsibilities associated with higher positions on the career ladder.

Further, by increasing confidence and motivation of teachers, in-service teacher training improves their career prospects as well as their professional identity (Ju Youn, 2011). This concurs with findings by Yadav and Bhardwaj (2013) which showed that confidence instilled by in-service teacher training programmes aid planning and preparation towards effective teaching. These skills lead to the building of a human resource pool that is dedicated and committed to teaching which positively influences overall delivery in the education system.

Generally, in-service teacher training is primarily aimed at promoting professional development (James, 1982). Lockheed and Verspoor (1991) support this finding stating that in-service teacher training motivates teacher professionalism in terms of self-evaluation of strengths and weaknesses, knowledge and pedagogical skills. James (1982) however notes a shortfall in this kind of evaluation saying that though the impact of in-service teacher training on their professional capacity is obvious, it is difficult to measure in definite terms. Another shortcoming is that even though in-service teacher training has been hailed for its positive impact on provision of good education to learners, not all in-service trained teachers provide good education. In their study in Nigeria, Gbenga (2001) found that lack of morale to be
innovative and external factors such as pupil-teacher ratio and poor working conditions may hinder effectiveness of teachers. Nonetheless, certain aspects of professional development in particular professional ethics are observed among in-service trained teachers as discussed in the subsequent section.

2.3.4.1 Professional ethics fulfilled by teachers who have had in-service teacher training

In-service teacher training has a significant effect on professional ethics and competence of teachers (Shakoor, Ghumman, & Mahmood, 2013). A report by the European union (2013) shows that in-service training is associated with development of core ethics in teachers including provision of professional support to colleagues, enabling the engagement in reflective activities individually and socially, offering technical support and instructing learners in the use of different learning materials, improved monitoring and evaluation strategies of learning outcomes, use of relevant communication strategies, facilitate the building of rapport with learners towards a better, open and interactive teaching-learning environment and teacher motivation towards the desired goal of quality outcomes among others.

Further, in-service trained teachers adhere to the preparation requirements for the school term including making schemes of work and daily lesson plans, which increases their flexibility, understanding, thoughtfulness and accommodativeness during teaching. This readies them for class exchanges and interactions, puts them in position to listen and take into consideration learners’ contributions, which results in improved classroom environment and better quality education provision.

In-service teacher training is also said to equip teachers with the ability to self-evaluate based on a competence framework (European Union, 2013). This instigates individual initiatives towards improvement and further training. The report further notes that this self-evaluation
enables comparison with other teachers which may lead to sharing of professional support with others towards improving the overall teaching space.

2.3.4.2 Other conditions that enable in-service trained teachers to teach effectively

Though in-service teacher training has shown positive impact on the learning environment, the extent of this impact is largely fluctuated by other conditions and environments in which teaching is carried out that influence teachers’ attitudes and behavior (Sabri, 1997). Studies show that effective teaching may be difficult to achieve regardless of in-service teacher training without these conditions which take the form of institutional policies, instructional materials and settings and other factors in the teaching-learning environment that may influence instructional processes (Chávez, 2006). According to Chávez’s findings, there is need to analyze the situational context within which instruction/learning is taking place. Based on findings from a sample of over 60 teachers in Nicaragua, Chávez found that qualification of the teacher showed no significant difference with regard to teaching technique. The study, however, recorded significant negative impact by factors such as poor classroom conditions, inadequate resources and equipment, quality of instructional materials and syllabus constraints among others.

Johnson (2000) notes that a negative situational context negatively influences the teacher and vice versa. Gbenga (2001) concurs with this finding noting that teachers become demoralized by physical school conditions including pupil-classroom ratio, pupil-teacher ratio and poor school environment among others. Johnson’s (2000) study however makes note that in-service training programmes, if designed well, can equip teachers with alternative and coping techniques to surpass such situational obstacles.

A study by Ju Youn (2011) reached similar conclusions suggesting careful assessment of the teaching context. The study used a comparative approach between two in-service trained
teachers but working within different contexts with regard to support from other stakeholders, classroom and school environment, and availability of instructional materials among others. Ju Youn’s findings indicated that besides their training, teachers needed to take extra initiative to cope with the teaching-learning environment and incorporate learned knowledge and ideas within their classroom practices. A teacher’s performance was thus a reflection, to a larger extent, of the context within which s/he was working.

2.3.5 Effect of in-service teacher training on learners’ attainment of education

This section highlights the relationship between in-service teacher training and learners’ attainment of quality education.

Kajubi (1989) notes that in-service teacher training broadens and deepens teachers’ knowledge, increases their competence, reliability and responsibility producing highly motivated and efficient teachers. The study adds that in-service teacher training, if well designed, should result in a change in perceptions, actions and attitudes and develop teachers’ appreciation and respect for their work, which subsequently results in improved classroom environment and greater effectiveness in schools. Teachers employ acquired knowledge and skills to improve exchange and interaction in class, which stimulates learners’ inquiring minds for innovative education and changes their attitude towards learning.

According to Mahmood (1999), the ultimate goal of in-service teacher training is to improve the teaching-learning environment and enhance the capacity of the system to absorb various changes in the education system. In-service trained teachers are more proactive via encouraging and engaging their students (Lockheed & Verspoor, 1991). By assessing the implementation of the program with special reference to training content, methodology, supervision, interaction and learners’ attainment, Khan (2003) established that the achievement level of the students taught by in-service trained teachers was higher than those taught by other untrained teachers.
Andrews (2013) asserts that students should be provided with opportunities to achieve good academic results as well as to promote the benefits of a wider curriculum. This is important because the value of both academic curriculum and co-curricular activities help learners to develop a range of skills geared toward their academic achievement. Findings from Rena (2011)’s study in four primary schools in Papua New Guinea showed that quality of education of learners is negatively impacted on by factors such as classrooms, other infrastructure as well as teachers. As such, the study advocates for increased budgetary allocations geared towards improving both school facilities as well as professional development.

Findings from Khan (2007)’s Science Education Project (SEP) show that in-service teacher training results in an improvement in the content, knowledge, delivery skills, laboratory management skills and professional attitude of in-service science teachers. This finding concurs with that of Shakoor et al. (2013) on secondary school science teachers in Italy. In an alternative study to evaluate the effectiveness of in-service teacher training programmes arranged by Teacher Training Project in Punjab, Khan (2003) found out that though there was no significant difference in the attitude of in-service trained and untrained teachers, students taught by in-service trained teachers acquired higher academic achievement levels than those taught by untrained teachers.

Bameka (1996) notes that teachers are the most essential ingredient in learners’ education without whom child development and balanced learning would not be achieved. It is therefore crucial that teachers have good education background in order to perform their teaching duties better. Findings from Morrison’s (1993) longitudinal study on achievement and indexes of social adjustment using in-service trained teachers on children between 10 and 12 years show that teachers’ academic achievement was a predictor of children’s social functioning and adjustment including social competence, aggression-disruption, leadership and peer acceptance as well as learners’ academic performance.
The association between social performance and academic achievement has been demonstrated in a number of empirical studies. Wentzel (1991) observed that children who display sociable and pro-social behavior are likely to achieve highly in academic areas as compared to children who are disruptive and aggressive. Children who are accepted and liked by their peers and hold leadership positions are likely to be high academic achievers than those who feel a sense of rejection.

In their study on the effects of teacher-student relationship and social and academic relationships, Baker, Grant, and Morlock (2008) found that teachers have a unique opportunity to support students’ academic and social development at all levels of schooling. Their findings show that positive teacher-student relationships enable students to feel safe and secure in their learning environments and provide avenues for important social and academic skills. Accordingly, teachers who support students in the learning environment can positively impact their social and academic outcomes. In-service teacher training equips teachers with social skills that enable them form positive bonds with students that transform classrooms into supportive spaces where students can engage in both academically and socially productive ways. This established secure relationship enables students to learn about socially appropriate behaviors as well as high academic expectations. The researcher argues that a low pupil-teacher ratio facilitates free interaction in and outside the classroom which in turn leads to improved learners’ attainment of education.

Morrison’s (1993) study in the United States of America revealed that in-service trained teachers used better methods of teaching, which led to increased enrolment. The training also equipped teachers with methods of dealing with large numbers of students including use of inventions such as scientific audio-visual aids of teaching. In-service teacher training may also include approaches such as classroom observations and analysis (James, 1982). Morrison (1993) had a view that in-service teacher training helps public school teachers gain broad
horizons and develop better organization techniques in their work and in organizing their students’ lives. He further urged that through this training, a teacher continually learns ideas that enable the children being taught to develop endurance in overcoming difficulties to become familiar with hard work and acquire the habits of independent work.

Further, in-service teacher training equips teachers with better and effective monitoring and evaluation strategies. In a study to evaluate the effectiveness of PEP-ILE training programs, Khan (2003) concluded that the methods introduced by PEP-ILE training program were valuable monitoring tools. Monitoring and evaluation of learners’ performance on academic, social and co-curricular fronts enables teachers devise strategies of helping individual learners to achieve desired results.

A study of the in-service teacher training system in Croatia (European Union, 2013) highlights eight core competences instilled by in-service teacher training towards the improvement of learners’ attainment of education. These include: fostering the development of independence in learning; providing learning approaches focused on problem solving, critical thinking, inquiry and creativity; clear definition and presentation of lesson objectives; facilitating collaboration in the learning environment; instructing students in different learning resources and programmes; use of efficient and relevant communication strategies; building rapport with students towards a more interactive space; enabling teachers assess individual needs and adapt education programmes to suit those needs; sharing knowledge, understanding, perspectives and experiences to inform classroom practices (European Union, 2013).

2.3.5.1 Methods used by in-service trained teachers while teaching learners

According to Sabri (1997), in-service teacher training should be primarily focused on teaching methods and classroom application. In her study on the effect of in-service teacher training on junior secondary school teachers in Nigeria, Okobia (2013) found that though the training had
a highly significant impact on knowledge of learning objectives and curriculum content, it did not have any significant effect on instructional strategies used by teachers. This made the implication that besides methods of imparting learned knowledge, skills, perspectives, attitudes and content to learners, it is difficult to assess the effect of in-service teacher training on learners. To this end, Okobia (2013) suggested that emphasis be placed on the different teaching methods used in the teaching-learning environment.

Literature shows that most teaching approaches are largely teacher-centered, didactic and instructional in nature with little regard for the learner (Okobia, 2009, 2013; Olufu, Agbo, & Ogodo, 2005). The effect of in-service teacher training particularly on learners’ attainment of education can, thus, be only appreciated with a comprehensive understanding of the methods utilized by the teachers in issuing out classes. According to (Ramsden, 1992), effective teaching involves the organization of essential knowledge in a way that relates to learners’ experiences. This involves the six principles of; interest and explanation, concern and respect for students and their learning, appropriate assessment and feedback, clear goals and intellectual challenge, independence, control and active engagement and learning from students. There is major emphasis placed on the role of the learners besides the teacher in the teaching-learning interactive space.

Ben-Clays (1999) cites the major challenge to be embedded within the transfer of knowledge, skills and experiences between teachers and learners, which the study declares uninnovative and static in delivery. According to him, deficiencies within teacher-training processes are reflected within the learners taught by those teachers because “teachers tend to teach the way they were taught.”

Some studies have also found that teachers may choose convenience over effectiveness of teaching method. A study on social studies teachers in Nigeria by Gbenga (2001) showed that
some teachers, due to lack of morale and classroom overpopulation among other factors, opted for expository teaching methods which are ineffective in delivery. In fact, learning is mostly by rote which alienates learners from the experience of new teaching and learning paradigms (Lewin & Stuart, 2003). According to Ju Youn (2011), in-service teacher training should select appropriate methods based on a deliberate and sensitive consideration of the teaching context with regard to classroom population and availability of instructional materials among others to improve the effectiveness in the teaching-learning space.

Some of the teaching methods taught under the in-service teacher training programme include the lecture method, discussion (structured and open-ended), brainstorming, role play, demonstration and practice, guided discovery and group work among others. In her work teaching economics in secondary schools, Gulati (2016) found that brainstorming improved level of interaction in the classroom and aided her to assess how much the students knew about the topic of interest. Further, group work and discussion enabled collaboration and sharing of experiences and problem solving based learning in a ‘non-threatening’ environment. Her study also gave good recommendation for case studies, project work and games to motivate and stimulate learners, encourage engagement and ensure effectiveness of the learning process.

2.3.5.2 Indicators of good pupil learning

Teachers’ performance is primarily judged based on learners’ attainment of education. This is evaluated on indicators of good pupil learning which may differ across time, individual and institution. Gulati (2016) judged good pupil learning based on attention and retention, effectiveness of communication, cooperation, team behavior, reflection and ability to critically analyze situations and creative ability of learners.

Pupil learning is generally assessed based on performance indicators categorized along cognitive learning, affective learning and psychomotor learning (Gronlund, 1981; McBeath,
Cognitive learning is demonstrated by intellectual skills, knowledge, comprehension, application, analysis, synthesis and evaluation. This may include the ability of a learner to; remember what was previously taught, understand the meaning of information, apply knowledge to real-life situations, disintegrate harder subject matter into simpler explainable terms, rearrange ideas into new ideas and make judgments based on evidence.

Affective learning, on the other hand is demonstrated by behaviors, attitudes, beliefs and awareness among others. It is evidenced by the willingness of a learner to receive information, level of participation and expression of attitude towards a certain value.

Psychomotor learning is demonstrated by the physical abilities of a learner including strength, vigor and coordination. This takes the form of readiness of learners to perform a given activity, ability to imitate a given task, level of proficiency, confidence and skill with which a learner performs a task and creativity.

Evaluation of learners is a key aspect of good teaching practice and should be continuous and comprehensive to inform better planning and implementation of education programmes (Good Spirit School Division, 2006). There are a number of ways of assessing pupil learning encompassing written, oral and practical approaches.

2.4 Identified gaps

The bulk of available literature is from studies conducted outside Africa. Given the environmental setting and other technological and resource differences between Africa and the rest of the world, the findings and effects of in-service teacher training on both teachers and learners’ attainment of education may not necessarily be relevant or applicable here. This study was conducted in Uganda, Western region in particular under a relatively poorer setting and lower technological advancement and economic growth, which validates the urgency for the study.
Furthermore, the assessment of learners’ attainment of education has not been widely researched and only a few studies have been done on Africa. This study makes an effort towards this by providing groundwork on the effect of in-service teacher training on learners’ attainment of education. Finally, most studies have not pointed out the failures and weaknesses of in-service trained teachers in fulfilling their expected roles and the reasons why. As earlier pointed out, in-service teacher training in Uganda has not realized much of its objectives mostly due to the fact that in-service trained teachers continue to perform lower than expected. This study explored the reasons behind this.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents methods used to collect and analyze data in order to answer the different research questions. It comprises a detailed discussion of the research design, description of the geographical area where the population of the study exists, description of the study population and sampling strategies, data collection methods and instruments, quality control, research
procedure, measurement of variables, data analysis techniques, ethical considerations and limitations/ challenges encountered in the study.

3.2 Research design

Creswell (2012) describes a research design as a “plan for answering the research questions”. It is a framework that guides planning, implementation and analysis of the research study. In order to comprehensively address the complex research questions, this study used a descriptive research design to obtain the required quantitative and qualitative data. This approach was chosen to allow triangulation of methods, an approach which, according to Kane (1990) allows the use of different methods to answer the same research question and aids to verify and strengthen the validity and reliability of research results.

The three districts of Bushenyi, Sheema and Rukungiri were selected as cases for data collection to answer the research questions. A sample of respondents was selected from the target population and recruited into the study. A cross-sectional survey design was used to collect the quantitative data. It was selected because, in addition to its efficiency as a data collection tool, it is best suited to collect descriptive data to prove or disprove given assumptions.

Key informants were then selected to enable an in-depth investigation of the research questions. This “key informant interview” approach allowed for the collection of specific information about in-service teacher training and its effect on teachers and learners’ attainment of education.

The different methods were interrelated in a way that allowed for integration of results to answer the research questions. The methods also allowed for comparison of cases and inferences about the entire population.
3.3 Study population

Sekaran (2003) describe population as the “entire set of objects, things and people under consideration in an investigation”. Burns and Grove (2003) define population as a set of all elements that meet predefined criteria for inclusion in a study.

For this study, the study population included all education stakeholders within the districts of Bushenyi, Rukungiri or Sheema including all personnel within district education departments such as district education officers (DEOs) and district inspectors of schools (DISs), all registered head teachers and teachers, all registered tutors in primary teachers’ colleges as well as registered primary seven pupils. The study population is detailed in Table 3.1 below.

Table 3.1: Study population

<table>
<thead>
<tr>
<th>Category</th>
<th>Population size</th>
</tr>
</thead>
<tbody>
<tr>
<td>District Education Officers</td>
<td>3</td>
</tr>
<tr>
<td>District Inspectors of schools</td>
<td>3</td>
</tr>
<tr>
<td>Head teachers</td>
<td>196</td>
</tr>
<tr>
<td>Teachers</td>
<td>2,122</td>
</tr>
<tr>
<td>Tutors</td>
<td>40</td>
</tr>
<tr>
<td>Primary seven pupils</td>
<td>12,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14,364</strong></td>
</tr>
</tbody>
</table>

*Source: Field data*

3.4 Sampling procedure

Amin (2005) describes a sample as the fraction of the target population procedurally selected by the researcher to represent the population. For this study, sampling of participants was based on the following procedure:

1. The researcher sought assistance from the District Education Officers of the study districts to identify potential schools.

2. The researcher sought assistance from head teachers and principals to identify potential participants, that is teachers and tutors respectively.
3. Further, subject teachers for primary seven assisted by introducing the researcher to their students

3.5 Sample size determination and sampling technique

The researcher used different sampling techniques to select respondents into the sample.

3.5.1 Sample size determination

The sample sizes were determined based on the Kish (1995) formula for sample size determination. This was adopted because it assumes a simple random sample, which reduces bias in selection and ensures equal likelihood of every member of the target population being drawn into the sample. The sample size was based on the formula below:

\[
 n = \text{deff} \cdot \frac{z^2pq}{e^2} \cdot r
\]  

(3.1)

Where: \( n \) is the required sample size; \( \text{deff} \) is the design effect=2; \( z \) is the 95% confidence interval, \( z =1.96 \); \( e \) is the permissible error = 5%; \( p \) is the proportion of teachers (and learners); \( q = 1-p \) and \( r \) is the anticipated response rate.

1. From the three districts, the total population of education stakeholders (teachers, tutors, head teachers, District Education Officers and District Inspectors of Schools) was 2,364. Using Kish’s formula at a 95% level of confidence with a proportion of 0.3, an anticipated response rate of 0.98 and a 0.05 error margin implicated a sample of 632 education stakeholders. The study experienced at 3.48% non-response rate. Therefore, the study had a sample of 610 education stakeholders including 392 teachers, 16 tutors, 196 head teachers, 3 District Inspectors of Schools and 3 District Education Officers.

2. For learners, the three study districts had a total pupil population of 12,000. Using Kish’s formula at a 95% level of confidence with a proportion of 0.15, an anticipated response rate of 0.9 and a 0.05 error margin implicated a sample of 353 pupils.
However, there was a 5.9% non-response rate. The study, therefore, had a sample of 332 pupils.

3. A total of 18 key informants were used including 3 district education offices, 3 district inspectors of schools and 12 head teachers with different positions of responsibility on head teachers’ associations committees.

3.5.2 Sampling technique
Prospective participants for key-informant interviews were selected by purposive sampling techniques based on perception of their knowledge on the study subject. For this study, district education officers, district inspectors of schools, head teachers, chairpersons and other committee members of head teachers’ associations were considered knowledgeable on in-service teacher training.

For the cross-sectional survey: Education stakeholders were selected into the sample using simple random sampling technique. This was done to ensure adequate representation of the population under the study and equal chance of representation to eliminate bias and ensure selection of a representative sample.

Learners were selected using the fishbowl technique whereby ‘yes’ or ‘no’ were written onto pieces of paper and put in a bowl where the pupils were required to pick one. The pupils who picked papers written ‘yes’ were selected into the sample.

3.6 Data collection methods
Kothari (2004) describes a data collection method as the procedure followed by the researcher in obtaining data from respondents. This includes tools used by the researcher to collect data.

For this study, the researcher selected the methods based on the research questions. The study utilized both quantitative and qualitative methods of data collection. As earlier mentioned, the use of different methods allowed for triangulation, which enhanced data authenticity. Further,
both primary and secondary data were collected. With regard to collecting the required information, the researcher used the following instruments:

3.6.1 Questionnaires

Amin (2005) defines a questionnaire as a carefully designed instrument containing a set of questions to which the correspondent responds by either ticking boxes or writing responses to the research questions. Questionnaires were used because they are cost effective and time efficient yet they yield a lot of information. In this study, a self-made questionnaire was designed using Microsoft Word 2013 Developer template.

The questionnaire included both open and close-ended questions to enable collection of enriched data. This technique was used to collect data from a sample of 332 pupils and 610 education stakeholders including teachers, tutors, head teachers, DISs and DEOs. The questionnaires were administered in different schools and collected after being filled by research assistants. The Research Assistants (RAs) and researcher introduced the study and its objectives as well as guidelines to answering before administering the questionnaire to the respondents. Filled questionnaires were collected by the class teacher (from pupils) and head teacher from where they were picked by the researcher or research assistant.

3.6.2 Interviews

An interview is a data collection method that involves direct verbal interaction between the researcher and respondents. It involves use of an oral questionnaire, which aids the interchange of views between two or more people on a common subject of interest. According to Best and Khan (2006), interviews are crucial because they provide immediate feedback and allow for probing and follow-up questions. This enables the researcher to obtain more in-depth information as well as providing clarity on the questions and answering of the research objectives.
For this study, semi-structured interviews were conducted with key informants who included district education officers, district inspectors of schools, head teachers and chairpersons and other committee members of head teachers’ associations. An interview guide was used to guide the interviews. Structured, semi-structured and unstructured questions were administered. This allowed for flexibility of questioning and better quality of responses.

Interviews generated information that was not captured by questionnaires. The method also gave the researcher a chance to observe the environment and non-verbal expressions that informed the study. As a result, firsthand information on in-service teacher training and its effect on learners’ attainment of education was generated.

### 3.6.3 Documentary analysis

This included review of sources that provided information on the topic of interest yet did not bear a direct physical relationship to it. These sources are referred to as secondary data sources. For this study, secondary data was obtained from district records, textbooks, journal articles, asset registers from primary schools and reports from the Ministry of Education and Sports among others.

### 3.7 Validity and reliability of instruments and quality control

Validity refers to the appropriateness of the instrument while reliability refers to the consistency of the instrument in measuring whatever it is intended to measure. Miles and Huberman (1994) define validity as the extent to which the study findings represent an authentic depiction of the topic under study and reliability is described as the consistency of the study process through time and across researchers.

To address validity and reliability issues, the researcher employed triangulation to enable double-checking and countering inconsistent and contradictory information. The data collected was entered into a statistical software package, Statistical Package for the Social Sciences
(SPSS 16.0) where it was edited, cleaned and coded in accordance to the study objectives. The data was then assessed for completeness, correctness and uniformity before any statistical analysis was done.

3.8 Research procedure

Written approval and permission (introductory letter) to commence fieldwork was obtained from the College of education, open, distance and e-learning. In the field, the researcher introduced the study and objectives to relevant authorities to obtain further permission. These authorities included the District Education Officers in the study districts as well as head teachers and class teachers in the schools where learners were recruited into the study sample.

Before actual data collection, the research instruments were pilot tested by administering them to the same group of subjects, that is, education stakeholders and learners to ensure that the instruments would collect data that would be used to draw correct conclusions as well as internal consistency. This was done to ensure that the respondents would understand the questions and that there were no vague statements or measurement errors. It was also key in pointing out data gaps that the researcher had not considered prior. The questionnaire was revised after the pilot study to take care of these issues.

A total of six research assistants, two from each district, were then recruited to aid in data collection. These were recruited based on their academic qualification and included persons with a basic qualification in education or persons with proven experience in data collection. Training of research assistants on the study objectives, research ethics and code of conduct as well as the research instrument was conducted before commencement of data collection. Returned filled questionnaires were checked for consistency at the end of each field day followed by a debriefing. The researcher conducted data entry at the end of each field day to
further point out inconsistencies and missing data. This information was used in briefing the following day with research assistants to ensure better data collection.

Data collection included:

1. Administration of questionnaires to education stakeholders including tutors and teachers among others
2. Administration of questionnaires to learners
3. Interviewing key informants

After the data collection, the data was entered into SPSS. The data was cleaned and coded to ensure consistency. Analysis using SPSS and interpretation were then conducted followed by writing the report.

3.9 Data analysis

For all objectives, the analysis was done using SPSS version 16.0.

First, a descriptive summary of background characteristics was done using frequency distributions and tabular and graphical representations. The purpose of this analysis was to provide a description of the study participants and their characteristics. Learners were evaluated separately from education stakeholders (teachers, tutors, head teachers, District Inspectors of schools and District Education Officers) to answer the different objectives.

Second, differentials in learners’ attainment of education by in-service teacher training of teachers was done using cross tabular analysis and then associations between the variables investigated using the Pearson chi-square with the level of significance set at 0.05, that is, a confidence interval of 95%. The Chi-square test was based on the formula:
\[ \chi^2 = \sum_{i=1}^{r} \sum_{j=1}^{c} \frac{(O_{ij} - E_{ij})^2}{(E_{ij})} \]  

(3.2)

Where \( r \) is the number of categories of the \( i^{th} \) explanatory variable; \( c \) is the number of categories of the dependent variable; \( O_{ij} \) is the observed number of observations in the \( i^{th} \) explanatory variable and \( j^{th} \) dependent variable, \( E_{ij} \) is the expected number of observations in the \( i^{th} \) explanatory variable and \( j^{th} \) dependent variable.

Using learners’ data, the study adopted a binary logistic regression to determine factors associated with quality of teacher. The same technique was used to establish the predictors of in-service teacher training status of teacher. The magnitude of significance was measured for every unit change in the independent variable using coefficients and relative log odds at a \( p \)-value of 0.05. The model adopted at this multivariable stage was based on the formula:

\[ Y = \beta_0X_0 + \beta_1X_1 + \cdots + \beta_kX_k \]  

(3.3)

Where \( Y \) denotes the probability that a teacher is “better”; \( \beta_0 \) is the constant; \( X_k \) denotes the explanatory variables and \( \beta_k \) denotes the corresponding coefficients.

Third, for objectives evaluated using likert scale questions, the Mann-Whitney U test was used to understand whether status of in-service teacher training of respondent had significant effect on ranking of the different criteria at 5% level of significance.

The test was based on the formula:

\[ U = n_1n_2 + \frac{n_2(n_2+1)}{2} - \sum_{i=n_1+1}^{n_2} R_i \]  

(3.4)

Where: \( U \) is the Mann-Whitney U test, \( n_1 \) is the first sample size, \( n_2 \) is the second sample size and \( R_i \) is the rank of the \( i^{th} \) sample size.

The hypothesis tested was:

\[ H_0: \mu_1 = \mu_2 \]

Where \( \mu_1 \) is the mean ranking in sample one and \( \mu_2 \) the mean ranking in sample two.
The null hypotheses tested include:

1. Status of in-service teacher training has no significant effect on ranking of criteria for effect of in-service teacher training on teachers

2. Status of in-service teacher training has no significant effect on ranking of criteria for effect of in-service teacher training on learners’ attainment of education

The null hypothesis was rejected if $p<0.05$

**Reliability of the data**

The Cronbach’s alpha (1951) test was used to measure reliability and internal consistency of the scale. This was tested based on the formula:

$$\alpha = \frac{N \cdot \bar{c}}{\bar{\theta} + (N-1) \cdot \bar{v}}$$  \hspace{1cm} (3.5)

Where $N$ is the number of observations, $c$ is the average covariance between item pairs and $v$ is the average variance.

Finally, results were presented in narration, figures, and graphical and tabular forms.

Qualitative methods of analysis, particularly, content analysis were used to analyze the data obtained through key informant interviews after which they were used to supplement information obtained from quantitative approaches.

**3.10 Ethical considerations**

The researcher ensured that the study met the moral and ethical standards of research by observing maximum confidentiality of the views of respondents. Subject participation in the study was voluntary and verbal consent was sought from participants prior to involvement in the study. Participants were informed about what it meant to be involved in the study, what was expected of them and the objectives of the study and had a right to decline participation. Anonymity of the respondents was maintained by coding the questionnaires instead of putting individuals’ names. When collecting data from pupils, guidance was provided through their
teachers. All data gathered was respected and used for research purposes only.

3.11 Limitations of the study

In conducting the study, the researcher encountered the following problems:

There was lack of co-operation from the potential respondents. There was a problem of respondents refusing to give needed information and offering to only give information in exchange for money. This hindered speed of data collection and also introduced a bias in the data collected in case those respondents had different perspectives from the respondents who readily offered to respond. This limitation was minimized by informing respondents on the objectives of the study and assuring that the study findings were strictly for academic purposes.

Second, there was difficulty in finding and recruiting knowledgeable and experienced research assistants which resulted in more resources spent in their training and supervision. Further, the guides who were used to locate schools were not well conversant with the school location, which imposed further costs. The researcher offset this issue by using the snowball technique whereby head teachers of already evaluated schools were asked to assist in locating other schools.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents results on the effect of in-service teacher training on teachers and on learners’ attainment of education and the process of designing and delivering in-service teacher training. Due to the volume of analysis, the chapter is divided into sections starting with the general description of the data in form of background characteristics of the respondents. Thereafter, the sections are in line with the study objectives starting with effect of in-service
teacher training on teachers, effect of in-service teacher training on learner’s attainment of education and last, the process of designing and delivering in-service teacher training.

4.2 Background characteristics of respondents

The study had a total of 942 respondents of which 332 were pupils and 610 education stakeholders including teachers, tutors, head teachers, District Inspectors of Schools and District Education Officers.

4.2.1. Background information of education stakeholders

The characteristics assessed include district of service, sex, qualification, number of years of service, in-service teacher training attendance and age of respondent. Table 4.1 presents distribution of respondents by these characteristics.

Table 4.1: Distribution of background characteristics of education stakeholders

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency (n)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>District</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bushenyi</td>
<td>220</td>
<td>36.1</td>
</tr>
<tr>
<td>Rukungiri</td>
<td>184</td>
<td>30.2</td>
</tr>
<tr>
<td>Sheema</td>
<td>206</td>
<td>33.8</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>417</td>
<td>68.4</td>
</tr>
<tr>
<td>Female</td>
<td>193</td>
<td>31.6</td>
</tr>
<tr>
<td><strong>Qualification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade III</td>
<td>100</td>
<td>16.4</td>
</tr>
<tr>
<td>Diploma</td>
<td>441</td>
<td>72.3</td>
</tr>
<tr>
<td>Bachelors</td>
<td>67</td>
<td>11.0</td>
</tr>
<tr>
<td>PhD</td>
<td>2</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>In-service teacher training</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>attendance</td>
<td>Yes</td>
<td>515</td>
</tr>
</tbody>
</table>
Results in Table 4.1 show that Bushenyi district had the highest number of respondents with 36.1% while Sheema district had the least with 30.2%. Males constituted the largest proportion of respondents with 68.4% while females constituted only 31.6%. The results also show that majority of the respondents were Diploma holders (72.3%) followed by 16.4% Grade III holders and 11% graduates leaving only 0.3% with postgraduate qualifications.

Results further show that majority of the respondents (84.4%) had ever attended in-service training leaving only 15.6% who had not. Finally, most of the respondents (27.5%) had 11-15 years of service followed by 21.8% with 16-20 years of service and only 12.5% with 1-5 years.

4.2.2 Background description of learners

The characteristics assessed included district, sex and age of respondent as presented in Table 4.2 below.

Table 4.2: Background characteristics of learners

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency (n)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>District</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bushenyi</td>
<td>118</td>
<td>35.6</td>
</tr>
<tr>
<td>Rukungiri</td>
<td>108</td>
<td>32.5</td>
</tr>
<tr>
<td>Sheema</td>
<td>106</td>
<td>31.9</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>176</td>
<td>53.0</td>
</tr>
<tr>
<td>Female</td>
<td>156</td>
<td>47.0</td>
</tr>
<tr>
<td><strong>Age (Yrs)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-12</td>
<td>103</td>
<td>31.0</td>
</tr>
<tr>
<td>13-15</td>
<td>202</td>
<td>60.8</td>
</tr>
<tr>
<td>16+</td>
<td>27</td>
<td>8.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>332</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Results in Table 4.2 above show that there were more (53%) male respondents compared to 47% females. Further, majority (60.8%) of the respondents were in the 13-15 age bracket.

### 4.2.3 Background description of learners’ attainment of education

The indicators assessed include in-service teacher training status of their teacher, daily attendance of teacher, time when lessons start, number of lessons per day, daily homework, whether their teacher marks exercises given daily as well as age of respondent. Table 4.3 presents distribution of these indicators collected from learners.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Frequency (n)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers attending in-service teacher training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>303</td>
<td>91.3</td>
</tr>
<tr>
<td>No</td>
<td>29</td>
<td>8.7</td>
</tr>
<tr>
<td>Daily attendance of teacher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>328</td>
<td>98.8</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>1.2</td>
</tr>
<tr>
<td>Time of start of lessons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before 8.00am</td>
<td>331</td>
<td>99.7</td>
</tr>
<tr>
<td>At exactly 9.00am</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Number of lessons per day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-4</td>
<td>33</td>
<td>9.9</td>
</tr>
<tr>
<td>5-8</td>
<td>297</td>
<td>89.5</td>
</tr>
<tr>
<td>I don't know</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>Homework</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>233</td>
<td>70.2</td>
</tr>
<tr>
<td>No</td>
<td>99</td>
<td>29.8</td>
</tr>
<tr>
<td>Teacher marking given exercise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>309</td>
<td>93.1</td>
</tr>
<tr>
<td>Indicator</td>
<td>Frequency (n)</td>
<td>Percent (%)</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>No</td>
<td>23</td>
<td>6.9</td>
</tr>
<tr>
<td>Yes</td>
<td>268</td>
<td>80.7</td>
</tr>
<tr>
<td>No</td>
<td>59</td>
<td>17.8</td>
</tr>
<tr>
<td>I don't know</td>
<td>5</td>
<td>1.5</td>
</tr>
<tr>
<td>Better class teachers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>265</td>
<td>79.8</td>
</tr>
<tr>
<td>No</td>
<td>54</td>
<td>16.3</td>
</tr>
<tr>
<td>I don't know</td>
<td>13</td>
<td>3.9</td>
</tr>
<tr>
<td>Head teachers are better administrators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>315</td>
<td>94.9</td>
</tr>
<tr>
<td>No</td>
<td>14</td>
<td>4.2</td>
</tr>
<tr>
<td>I don't know</td>
<td>3</td>
<td>0.9</td>
</tr>
<tr>
<td>Different Methods used in teaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>328</td>
<td>98.8</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>1.2</td>
</tr>
<tr>
<td>Teacher gives time to go for games</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>238</td>
<td>71.7</td>
</tr>
<tr>
<td>No</td>
<td>94</td>
<td>28.3</td>
</tr>
<tr>
<td>Involvement in games makes me a good learner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>310</td>
<td>93.4</td>
</tr>
<tr>
<td>No</td>
<td>22</td>
<td>6.6</td>
</tr>
<tr>
<td>Class teacher gives time to go for games</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>302</td>
<td>91.0</td>
</tr>
<tr>
<td>No</td>
<td>28</td>
<td>8.4</td>
</tr>
<tr>
<td>I don't know</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>Choice between football, netball, volleyball</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>264</td>
<td>79.5</td>
</tr>
<tr>
<td>No</td>
<td>68</td>
<td>20.5</td>
</tr>
<tr>
<td>School has in-door games</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>7</td>
<td>2.1</td>
</tr>
<tr>
<td>No</td>
<td>325</td>
<td>97.9</td>
</tr>
<tr>
<td>Total</td>
<td>332</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Results in Table 4.3 above show most (91.3%) respondents had their teacher attending in-service teacher training. On attendance, only 1.2% of respondents had their teacher not attending class daily. A very high number of learners (99.7%) began their lessons before 8.00am while 0.3% started at exactly 9.00am. Results also show that 89.5% of learners had between five to eight lessons per day while 9.9% had between one to four lessons per day.
Further, results show that 70.2% were given daily homework. 93.1% of learners reported that their teachers marked the exercises given to them daily.

80.7% of learners said that in-service trained teachers were better teachers than those who were not attending the training and 79.8% said that in-service trained teachers made better class teachers. Furthermore, 94.9% said that head teachers who were attending in-service training were better administrators. Results also show that 98.8% of respondents had their teacher use different methods in teaching. 71.7% had their teacher give them time to go for games while 91% had their class teacher give them time to go for games. 93.4% of learners reported that involvement in games made them better learners. 79.5% of learners had a choice between football, netball and volleyball and only 2.1% said that their school had in-door games. Only 2.1% of learners had indoor games at their school.

4.3 Effect of in-service teacher training on teachers

This section starts with the analysis of the differentials in status of in-service teacher training and consequently the predictors of in-service teacher training to establish the teacher characteristics associated with in-service teacher training. It then goes on to present results on the effect of in-service teacher training on teachers based on criteria ranked by respondents including teachers, head teachers, tutors, District Education Officers and District Inspectors of Schools on a four-point Likert scale. Still regarding effect of in-service teacher training on teachers, this section discusses professional ethics fulfilled by in-service trained teachers and concludes with other conditions that enable in-service trained teachers to teach effectively.

4.3.1 Differentials in status of in-service teacher training

Differentials in in-service teacher training status were assessed by teachers’ background characteristics as presented in Table 4.4 below

*Table 4. 4: Differentials in status of in-service teacher training by teachers’ characteristics*
### In-service teacher training status of teacher (%)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Yes</th>
<th>No</th>
<th>χ²</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>District</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bushenyi</td>
<td>81.82</td>
<td>18.18</td>
<td>5.671</td>
<td>0.059</td>
</tr>
<tr>
<td>Rukungiri</td>
<td>82.07</td>
<td>17.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheema</td>
<td>89.32</td>
<td>10.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>85.37</td>
<td>14.63</td>
<td>0.896</td>
<td>0.344</td>
</tr>
<tr>
<td>Female</td>
<td>82.38</td>
<td>17.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Number of Years of Service</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-5yrs</td>
<td>73.68</td>
<td>26.32</td>
<td>17.236</td>
<td>0.002</td>
</tr>
<tr>
<td>6-10yrs</td>
<td>82.14</td>
<td>17.86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-15yrs</td>
<td>82.14</td>
<td>17.86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-20yrs</td>
<td>93.98</td>
<td>6.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20+yrs</td>
<td>85.95</td>
<td>14.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Qualification</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade III</td>
<td>74.00</td>
<td>26.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>87.53</td>
<td>12.47</td>
<td>22.616</td>
<td>0.000</td>
</tr>
<tr>
<td>Bachelors</td>
<td>82.09</td>
<td>17.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postgraduate</td>
<td>0.00</td>
<td>100.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results in Table 4.4 above show that number of years in service and qualification of teacher were significant predictors of in-service teacher training status with p values less than 0.05

**4.3.2 Predictors of in-service teacher training**

The predictors of in-service teacher training were then established using the binary logistic regression as presented in Table 4.5 below.

Table 4.5: Predictors of in-service teacher training

<table>
<thead>
<tr>
<th>Variable</th>
<th>OR</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male†</td>
<td>1.00</td>
<td></td>
<td>0.142</td>
</tr>
<tr>
<td>Female</td>
<td>1.465</td>
<td>0.260</td>
<td></td>
</tr>
<tr>
<td><strong>Qualification</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade III†</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>32.727</td>
<td>1.114</td>
<td>0.002</td>
</tr>
<tr>
<td>Bachelors</td>
<td>75.555</td>
<td>1.126</td>
<td>0.000</td>
</tr>
<tr>
<td>Post Graduate</td>
<td>50.039</td>
<td>1.132</td>
<td>0.001</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.954</td>
<td></td>
<td>0.024</td>
<td>0.046</td>
</tr>
<tr>
<td><strong>Number of Service Years</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-5yrs†</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-10yrs</td>
<td>0.247</td>
<td>0.538</td>
<td>0.009</td>
</tr>
</tbody>
</table>
The results in Table 4.5 show that the odds of a teacher with a diploma or a bachelors or post graduate degree having in-service teacher training were significantly higher than those of a Grade III teacher with respective p-values less than 0.05. In addition, teachers with 6-10 years of service were significantly less likely to have in-service teacher training than teachers with 1-5 years of service with (OR=0.247, p<0.05). The other categories showed no significant difference from teachers in the 1-5yrs category. Results further show that a unit increase in age is associated with a 4.6% reduction in the odds of a teacher having in-service teacher training (p<0.05). Finally, results show that teachers in Rukungiri were significantly less likely to have in-service teacher training than teachers in Bushenyi with (OR=0.528, p<0.05).

### 4.3.3 Effect of in-service teacher training on teachers

The effect of in-service teacher training on teachers was evaluated based on eleven criteria ranked by respondents (teachers, tutors, head teachers, District Education Officers and District Inspectors of Schools) on a four point likert scale from strongly agree to agree, disagree and strongly disagree. The criteria included; acquired skills and knowledge, provision of quality education to learners, upgrade of academic qualification, promotion, teachers enabled to play key role in the proper implementation of various education policies and programs, broadened and deepened knowledge that increases on teachers’ competence, reliability and responsibility, professionalism based on content mastered, motivation of teachers on their job, command on academic subjects and ability to meet the needs of learners, performance of teachers as well as administration skills of head teachers.
Reliability test

A reliability test was carried out using the Cronbach’s alpha test to measure reliability of the scale with respect to the variables selected. Results indicated an alpha of 0.773 which indicates that the scale had a good reliability and consistently measured effect of in-service teacher training on teachers. The test further showed that removal of any of the variables reduced the Cronbach’s alpha, which is an indicator that there was no redundancy and the variables were well defined. Table 4.6 below shows respondents’ ranking of criteria of effect of in-service teacher training on teachers.

Table 4.6: Effect of in-service teacher training on teachers

<table>
<thead>
<tr>
<th>Effect of in-service teacher training on teachers</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. It enables teachers acquire new skills and knowledge</td>
<td>4</td>
<td>12</td>
<td>205</td>
<td>379</td>
<td>4</td>
</tr>
<tr>
<td>ii. It enables teachers provide quality education to learners</td>
<td>16</td>
<td>39</td>
<td>330</td>
<td>211</td>
<td>3</td>
</tr>
<tr>
<td>iii. It has enabled teachers upgrade their academic qualification</td>
<td>4</td>
<td>20</td>
<td>153</td>
<td>431</td>
<td>4</td>
</tr>
<tr>
<td>iv. It has enabled teachers to acquire promotion</td>
<td>6</td>
<td>30</td>
<td>148</td>
<td>422</td>
<td>4</td>
</tr>
<tr>
<td>v. It has enabled teachers to play a key role in the proper implementation of various education policies and programs</td>
<td>9</td>
<td>60</td>
<td>314</td>
<td>221</td>
<td>3</td>
</tr>
</tbody>
</table>

66
### Table 4.6

<table>
<thead>
<tr>
<th>Effect of in-service teacher training on teachers</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>vi. It broadens and deepens their own knowledge, increases on their competence, reliability and responsibility</td>
<td>11</td>
<td>40</td>
<td>270</td>
<td>279</td>
<td>3</td>
</tr>
<tr>
<td>vii. In-service trained teachers become more professional by mastering the content</td>
<td>32</td>
<td>81</td>
<td>323</td>
<td>172</td>
<td>3</td>
</tr>
<tr>
<td>viii. In-service trained teachers become more professional by getting motivated on the job</td>
<td>41</td>
<td>112</td>
<td>310</td>
<td>85</td>
<td>3</td>
</tr>
<tr>
<td>ix. In-service trained teachers have a good command of their academic subjects and ably meet the needs of learners</td>
<td>11</td>
<td>78</td>
<td>337</td>
<td>172</td>
<td>3</td>
</tr>
<tr>
<td>x. Teachers who have had in-service teacher training are good performers in school</td>
<td>37</td>
<td>128</td>
<td>300</td>
<td>141</td>
<td>3</td>
</tr>
<tr>
<td>xi. In-service trained head teachers are better administrators than those taught through other programs</td>
<td>46</td>
<td>142</td>
<td>249</td>
<td>159</td>
<td>3</td>
</tr>
</tbody>
</table>

Results in Table 4.6 above show that upgrading teachers’ academic qualifications was the most considered criterion of effect of in-service teacher training with 70.89% of respondents expressing strong agreement that in-service teacher training enables teachers upgrade their academic qualifications followed by enabling teachers to acquire promotion (69.64%), enabling teachers acquire new skills and knowledge (63.17%) and broadening and deepening teachers’ knowledge which increases their competence, reliability and responsibility (46.50%). The other criteria, though considered strongly agreeable by less than 50% of respondents, were considered agreeable with respective medians of 3. Results show that 56.57% of respondents expressed agreement that in-service teacher training enables teachers become more professional by motivating them on the job followed by, in descending order: enabling teachers have a good command of their academic subjects and ably meet the needs of learners (56.35%), enabling teachers provide quality education to learners (55.37%), enabling teachers become professional by mastering the content (53.13%), enabling teachers to play a key role in the
proper implementation of various education policies and programs (51.99%), improving the performance of teachers (49.5%) and enabling head teachers become better administrators with 41.78%.

Findings from the interviews show that in-service trained teachers are better teachers as far as provision of education is concerned. A head teacher was quick to note that they are better and more sociable (Field Interview No. 2) while another said that in-service trained teachers are serious at their work especially if they are in positions of responsibility (Field Interview No. 3). ‘Those who are serious at work provide quality education and are good administrators,’ observed one district education officer (Field Interview No. 9). Another education officer noted that when in-service trained teachers are promoted in administrative positions, they are motivated to even improve their teaching abilities and to provide a good example for other teachers as well as learners (Field Interview No. 7). This in turn increases their level of professionalism (Field Interview No. 5).

One inspector of schools asserted that in-service teacher training provides opportunity for teachers to further their education, which is key in acquiring promotion (Field Interview No. 6). Another school leader noted that in fact, the ability of a teacher to use different teaching techniques gives them a competitive edge when applying for promotion (Field Interview No. 2). An education officer confirmed this saying that “when looking for teachers to hold positions of responsibility, those with better qualifications take first priority” (Field Interview No. 9).

With regard to teaching technique, one inspector of schools observed that in-service trained teachers teach better because they teach their subjects of specialization (Field Interview No. 6). Since teachers individually select these subjects during the in-service teacher training, it shows that they take joy in both learning and teaching them and leads to a better teaching-learning environment (Field Interview No. 8). One school head, however, asserted that in-service
trained teachers only become better teachers if they strictly apply the gained knowledge and skills (Field Interview No. 1).

However, it is not only learners’ academic performance that is impacted on by in-service teacher training. There are other areas that in-service trained teachers assist pupils in that teachers who do not have in-service teacher training might not.

A head teacher observed that in his school, pupils had better relationships with in-service trained teachers and were more sociable during their classes (Field Interview No. 10). ‘They (in-service trained teachers) encourage pupils to build teams and you find that their pupils easily make groups to enable their academic work,’ said another head teacher of the pupils in classes taught by in-service trained teachers (Field Interview No. 12).

A head teacher in Sheema and another in Bushenyi noted that in-service trained teachers who are talented at co-curricular activities are always eager to assist pupils in various games (Field Interview No. 11 and Field Interview No. 13). According to one district education officer, in-service trained teachers give their pupils free time to socialize and make groups that help them play different games depending on the likes of the group (Field Interview No. 18). Some head teachers in Sheema and Rukungiri reported that in-service trained teachers not only help with games but also with other skills such as music and scouting (Field Interview No. 16), handiwork like making carpets, baskets and table cloths (Field Interview No. 15) and other outside class activities like gardening and compound cleaning (Field Interview No. 17). However, these are also dependent on the ability of the pupils (Field Interview No. 16).

Finally, in-service trained teachers were reported to be advocates for good sanitation among pupils. According to one inspector of schools, in-service trained teachers conduct health parades where pupils are taught how to maintain general hygiene of their bodies and cleanliness of their environment (Field Interview No. 14).
4.3.3.1 Mann-Whitney test for effect of in-service teacher training on teachers by status of in-service teacher training

The Mann Whitney test was used to test the null that in-service teacher training status of respondent had no significant effect on ranking of criteria for effect of in-service teacher training on teachers as shown in Table 4.7 below.

Table 4.7: Mann-Whitney test for effect of in-service teacher training on teachers by status of in-service teacher training

<table>
<thead>
<tr>
<th></th>
<th>In-service teacher training enables teachers acquire new skills and knowledge</th>
<th>In-service teacher training has enabled teachers upgrade their academic qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>20501</td>
<td>21231</td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>24687</td>
<td>25791</td>
</tr>
<tr>
<td>Z</td>
<td>-2.074</td>
<td>-2.517</td>
</tr>
<tr>
<td>p-value</td>
<td>0.038</td>
<td>0.012</td>
</tr>
</tbody>
</table>

Results in Table 4.7 above suggest that teachers without in-service teacher training ranked “In-service teacher training enables teachers acquire new skills and knowledge” and “In-service teacher training has enabled teachers upgrade their academic qualification” less favorably than in-service trained teachers with p-values less than 0.05. Other criteria did not show significant difference.

4.3.4 Professional ethics fulfilled by teachers who have had in-service teacher training

This section evaluates professional ethics fulfilled by teachers who have had in-service teacher training based on fourteen criteria ranked by respondents (education stakeholders) on a four point likert scale from strongly agree to agree, disagree and strongly disagree. The criteria included; keeping time, making schemes of work, making lesson plans, marking pupils register, assessing pupils’ work, marking pupils’ books, giving homework, remedial teaching, efficient use of instructional materials, managing co-curricular activities, professional discipline, effectiveness in performing teaching tasks, efficient control of class and improved co-operation with staff.

Reliability test
A reliability test was carried out using the Cronbach’s alpha test to measure reliability of the scale with respect to the variables selected. Results indicated an alpha of 0.878, which indicates that the scale had good reliability and consistently measured professional ethics fulfilled by teachers who have had in-service teacher training. The test further showed that removal of any of the variables reduced the Cronbach’s alpha, which is an indicator that there was no redundancy and the variables were well defined.

Table 4.8 below shows respondents’ ranking of criteria of professional ethics fulfilled by teachers who have had in-service teacher training.

<table>
<thead>
<tr>
<th>Professional ethics fulfilled by in-service trained teachers</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Keeping time</td>
<td>12</td>
<td>115</td>
<td>340</td>
<td>139</td>
</tr>
<tr>
<td></td>
<td>1.98</td>
<td>18.98</td>
<td>56.11</td>
<td>22.94</td>
</tr>
<tr>
<td>ii. Making schemes of work</td>
<td>16</td>
<td>62</td>
<td>308</td>
<td>222</td>
</tr>
<tr>
<td></td>
<td>2.63</td>
<td>10.20</td>
<td>50.66</td>
<td>36.51</td>
</tr>
<tr>
<td>iii. Making lesson plans</td>
<td>16</td>
<td>68</td>
<td>308</td>
<td>216</td>
</tr>
<tr>
<td></td>
<td>2.63</td>
<td>11.18</td>
<td>50.66</td>
<td>35.53</td>
</tr>
<tr>
<td>iv. Marking pupils register</td>
<td>24</td>
<td>65</td>
<td>295</td>
<td>224</td>
</tr>
<tr>
<td></td>
<td>3.95</td>
<td>10.69</td>
<td>48.52</td>
<td>36.84</td>
</tr>
<tr>
<td>v. Assessing pupils work</td>
<td>18</td>
<td>49</td>
<td>351</td>
<td>190</td>
</tr>
<tr>
<td></td>
<td>2.96</td>
<td>8.06</td>
<td>57.73</td>
<td>31.25</td>
</tr>
<tr>
<td>vi. Marking pupils books</td>
<td>12</td>
<td>49</td>
<td>276</td>
<td>271</td>
</tr>
<tr>
<td></td>
<td>1.97</td>
<td>8.06</td>
<td>45.39</td>
<td>44.57</td>
</tr>
<tr>
<td>vii. Giving homework</td>
<td>32</td>
<td>132</td>
<td>326</td>
<td>118</td>
</tr>
<tr>
<td></td>
<td>5.26</td>
<td>21.71</td>
<td>53.62</td>
<td>19.41</td>
</tr>
<tr>
<td>viii. Teaching remedial lessons</td>
<td>32</td>
<td>115</td>
<td>346</td>
<td>115</td>
</tr>
<tr>
<td></td>
<td>5.26</td>
<td>18.91</td>
<td>56.91</td>
<td>18.91</td>
</tr>
<tr>
<td>ix. Efficient use of instructional materials</td>
<td>24</td>
<td>83</td>
<td>340</td>
<td>163</td>
</tr>
</tbody>
</table>
Results in Table 4.8 above suggest that all fourteen criteria were considered agreeable by respondents in determining professional ethics of in-service trained teachers. 44.57% of respondents strongly agreed and 45.39% agreed that marking pupils’ books was fulfilled by in-service trained teachers as an indicator of professional ethics followed by professional discipline with 40.79% strongly agreeing and 45.39% agreeing to the criterion. The rest of the criteria had over 50% of respondents agreeing that professional ethics were fulfilled by in-service trained teachers. 64.06% of respondents agreed that in-service trained teachers have improved co-operation with staff followed by, in descending order: effectiveness in carrying out teaching tasks (60.4%), efficient control of class during teaching and learning (58.09%), assessing pupils’ work (57.73%), remedial teaching (56.91%), keeping time (56.11%), efficient use of instructional materials (55.74%), managing co-curricular activities (55.1%), giving homework (53.62%), making schemes of work (50.66%), making lesson plans (50.66%) and marking pupils’ registers (48.52%).

The results show that in-service teacher training plays an invaluable role in enabling teachers to match along with the reformed education systems that they never studied during their pre-service training (Field Interview No. 7). An inspector of schools stated that through in-service teacher training, teachers become more professional and develop a positive attitude towards teaching and continued learning (Field Interview No. 4).
Furthermore, a number of respondents remarked that in-service teacher training was crucial in improving co-operation and networking between teachers and education service personnel as well as equipping them with the skill to promote co-operation with and amongst pupils. An inspector of schools in one of the districts stated that the interaction between teachers from different schools during the training leads to improved teacher co-operation between and within schools. This enables sharing of professional ideas and challenges, which has an overall positive effect on the advancement of education (Field Interview No.5).

4.3.4.1 Mann-Whitney test for professional ethics fulfilled by in-service trained teachers by status of in-service teacher training of respondent

The Mann Whitney test was used to test the null that in-service teacher training status of respondent had no significant effect on ranking of professional ethics fulfilled by teachers as shown in Table 4.9 below

<table>
<thead>
<tr>
<th>Keeping time</th>
<th>Making schemes of work</th>
<th>Making lesson plans</th>
<th>Marking pupils register</th>
<th>Efficient use of instructional materials</th>
<th>Managing co-curricular activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>18229.5</td>
<td>19490.5</td>
<td>20055.5</td>
<td>21158</td>
<td>20616.5</td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>22600.5</td>
<td>23861.5</td>
<td>24426.5</td>
<td>25529</td>
<td>25176.5</td>
</tr>
<tr>
<td>Z</td>
<td>-4.037</td>
<td>-3.157</td>
<td>-2.751</td>
<td>-1.959</td>
<td>-2.716</td>
</tr>
<tr>
<td>p-value</td>
<td>0.000</td>
<td>0.002</td>
<td>0.006</td>
<td>0.050</td>
<td>0.007</td>
</tr>
</tbody>
</table>

Results in Table 4.9 above suggest that teachers without in-service teacher training ranked keeping time, making schemes of work, making lesson plans, marking pupils’ register, use of instructional material, and managing co-curricular activities less favorably than in-service trained teachers with p-values less than 0.05. Other criteria did not show significant difference.
4.3.5 Other conditions that enable in-service trained teachers to teach effectively

Other conditions that enable in-service trained teachers to teach effectively were evaluated based on five criteria ranked by respondents on a four point likert scale from strongly agree to agree, disagree and strongly disagree. The criteria included; possession of sufficient scholastic materials, availability of incentives, acquired knowledge, appropriate skills and techniques, conducive accommodation and conducive learning environment.

Reliability test

A reliability test was carried out using the Cronbach’s alpha test to measure reliability of the scale with respect to the variables selected. Results indicated an alpha of 0.766, which indicates that the scale had good reliability and consistently evaluated other conditions that enable in-service trained teachers to teach effectively. The test further showed that removal of any of the variables reduced the Cronbach’s alpha, which is an indicator that there was no redundancy and the variables were well defined.

Table 4.10 below shows respondents’ ranking of criteria of other conditions that enable in-service trained teachers to teach effectively.

<table>
<thead>
<tr>
<th>Other conditions that enable in-service trained teachers teach effectively</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Possession of sufficient scholastic materials</td>
<td>20</td>
<td>82</td>
<td>233</td>
<td>273</td>
</tr>
<tr>
<td></td>
<td>3.29</td>
<td>13.49</td>
<td>38.32</td>
<td>44.90</td>
</tr>
<tr>
<td>ii. Availability of incentives</td>
<td>44</td>
<td>98</td>
<td>239</td>
<td>221</td>
</tr>
<tr>
<td></td>
<td>7.31</td>
<td>16.28</td>
<td>39.70</td>
<td>36.71</td>
</tr>
<tr>
<td>iii. Acquired knowledge, appropriate skills and techniques</td>
<td>10</td>
<td>33</td>
<td>281</td>
<td>280</td>
</tr>
<tr>
<td></td>
<td>1.66</td>
<td>5.46</td>
<td>46.52</td>
<td>46.36</td>
</tr>
<tr>
<td>iv. Conducive accommodation</td>
<td>58</td>
<td>134</td>
<td>236</td>
<td>176</td>
</tr>
<tr>
<td></td>
<td>9.60</td>
<td>22.19</td>
<td>39.07</td>
<td>29.14</td>
</tr>
<tr>
<td>v. Conducive learning environment</td>
<td>22</td>
<td>62</td>
<td>252</td>
<td>272</td>
</tr>
<tr>
<td></td>
<td>3.62</td>
<td>10.20</td>
<td>41.45</td>
<td>44.74</td>
</tr>
</tbody>
</table>

Results in Table 4.10 show that possession of sufficient scholastic materials was the most considered criterion of other conditions that enable in-service trained teachers teach effectively with 46.36% of respondents expressing strong agreement followed by conducive learning environment.
environment (44.74%). Other criteria had the highest proportion of respondents in agreement with 46.52% respondents agreeing that acquired knowledge, appropriate skills and techniques enable in-service trained teachers teach effectively followed by availability of incentives (39.7%) and conducive accommodation (39.07%).

4.3.5.1 Mann-Whitney test for other conditions that enable in-service trained teachers to teach effectively by status of in-service teacher training of respondent

There were no significant differences in the ranking of criteria of other conditions that enable in-service trained teachers to teach effectively by status of in-service teacher training of respondent.

4.4 Effect of in-service teacher training on learners’ attainment of education

This section starts with the analysis of the differentials in learner characteristics by status of in-service training of teachers and consequently the predictors of quality of teachers based on learner characteristics. It then goes on to present results on the effect of in-service teacher training on learners’ attainment of education based on criteria ranked by respondents including teachers, head teachers, tutors, District Education Officers and District Inspectors of Schools on a four-point Likert scale. To give a better appreciation of the effect of in-service teacher training on learners’ attainment of education, this section goes on to present an analysis of the methods used by in-service trained teachers while teaching. Finally, the section presents results on the ways of assessing good pupil learning as a measure of learners’ attainment of education.

4.4.1 Differentials in indicators of learners’ attainment of education by status of in-service training of teacher

Differentials in indicators of learners’ attainment of education (perceived by learners) were assessed by status of in-service teacher training of their teacher as presented in Table 4.11 below.
Table 4. 11: Differentials in indicators of learners’ attainment of education by in-service training status of teacher

<table>
<thead>
<tr>
<th>Variable</th>
<th>In-service teacher training status of teacher (%)</th>
<th>Yes</th>
<th>No</th>
<th>χ²</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily attendance of teacher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>91.2</td>
<td>8.8</td>
<td>0.388</td>
<td>0.534</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>100.0</td>
<td>0.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time of start of lessons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before 8.00am</td>
<td></td>
<td>91.2</td>
<td>8.8</td>
<td>0.096</td>
<td>0.757</td>
</tr>
<tr>
<td>At exactly 9.00am</td>
<td></td>
<td>100.0</td>
<td>0.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of lessons per day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-4</td>
<td></td>
<td>54.5</td>
<td>45.5</td>
<td>62.030</td>
<td>0.000</td>
</tr>
<tr>
<td>5-8</td>
<td></td>
<td>95.3</td>
<td>4.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I don’t know</td>
<td></td>
<td>100.0</td>
<td>0.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher marking given exercise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>90.9</td>
<td>9.1</td>
<td>0.597</td>
<td>0.440</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>95.7</td>
<td>4.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homework</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>90.6</td>
<td>9.4</td>
<td>0.490</td>
<td>0.484</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>92.9</td>
<td>7.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-service trained teachers are better teachers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>98.9</td>
<td>1.1</td>
<td>105.941</td>
<td>0.000</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>56.9</td>
<td>43.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-service trained teachers are better class teachers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>95.5</td>
<td>4.5</td>
<td>42.174</td>
<td>0.000</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>68.5</td>
<td>31.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable</td>
<td>Yes</td>
<td>No</td>
<td>$\chi^2$</td>
<td>p-value</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>------</td>
<td>------</td>
<td>----------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>Head teacher is a better administrator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>91.7</td>
<td>8.3</td>
<td>4.336</td>
<td>0.114</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>75.0</td>
<td>25.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I don’t know</td>
<td>100.0</td>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Different methods used in teaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>91.5</td>
<td>8.5</td>
<td>1.344</td>
<td>0.246</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>75.0</td>
<td>25.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher gives time to go for games</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>94.1</td>
<td>5.9</td>
<td>8.580</td>
<td>0.003</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>84.0</td>
<td>16.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available choice of games</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>89.0</td>
<td>11.0</td>
<td>7.949</td>
<td>0.005</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>100.0</td>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher-pupil relationship</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>91.2</td>
<td>8.8</td>
<td>0.001</td>
<td>0.971</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>90.9</td>
<td>9.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encourage discussion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>91.2</td>
<td>8.8</td>
<td>0.097</td>
<td>0.756</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>99.0</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results in Table 4.11 show that status of in-service teacher training of teacher was a significant predictor of number of lessons per day, whether a teacher is better in performance, performance of class teachers, whether a teacher gave time to pupils to go for games as well as presence of choice of games at the school with respective p-values less than 0.05. Status of in-service teacher training of teacher had no significant effect on the other variables.

### 4.4.2 Predictors of quality of teachers

The predictors of quality of teachers were established using the Logistic regression model on indicators of learners’ attainment of education perceived by learners as presented in Table 4.12 below

**Table 4. 12: Predictors of quality of teachers**

<table>
<thead>
<tr>
<th>Status of in-service teacher training</th>
<th>OR</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes†</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>0.020</td>
<td>0.738</td>
<td>0.000</td>
</tr>
<tr>
<td>Daily attendance of teacher</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes†</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>40.403</td>
<td>4.314</td>
<td>0.391</td>
</tr>
<tr>
<td>Start of lessons</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before 8.00 am†</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The results in Table 4.12 show that status of in-service teacher training had a significant effect on quality of teacher with teachers who had not attended in-service teacher training less likely to be rated as better teachers than those who had the training with p<0.05. Giving homework daily was also significantly associated with quality of teacher with teachers who did not give homework more likely to be categorized as better teachers. Finally, teachers who did not give time to learners to go for games were significantly less likely to be categorized as better teachers (p<0.05). Other factors had no significant effect on learners’ perception of quality of their teacher.

4.4.3 Effect of in-service teacher training of teachers on learners’ attainment of education

Effect of in-service teacher training on learners’ attainment of education was evaluated based on ten criteria ranked by the education stakeholders selected into the study (teachers, head
teachers, tutors, District Education Officers and District Inspectors of Schools) on a four point likert scale from strongly agree to agree, disagree and strongly disagree. The criteria included; better performance in Primary Leaving Examinations (PLE), enjoyment of the variety of teaching methods used by teachers, acquired proper education due to acquired improved content, knowledge and skills, acquired knowledge through in-service trained teachers compared to knowledge acquired through coaching, extent to which they are encouraged to share knowledge, instilled decision making techniques, teacher-pupil relationship, social uprightness, performance in co-curricular activities as well as passing in division one at PLE.

**Reliability test**

A reliability test was carried out using the Cronbach’s alpha test to measure reliability of the scale with respect to the variables selected. Results indicated an alpha of 0.795, which indicates that the scale had a good reliability and consistently measured impact of in-service teacher training on learners. Table 4.13 below shows respondents’ ranking of criteria of effect of in-service teacher training on learners’ attainment of education.

**Table 4.13: Effect of in-service teacher training on learners’ attainment of education**

<table>
<thead>
<tr>
<th>Effect of in-service teacher training on learners’ attainment of education</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Pupils taught by in-service trained teachers perform better in PLE</td>
<td>43</td>
<td>154</td>
<td>297</td>
<td>110</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>7.12</td>
<td>25.50</td>
<td>49.17</td>
<td>18.21</td>
<td></td>
</tr>
<tr>
<td>ii. In-service trained teachers use a variety of teaching methods</td>
<td>37</td>
<td>117</td>
<td>258</td>
<td>192</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>6.13</td>
<td>19.37</td>
<td>42.72</td>
<td>31.79</td>
<td></td>
</tr>
<tr>
<td>iii. Pupils taught by in-service trained teachers acquire proper education because they have acquired improved content, knowledge and skills</td>
<td>19</td>
<td>88</td>
<td>316</td>
<td>177</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3.17</td>
<td>14.67</td>
<td>52.67</td>
<td>29.50</td>
<td></td>
</tr>
<tr>
<td>iv. Knowledge acquired through in-service teacher training is less than that acquired through coaching</td>
<td>147</td>
<td>220</td>
<td>158</td>
<td>81</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>24.26</td>
<td>36.30</td>
<td>26.07</td>
<td>13.37</td>
<td></td>
</tr>
<tr>
<td>v. In-service trained teachers encourage pupils to share knowledge</td>
<td>10</td>
<td>55</td>
<td>349</td>
<td>192</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>1.65</td>
<td>9.08</td>
<td>57.59</td>
<td>31.68</td>
<td></td>
</tr>
</tbody>
</table>
### Effect of in-service teacher training on learners’ attainment of education

<table>
<thead>
<tr>
<th>vi. Pupils taught by in-service trained teachers are good at decision making</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>53</td>
<td>136</td>
<td>262</td>
<td>157</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>8.72</td>
<td>22.37</td>
<td>43.09</td>
<td>25.82</td>
<td></td>
</tr>
<tr>
<td>vii. Teachers who have had in-service teacher training have good teacher-pupil relationship</td>
<td>4</td>
<td>42</td>
<td>264</td>
<td>300</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>0.66</td>
<td>6.89</td>
<td>43.28</td>
<td>49.18</td>
<td></td>
</tr>
<tr>
<td>viii. Pupils taught by in-service trained teachers are socially upright</td>
<td>39</td>
<td>133</td>
<td>302</td>
<td>130</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>6.46</td>
<td>22.02</td>
<td>50.00</td>
<td>21.52</td>
<td></td>
</tr>
<tr>
<td>ix. Pupils taught by in-service trained teachers are good at co-curricular activities</td>
<td>63</td>
<td>237</td>
<td>251</td>
<td>53</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>10.43</td>
<td>39.24</td>
<td>41.56</td>
<td>8.77</td>
<td></td>
</tr>
<tr>
<td>x. Majority of learners taught by in-service trained teachers pass in division one at PLE</td>
<td>91</td>
<td>286</td>
<td>178</td>
<td>53</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>14.97</td>
<td>47.04</td>
<td>29.28</td>
<td>8.72</td>
<td></td>
</tr>
</tbody>
</table>

Results in Table 4.13 above show that none of the criterion received over 50% strong agreement. However, eight of the ten were considered agreeable and only two received over 50% disagreement.

Encouraging pupils to share knowledge was the most considered criterion with 57.59% of respondents agreeing that teachers who have had in-service teacher training encourage pupils to share knowledge followed by other criterion in descending order: pupils acquire proper education because they have acquired improved content, knowledge and skills (52.76%), pupils become socially upright (50%), pupils perform better in primary leaving examinations (49.17%), good teacher-pupil relationship (43.28%), pupils are better at decision making about their future (43.09%), pupils enjoying a variety of teaching methods (42.72%) and pupil performance in co-curricular activities (41.56%).

Number of pupils passing in division one received disagreement with 47.04% of respondents disagreeing that majority of learners taught by in-service trained teachers pass in division one at primary leaving examinations. Finally, results show that respondents expressed
disagreement (36.3%) and strong disagreement (24.26%) with the notion that knowledge acquired through in-service teacher training is less than that acquired through coaching.

In addition to the results, a number of respondents remarked that in-service trained teachers impart good morals and social skills in their students thus encouraging participation in social activities. Establishment of social clubs encourages interaction, sharing and co-operation that enhance teacher-pupil and pupil-pupil relationships. Further, in-service training provides teachers with improved approaches to co-curricular activities, which inspire the ability of learners to perform physically and improves participation rates. There is also a noted improvement in the level of competitiveness among learners, which motivates them to become high achievers.

It was also noted that by equipping teachers with a variety of teaching methods, guidance and counseling skills and improving their attitudes, in-service teacher training contributes to the ability of learners to grasp what is being taught. The training provides teachers with skills required towards preparation of learning aids and utilization of instructional materials. As such, the training leads to improved performance, effective teaching and improved quality of education.

4.4.3.1 Mann-Whitney test for effect of in-service teacher training on learners’ attainment of education by respondent’s status of in-service teacher training

The Mann Whitney test was used to test the null that in-service teacher training status of respondent had no significant effect on ranking of criteria for effect of in-service teacher training on learners’ attainment of education as shown in Table 4.14 below.

*Table 4.14: Mann-Whitney test for effect of in-service teacher training on learners’ attainment of education by respondent’s status of in-service teacher training*

<table>
<thead>
<tr>
<th>Mann-Whitney U</th>
<th>20664</th>
</tr>
</thead>
</table>

81
Wilcoxon W  |  25035  
Z       |  -2.160  
p-value |  0.031  

Results in Table 4.14 above suggest that teachers without in-service teacher training ranked “pupils taught by in-service trained teachers perform better in primary leaving examinations” less favorably than in-service trained teachers with p-values less than 0.05. Other criteria did not show significant difference.

4.4.4 In-service teacher training and number of pupils passing in division one at primary leaving examinations.

This section presents, by district, graphical representations of percentage of teachers who had in-service teacher training and pupils who passed in division one in the five years prior to the study (2011-2015).

Bushenyi:

*Figure 4. 1: A graph showing percentage of in-service trained teachers and percentage of students who passed in Division one from 2011-2015 in Bushenyi district*
Results in Figure above indicate that the percentage of in-service trained teachers followed a positive linear trend while the percentage of pupils passing in division one followed a polynomial trend (order three). This indicates fluctuations in number of pupils passing in division one.

**Sheema:**

Figure 4. 2: A graph showing percentage of in-service trained teachers and percentage of students who passed in Division one from 2011-2015 in Sheema district

Results in Figure above indicate that the percentage of in-service trained teachers followed a positive linear trend while the percentage of pupils passing in division one followed a negative polynomial trend (order two). This indicates negative fluctuations in percentage of pupils passing in division one.

**Rukungiri:**

Figure 4. 3: A graph showing percentage of in-service trained teachers and percentage of students who passed in Division one from 2011-2015 in Rukungiri district
Results in Figure above indicate that though the percentage of in-service trained teachers followed a positive linear trend, the percentage of pupils passing in division one followed a negative polynomial trend (order three).

**Summary:**

For all the three study districts, results show that percentage of teachers with in-service teacher training was increasing on a linear trend in the five years prior to the study. However, percentage of pupils passing in division one continued to fluctuate positively for Bushenyi and negatively for Sheema and Rukungiri districts. The results confirm that the number of in-service trained teachers alone is not enough to explain the percentage of pupils passing in division one which indicates that there are other factors that must be put into consideration to give a clear understanding of learners’ attainment of education. Further, the results show that there are other indicators of good pupil learning besides passing in division one at primary leaving examinations that must be understood to appreciate the effect of in-service teacher training on learners’ attainment of education.
4.4.5 Indicators of good pupil learning

Information was also sought about the indicators of good pupil learning. Results in Table 4.15 below indicate that most teachers (24.1%) judged good pupil learning based on the pupils’ ability to apply knowledge. 20.2% mentioned that pupil performance in school is directly related to pupil learning. Other indicators included the effectiveness with which pupils answered questions asked in class, how pupils related with their teachers, level of class participation and attentiveness among others.

Table 4.15: Indicators of good pupil learning

<table>
<thead>
<tr>
<th>Indicators of good pupil learning</th>
<th>Frequency (n)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to apply knowledge</td>
<td>294</td>
<td>24.1</td>
</tr>
<tr>
<td>Good performance</td>
<td>246</td>
<td>20.2</td>
</tr>
<tr>
<td>Effective answering</td>
<td>68</td>
<td>5.6</td>
</tr>
<tr>
<td>Discipline</td>
<td>53</td>
<td>4.3</td>
</tr>
<tr>
<td>Good pupil-teacher relationship</td>
<td>67</td>
<td>5.5</td>
</tr>
<tr>
<td>Participation</td>
<td>28</td>
<td>2.3</td>
</tr>
<tr>
<td>Critical thinking and reasoning in learners</td>
<td>18</td>
<td>1.5</td>
</tr>
<tr>
<td>Improved participation</td>
<td>17</td>
<td>1.4</td>
</tr>
<tr>
<td>Attentiveness</td>
<td>14</td>
<td>1.1</td>
</tr>
<tr>
<td>Improved interaction</td>
<td>12</td>
<td>1.0</td>
</tr>
<tr>
<td>Good use of instructional materials</td>
<td>12</td>
<td>1.0</td>
</tr>
<tr>
<td>Other</td>
<td>391</td>
<td>32.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,220</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Respondents were noted to attribute good pupil learning to in-service teacher training of their teacher. One head teacher noted that in the three years prior, all primary seven pupils in his school had passed in division one and two. He went on to add that all teachers of primary seven had attended in-service teacher training. Though he did not out rightly state that the passing of learners was due to the fact that the teachers had in-service teacher training, he seemed to hold a high regard for them as better teachers noting that he would not allocate pre-service teachers to teach primary seven (Field Interview No. 2).
Another head teacher did not completely agree with this notion stating that overall passing at primary leaving examinations is not an effort developed at primary seven but rather a combination of continued gathering of knowledge from primary one to primary seven. He noted that pupils’ performance could be improved if better teachers taught them right from the start. In his school, an average of 50% of the pupils pass primary leaving examinations in division one, an effort he attributes to their teachers who are both in-service and pre-service trained (Field Interview No. 3). Yet another head teacher added to the discussion expressing the difficulty in determining the percentage of pupils passing in division one and two attributable to in-service trained teachers. In his school, pupils were taught by teachers with different academic qualifications including pre-service trained teachers, senior six leavers as well as in-service trained teachers (Field Interview No. 1).

On a district level, a respondent in Sheema stated that primary seven classes were handled by teachers selected by head teachers based on the teachers’ abilities. In some schools, these also included privately employed teachers. He, however, added that though the majority of primary seven teachers had undergone in-service teacher training, performance at primary leaving examinations was still below expectation in the district with an average of 18.52% and 52% of pupils passing in division one and two respectively from 2011 to 2015 (Field Interview No. 6). Another respondent in the district noted that though the percentage of pupils passing in division one and two was higher (71%) in schools with more in-service trained teachers, there were other factors associated with passing at primary leaving examinations such as the nature of set examinations and the intelligent quotient of the learners (Field Interview No. 9).

Rukungiri district had through the years reported an even lower percentage of less than 50% of pupils passing in division one and two. According to one official in the district, the district had many qualified teachers who had undergone in-service teacher training. However, majority of these teachers preferred to teach in lower and middle classes leaving primary seven to be taught
by teachers who had not attended in-service teacher training (Field Interview No. 5). A head teacher in Sheema expressed his disappointment in such trained teachers whom he called lazy saying that they associated upper classes with a heavier workload (Field Interview No. 12). Another respondent in the same district observed that schools with more in-service trained teachers teaching primary seven had a slightly higher than average percentage of 60% of pupils passing in division one and two (Field Interview No. 8). He added that though the district was not lacking in in-service trained teachers, most of them showed a tendency to take on administrative duties and not teach at all.

Bushenyi district reported better performance compared to Rukungiri and Sheema. According to one official in the district, the majority of primary seven candidates pass in division one and two. He stated that the district had had an average of 66% of primary seven candidates passing in division one and two from 2011 to 2015. He attributed this relative success to the fact that majority of head teachers and teachers in the district have undergone in-service teacher training (Field Interview No. 4). Another official noted that schools that had primary seven teachers taught by teachers who had not undergone in-service teacher training realized a much lower average percentage of 54% pupils passing in division one and two. He concluded on the issue saying that the district had plans to further their efforts in advising even more teachers to undergo in-service teacher training to improve the overall performance (Field Interview No. 7).

4.4.6 Methods used by in-service trained teachers while teaching learners

The study results show that in-service teacher training introduces better and wider variety of teaching methods. One head teacher pointed out that in-service training equips teachers with knowledge, skills and better teaching methods that they then apply in improving the teaching-learning situation (Field Interview No. 1). An education officer noted that these skills lead to improved quality of education (Field Interview No. 8). Another head teacher expressed
agreement saying that after successful completion of the training course, teachers are better qualified to apply varied methods which ensure effective learning of all pupils (Field Interview No. 3).

Guided discovery, dramatization and brainstorming were some of the mentioned methods used by in-service trained teachers while teaching learners with respective proportions of 12.7%, 12.4% and 12.1%. Other methods included field trips, discussion and role-play as shown in Table 4.16 below.

Table 4.16: Methods used by in-service trained teachers while teaching learners

<table>
<thead>
<tr>
<th>Method</th>
<th>Frequency (n)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brainstorming</td>
<td>368</td>
<td>12.1</td>
</tr>
<tr>
<td>Experimentation</td>
<td>94</td>
<td>3.1</td>
</tr>
<tr>
<td>Dramatization</td>
<td>377</td>
<td>12.4</td>
</tr>
<tr>
<td>Discussion</td>
<td>166</td>
<td>5.4</td>
</tr>
<tr>
<td>Guided Discovery</td>
<td>387</td>
<td>12.7</td>
</tr>
<tr>
<td>Explanation</td>
<td>95</td>
<td>3.1</td>
</tr>
<tr>
<td>Field trips</td>
<td>172</td>
<td>5.6</td>
</tr>
<tr>
<td>Illustration</td>
<td>26</td>
<td>0.9</td>
</tr>
<tr>
<td>Role play</td>
<td>167</td>
<td>5.5</td>
</tr>
<tr>
<td>Talk and chalk</td>
<td>75</td>
<td>2.5</td>
</tr>
<tr>
<td>Lecture method</td>
<td>21</td>
<td>0.7</td>
</tr>
<tr>
<td>Group work</td>
<td>48</td>
<td>1.6</td>
</tr>
<tr>
<td>Other</td>
<td>1,054</td>
<td>34.6</td>
</tr>
</tbody>
</table>

4.4.7 Ways of assessing good pupil learning

Information on ways used by teachers to assess good pupil learning could provide guidance on the efficiency of evaluation methods used by teachers. 25.8% of teachers assess good pupil learning based on their ability to understand what is taught. 29.7% of teachers use written tests to assess pupils. Other methods used include testing co-curricular activity, performance at primary leaving examinations (PLE) as well as continuous assessment as shown in Table 4.17 below.
<table>
<thead>
<tr>
<th>Ways to assess good pupil learning</th>
<th>Frequency (n)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to understand what is taught</td>
<td>315</td>
<td>25.8</td>
</tr>
<tr>
<td>Written tests</td>
<td>362</td>
<td>29.7</td>
</tr>
<tr>
<td>Testing co-curricular activity</td>
<td>49</td>
<td>4.0</td>
</tr>
<tr>
<td>PLE performance</td>
<td>48</td>
<td>3.9</td>
</tr>
<tr>
<td>Continuous assessment</td>
<td>80</td>
<td>6.6</td>
</tr>
<tr>
<td>Evaluation of learners</td>
<td>68</td>
<td>5.6</td>
</tr>
<tr>
<td>Exercises</td>
<td>28</td>
<td>2.3</td>
</tr>
<tr>
<td>Participation in co-curricular activities</td>
<td>69</td>
<td>5.7</td>
</tr>
<tr>
<td>Examination</td>
<td>50</td>
<td>4.1</td>
</tr>
<tr>
<td>Following schemes and lesson plans</td>
<td>18</td>
<td>1.5</td>
</tr>
<tr>
<td>Oral testing</td>
<td>76</td>
<td>6.2</td>
</tr>
<tr>
<td>Time management</td>
<td>14</td>
<td>1.1</td>
</tr>
<tr>
<td>Practical exercise</td>
<td>14</td>
<td>1.1</td>
</tr>
<tr>
<td>Other</td>
<td>29</td>
<td>2.4</td>
</tr>
</tbody>
</table>

4.5 Process by which in-service teacher training is designed and delivered

This section presents a description of the general process by which in-service teacher training is designed and delivered followed by a subsection on the selection of teachers (eligibility) for in-service teacher training.

The section presents results on the process of designing and delivering in-service training based on ten criteria ranked by respondents (teachers, tutors, head teachers, District Education Officers and District Inspectors of Schools) on a four point likert scale from strongly agree to agree, disagree and strongly disagree. The criteria included; selection according to the needs of the school, briefing on the schools’ expectation before starting the training, pre-training program evaluation or cost benefit comparisons of various methods of achieving changes before the training, making initial decisions about the expected levels of pupils effectiveness, support from head teachers to remove obstacles and enable teachers attend in-service teacher training, recruitment of correct candidates that meet preset requirements, variety of
opportunities and needed skills considered before training, selection according to school mission and vision, completion of training course and existence of a model followed in training.

**Reliability test**

A reliability test was carried out using the Cronbach’s alpha test to measure reliability of the scale with respect to the variables selected. Results indicated an alpha of 0.834, which indicates that the scale had good reliability and consistently evaluated procedure followed in designing and delivering in-service teacher training. The test further showed that removal of any of the variables reduced the Cronbach’s alpha, which is an indicator that there was no redundancy and the variables were well defined. Table 4.18 below shows respondents’ ranking of criteria of procedures followed in designing and delivering in-service teacher training.

### Table 4.18: The process by which in-service teacher training is designed and delivered

<table>
<thead>
<tr>
<th>Process of designing and delivering in-service teacher training</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Teachers for in-service teacher training are selected according to the needs of the school</td>
<td>203 33.72</td>
<td>262 43.52</td>
<td>98 16.28</td>
<td>39 6.48</td>
<td>2</td>
</tr>
<tr>
<td>ii. Teachers for in-service teacher training are briefed on the schools expectation before starting the training</td>
<td>137 22.68</td>
<td>226 37.42</td>
<td>186 30.79</td>
<td>55 9.11</td>
<td>2</td>
</tr>
<tr>
<td>iii. Pre-training program evaluation or cost benefit comparisons of various methods of achieving changes are always done before the training</td>
<td>128 21.33</td>
<td>298 49.67</td>
<td>141 23.50</td>
<td>33 5.50</td>
<td>2</td>
</tr>
<tr>
<td>iv. In-service teacher training process starts with a decision about the expected levels of pupils effectiveness in academics, decision making, co-curricular activities</td>
<td>116</td>
<td>249</td>
<td>194</td>
<td>49</td>
<td>2</td>
</tr>
</tbody>
</table>
Considering the median values, majority of respondents disagreed with eight of the criteria and agreed with only two of the criteria of procedures followed in designing and delivering in-service teacher training.

47.34% of respondents agree that in-service teacher training starts from recruiting the correct candidates that meets the needs that are current and allow for future growth potential followed by head teachers finding effective ways to support their staff to remove obstacles and help them study (45.54%).

On the other hand, 51.82% of respondents disagreed to the notion that all teachers recruited for in-service teacher training complete the course followed by other criteria, in descending order; pre-training program evaluation or cost benefit comparisons of various methods of achieving changes are always done before the training (49.67%), teachers for in-service teacher training are selected according to the needs of the school (43.52%), in-service teacher training process starts with a decision about the expected levels of pupils effectiveness in academics, decision making, co-curricular activities (40.95%), school mission and vision are considered while

<table>
<thead>
<tr>
<th>Process of designing and delivering in-service teacher training</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>v. Head teachers find effective ways to support their staff to remove obstacles and help them to study, that is, there is a training cycle that is followed</td>
<td>19.08</td>
<td>40.95</td>
<td>31.91</td>
<td>8.06</td>
<td>3</td>
</tr>
<tr>
<td>vi. In-service teacher training starts from recruiting the correct candidates that meets the needs that are current and allow for future growth potential</td>
<td>13.86</td>
<td>24.92</td>
<td>45.54</td>
<td>15.68</td>
<td>3</td>
</tr>
<tr>
<td>vii. A variety of opportunities and needed skills are considered before in-service teacher training is conducted</td>
<td>111</td>
<td>206</td>
<td>219</td>
<td>72</td>
<td>2</td>
</tr>
<tr>
<td>viii. School mission and vision are considered while selecting teachers for in-service teacher training</td>
<td>118.26</td>
<td>33.88</td>
<td>36.02</td>
<td>11.84</td>
<td>2</td>
</tr>
<tr>
<td>ix. All teachers recruited for in-service teacher training complete the course</td>
<td>28.48</td>
<td>51.82</td>
<td>13.41</td>
<td>6.29</td>
<td>2</td>
</tr>
<tr>
<td>x. There is a model in place that schools follow when selecting teachers for in-service teacher training</td>
<td>31.79</td>
<td>38.74</td>
<td>22.52</td>
<td>6.95</td>
<td>2</td>
</tr>
</tbody>
</table>
selecting teachers for in-service teacher training (40.26%), there is a model in place that schools follow when selecting teachers for in-service teacher training (38.74%), teachers for in-service teacher training are briefed on the schools expectation before starting the training (37.42%) and a variety of opportunities and needed skills are considered before in-service teacher training is conducted (33.88%).

4.5.1 Mann-Whitney test for process of designing and delivering in-service teacher training by status of in-service teacher training of respondent

The Mann Whitney test was used to test the null that in-service teacher training status of respondent had no significant effect on their ranking of the process of designing and delivering in-service teacher training as shown in Table 4.19 below.

Table 4.19: Mann-Whitney test for process of designing and delivering in-service teacher training by status of in-service teacher training of respondent

<table>
<thead>
<tr>
<th>Teachers are briefed on the schools expectation before starting in-service teacher training</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U</td>
<td>20732.5</td>
</tr>
<tr>
<td>Wilcoxon W</td>
<td>25103.5</td>
</tr>
<tr>
<td>Z</td>
<td>-2.056</td>
</tr>
<tr>
<td>p-value</td>
<td>0.040</td>
</tr>
</tbody>
</table>

Results in Table 4.19 above suggest that teachers without in-service training ranked “teachers for in-service teacher training are briefed on the schools expectation before starting the training” less favorably than in-service trained teachers with p-values less than 0.05. Other criteria did not show significant difference.

4.5.1 Selection of teachers for in-service teacher training

When asked how teachers are selected for in-service teacher training, 51.5% of respondents said that selection was based on academic qualifications while 18.7% of respondents said it was through an application process. 12.3 % said it was based on individual interests of the applicant. Further results are shown in Table 4.20 below
Table 4. 20: Selection of teachers for in-service teacher training

<table>
<thead>
<tr>
<th>Criteria for selection of teachers for in-service teacher training</th>
<th>Frequency (n)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic qualification</td>
<td>314</td>
<td>51.5</td>
</tr>
<tr>
<td>Through an application process</td>
<td>114</td>
<td>18.7</td>
</tr>
<tr>
<td>Performance of teacher at their job</td>
<td>13</td>
<td>2.1</td>
</tr>
<tr>
<td>Institutional requirements</td>
<td>18</td>
<td>3.0</td>
</tr>
<tr>
<td>Individual decision</td>
<td>75</td>
<td>12.3</td>
</tr>
<tr>
<td>Peer motivation</td>
<td>4</td>
<td>0.7</td>
</tr>
<tr>
<td>Recommendation by supervisors</td>
<td>12</td>
<td>2.0</td>
</tr>
<tr>
<td>Financial ability of applicant</td>
<td>16</td>
<td>2.6</td>
</tr>
<tr>
<td>Other</td>
<td>44</td>
<td>7.2</td>
</tr>
</tbody>
</table>

It was general consensus that selection of teachers for in-service teacher training is a highly personal initiative and administrative or other support offered to teachers towards the training was out of good will than an initiative of the Ministry of Education and Sports.

An official in Bushenyi and another in Sheema noted that there was no specific format of selection of trainees and interested teachers just had to apply to the universities or institutions of their choice (Field Interview No. 4 and Field Interview No. 6). In Rukungiri and Sheema, officers in the education department reported that though officials in the department advise grade III teachers to upgrade their professional qualifications, the department does not participate in the selection of teachers for in-service training (Field Interview No. 5 and Field Interview No. 9).

A head teacher in Bushenyi who had previously participated in in-service teacher training said that there was no straightforward system (Field Interview No. 1). He noted that interested teachers write an application and forward it, through him, to the academic institution of their choice for consideration. Education officers in Bushenyi and Rukungiri also reported that though they were not involved in selection of teachers for in-service training, their offices were tasked with signing and forwarding teachers’ application forms (Field Interview No. 7 and Field Interview No. 8). Another head teacher in Sheema supported this sentiment saying that his only contribution to the process was his signature on the applicants application form (Field
Interview No. 3). A head teacher in Rukungiri district had a different system where his school, through the school management committee sponsored one teacher at a time to participate in the training. He added that other teachers who wanted to go for in-service teacher training at the same time had to sponsor themselves (Field Interview No. 2). Another school head in Bushenyi stated that with permission from the school management committee, the school supports teachers participating in the training by giving them scholastic materials such as manila papers and markers during school practice (Field Interview No. 10). In another school in Rukungiri, the Parents Teachers Association (PTA) facilitates teachers in training by paying them a stipend for the service they render to the school (Field Interview No. 11). Generally, support given to teachers to undergo in-service teacher training is minimal depending on the school where the teachers works. One head teacher in Sheema for example said that his school did not offer any financial support but rather he took upon himself the initiative of offering emotional guidance to teachers undergoing in-service training by encouraging them to complete the course (Field Interview No. 12).

Some key informants in the education offices of the three districts all agreed in saying that their responsibility is to sensitize teachers on the benefits of higher academic qualification and encouraging them to complete the course once started if they are to achieve professional growth (Field Interview No. 13, Field Interview No. 15, Field Interview No. 18, Field Interview No. 14, Field Interview No. 17 and Field Interview No. 16).

4.6.2 Reasons why not all in-service trained teachers provide good education

Though in-service teacher training has been praised for enabling teachers to provide good education, it was also noted that not all in-service trained teachers provide good education as discussed in the subsequent section.

Most head teachers expressed disappointment in professional discipline and the ability of in-service trained teachers to yield to leadership. One head teacher noted that when teachers
upgrade to the same level of qualification, they become undisciplined (Field Interview No. 1). This train of thought was further supported by two officials in Rukungiri who both observed indiscipline cases among in-service trained teachers mostly in cases where the teachers became more qualified or equally as qualified as their head teachers (Field Interview No. 5 and Field Interview No. 8). Some indiscipline cases, as observed by one head teacher, involve in-service trained teachers refusing to teach infant classes which they initially taught before the training (Field Interview No. 9). This was attributed to the introduction of thematic curriculum, which emphasizes teaching infants in vernacular. ‘However, in-service trained teachers often show resentment towards this method with a preference to use the English language in teaching,’ he added. Another head teacher contributed to the arguments saying that in some instances, an unhealthy competition and in others disrespect for authority have been instigated between teachers and their supervisors (Field Interview No. 6).

Another school head teacher observed that most teachers would, after the training, demand immediate promotion (Field Interview No. 4) and salary increment and when not granted, they ‘simply become stubborn and indisciplined’ (Field Interview No. 3). An official in one education department said that after getting better qualifications, teachers feel that they should be promoted on the job even when vacant positions are not available at the moment (Field Interview No. 7). One head teacher expressed similar sentiments saying that in-service trained teachers develop a superiority complex and often overlook other teachers especially those without training (Field Interview No. 2). This resentment was often aggravated when trained and untrained teachers still earn the same salary.

A district official expressed that after in-service teacher training, most teachers start a pursuit of transition from classroom work to school administration (Field Interview No. 18). Accordingly, this stifles the fulfillment of professional ethics such as preparation of schemes of work and lesson plans, which renders in-service trained teachers inefficient. Another officer
in Bushenyi seemed to agree saying that in-service trained teachers, after graduation, tend to abandon actual teaching in preference for administrative positions (Field Interview No. 16).

Considering the general study sample, majority respondents, however did not agree with the sentiments expressed by the key informants as indicated by the results summarized in Table 4.26 below which indicate that alcoholism among primary teachers was the biggest challenge stifling efficiency of in-service trained teachers in providing good education as mentioned by 31.4% of respondents. 18% of teachers mentioned that most teachers are inefficient because of negligence while 9.2% say that some teachers joined the career with wrong motives.

Some key informants expressed disappointment in the education system stating that it seems in-service teacher training is not a priority for the education ministry and teachers have to take individual initiatives to pursue the course. One official pointed out that teachers were not given time off to participate in the training and often found themselves in a time fix when they had to teach and study (Field Interview No. 14). He explained that the two programmes were done concurrently which left teachers no time to complete the syllabus. One head teacher added that in-service trained teachers at times used classroom time to attend to their studies, hold discussions, answer assignments and so on leaving them little time to stick to actual teaching (Field Interview No. 15). Another head teacher pointed out that when he was attending the training some years prior to the study, he always found himself stuck with duties to perform such as preparing schemes of work, eight lesson plans per day and general school administration yet he had to study as well (Field Interview No. 10). According to him, the pressure to perform both responsibilities was overbearing and he always found himself underperforming at one of them.

One previous trainee said that his biggest challenge was the financial burden of paying for the course that left him with no option but to work part-time jobs in order to earn extra income to meet the needs of the course (Field Interview No. 12).
Some respondents questioned the ministry of education on the way in-service training is organized. One official noted that teachers are, during the training, exposed to many innovations. However, when they go back to their schools, they do not practice what they have been taught because it does not blend into the stipulated school syllabus. This interface in the application of acquired knowledge stifles the morale of trained teachers who cannot realize the impact of their training (Field Interview No. 17). A head teacher in the same district contributed to the discussion saying that the ministry imposes many changes in the syllabus which teachers must implement despite the fact that they are not sensitized on proper application procedures (Field Interview No. 11). Another official in the education department added that in-service teacher training is designed on a syllabus that is not consistent with the one available in schools and nothing has been done to enhance coherence (Field Interview No. 13).

These sentiments all point to a weakness within the education sector in Uganda in failing to harmonize its policies to benefit both teachers and learners. As such, majority teachers have pursued in-service teacher training not to improve their teaching abilities and learners’ attainment of education but rather for promotion purposes and to qualify for salary increment. Other challenges include lack of motivation and supervision, absenteeism, laziness, short training period and incompetence among others as shown in Table 4.21 below.

<table>
<thead>
<tr>
<th>Reasons why not all in-service trained teachers provide good education</th>
<th>Frequency (n)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcoholism</td>
<td>383</td>
<td>31.4</td>
</tr>
<tr>
<td>Wrong Motive</td>
<td>112</td>
<td>9.2</td>
</tr>
<tr>
<td>Lack of motivation and supervision</td>
<td>74</td>
<td>6.1</td>
</tr>
<tr>
<td>Absenteeism</td>
<td>32</td>
<td>2.6</td>
</tr>
<tr>
<td>Wrong career path</td>
<td>31</td>
<td>2.5</td>
</tr>
<tr>
<td>Lack of interest</td>
<td>29</td>
<td>2.4</td>
</tr>
<tr>
<td>Lazy teachers</td>
<td>59</td>
<td>4.8</td>
</tr>
<tr>
<td>Poor accommodation</td>
<td>24</td>
<td>2.0</td>
</tr>
<tr>
<td>Incompetence of teachers</td>
<td>82</td>
<td>6.7</td>
</tr>
<tr>
<td>Negligence</td>
<td>219</td>
<td>18.0</td>
</tr>
<tr>
<td>-------------------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Short training period</td>
<td>18</td>
<td>1.5</td>
</tr>
<tr>
<td>Intellectual differences</td>
<td>16</td>
<td>1.3</td>
</tr>
<tr>
<td>Poor training environment</td>
<td>16</td>
<td>1.3</td>
</tr>
<tr>
<td>Other</td>
<td>125</td>
<td>10.2</td>
</tr>
</tbody>
</table>

Though it has been reported that primary seven teachers taught through in-service teacher training teach better than those trained through pre-service, the difference in learners’ attainment still remains to be proved. One head teacher stated that in-service teacher training equips teachers with knowledge and skills which, if the teacher takes pleasure in his/her job, might lead to better learners’ performance (Field Interview No. 10 and Field Interview No. 15). Another head teacher in Rukungiri and another in Bushenyi both disagreed stating that it is not all about the love for the profession but also the teachers’ ability even before the training that enables them perform better (Field Interview No. 11 and Field Interview No. 16). ‘In terms of gained knowledge and skills, they (in-service trained teachers) are better but in general performance, those who were good before the training become better and those who were not remain poor performers’ said one district inspector of schools (Field Interview No. 13). One education officer noted that the teaching profession ‘is a gift from God’ and upgrading through in-service teacher training may not necessarily lead to a teacher becoming better (Field Interview No. 16). Another education department worker added to the discussion saying that even professional ethics of the teachers as well as intelligence capacity of learners and the learning-teaching situation had big roles to play in learners’ performance besides qualification of their teachers (Field Interview No. 17). Another concluded the argument saying that for one to make rightful conclusions on the effect of in-service teacher training on learners’ performance, all other ‘confounding factors’ must be held constant (Field Interview No. 18).

Another challenge that has not been addressed by in-service teacher training is the fact that before the training, a teacher is in position to teach all subjects in primary schools. However, after the training, they are expected to specialize in the two subjects they studied in the training.
According to one district inspector, this presents a challenge that might leave primary seven pupils being taught by teachers who are not in-service trained because the in-service trained ones could not teach the specific subjects that were lacking due to the specialization approach used during in-service teacher training (Field Interview No. 14).

It was also widely reported that not all teachers who register for in-service teacher training complete the course. According to one head teacher, this is usually due to family problems and financial constraints (Field Interview No. 1). ‘Most teachers fail to raise the funds to complete the course because they have other family responsibilities. They are required to raise tuition fees at the same time they are trying to raise school fees for their children,’ added another head teacher (Field Interview No. 2).

An official in the education department noted that there are other constraints such as sickness and lack of interest and morale that might force teachers to not finish the course (Field Interview No. 4 and Field Interview No. 3). One inspector added that some teachers get demotivated when they learn that completing the course is not a guarantee for them to join higher paying administrative jobs (Field Interview No. 5). In fact, some teachers are demoralized by cases of other in-service trained teachers who completed before them but did not receive promotion or better working conditions (Field Interview No. 9).

In some cases such as the one reported by an official in Sheema (Field Interview No. 6), some teachers are unable to concentrate on purely academic subjects, some fail to get the right subject combinations while others are limited by age restrictions bearing in mind that they have to retire at 60 years. This was similar to cases in Bushenyi and Rukungiri where it was reported that some teachers fail to complete the training course because there are no tailored courses or subject combinations for those purely interested in administrative positions (Field Interview No. 7 and Field Interview No. 8).
4.6.3 How to solve the issues mentioned

The study further sought information on the remedies to solve the challenges faced by in-service trained teachers in providing good education.

Majority of the respondents expressed that the government still has a lot of work to do to harmonize in-service teacher training with realistic education needs in their schools of work. According to one district education officer, the ministry should establish a systematic process of selecting teachers for in-service teacher training so that teachers are sent to study based on what is expected of them (Field Interview No. 18). The officer added that however, when teachers acquire extra qualification, they prefer school administration and abandon teaching, an issue that would be avoided. A previous trainee agreed saying that teachers should be sensitized about future expectations, that is, to upgrade their professional qualifications in order to become better teachers rather than maintaining the thinking of in-service teacher training as an initiation into school administration (Field Interview No. 12). One inspector, however, saw no wrong in teachers harboring administrative dreams and advised that universities and institutions that conduct in-service teacher training should, instead of concentrating only on teaching subjects, incorporate administrative issues into the training courses to equip teachers with required administrative skills (Field Interview No. 15). Another administrator agreed with the notion saying that in-service trained teachers should be trained on both academic subjects and required professional ethics for general administration to enable them to work with ease both in the classroom and school administration (Field Interview No. 17). He argued that teachers should be trained to multitask at both class and administrative tasks instead of only focusing on one. A school administrator in Rukungiri noted that to manage this system efficiently, the government should conduct constant in-service teacher training in form of regular workshops and seminars to keep teachers abreast of changing teaching and administrative methodologies.
Another official expressed concern about the time allocated for in-service teacher training. An education officer noted that the district works with a delineated staff ceiling, which leaves them with no option but to post teachers according to enrollment. According to him, this leaves classes with no teachers during sessions of in-service teacher training. With this in mind, he suggested that government should allow districts to recruit more teachers basing on a specified percentage to cater for gaps left by cases such as in-service teachers and terminally ill teachers among others (Field Interview No. 16). Another official in the same department suggested that government should increase its flexibility on district staff ceilings to enable the education department cater for teachers on training to allow continuity of the teaching-learning situation (Field Interview No. 13). A school head in Bushenyi noted that the ministry should post extra teachers to care-take classes of teachers participating in the training to enable the later concentrate on the training (Field Interview No. 10). One inspector agreed noting that teachers should be given ample study leave and other teachers allocated their class load in their absence (Field Interview No. 14).

A head teacher suggested that in-service teacher training should encourage teachers to teach all classes, that is primary one to primary seven (Field Interview No. 3). An education officer in the same district suggested that all teachers, regardless of what classes they teach, should be considered for promotion (Field Interview No. 9) a sentiment that an inspector in the same district disagrees with. The later insists that promotions should only be afforded depending on level of professionalism and availability of vacancies (Field Interview No. 6). A head teacher in Rukungiri noted that only teachers with better qualifications should be considered for promotion (Field Interview No. 2). He suggested that not all in-service trained teachers become better teachers after the training and some do not get a firm grasp of acquired knowledge. One school leader in Bushenyi district insisted that teachers should be transferred after their training. An education officer added to the discussion saying that, “In-service trained teachers
must follow the normal procedures towards promotions, that is, through application after vacancies have been advertised by the District Service Commission” (Field Interview No. 6). ‘They should be treated like other teachers,’ asserted one inspector (Field Interview No. 4).

The findings from the key informant interviews seem to be stuck in a ditch of controversy with school heads insisting on measures to avoid neck-neck confrontation and competition such as transfer of teachers or measures to ‘put them in their place’ with trained teachers while education department officials are open to offering promotion where it is due and vacancies available.

On discipline of teachers, an inspector and an education officer in one district suggested that undisciplined teachers follow the professional code of conduct or they be forced to face disciplinary action (Field Interview No. 5 and Field Interview No. 8).

General results reveal that 37% of teachers suggested refresher courses to improve efficiency of in-service trained teachers in providing good education. 11.9% of respondents suggested that study leaves be given to teachers while 9.3% suggested more regular teacher training. The study registered a very high discrepancy between mentioned problems and suggested remedies. Also noted is that most of the respondents did not suggest resolution measures for the highest rated hindrances to teacher performance such as alcoholism and negligence. This presents a challenge for policy and the education sector to define measures towards curbing the vices deterring teacher performance.

Other suggested remedies as shown in Table 4.22 include proper teacher-to-class allocation based on teacher’s ability, provision of rewards, improved learning environment and career guidance among others.

Table 4.22: Remedies to mentioned issues

<table>
<thead>
<tr>
<th>Solutions</th>
<th>Frequency (n)</th>
<th>Percent (%)</th>
</tr>
</thead>
</table>

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CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a discussion of findings, conclusions, practical implications of the study findings and recommendations for administrative, policy actions and further research.

The study was aimed at finding out the effect of in-service teacher training on learners’ attainment of education in Western Uganda using the case of Bushenyi, Sheema and Rukungiri districts. Data was collected using questionnaires and key informant interviews. The study population included primary seven pupils, primary school teachers, head teachers, tutors, District Inspectors of Schools (DISs) and District Education Officers (DEOs) in the study areas. The study sample consisted of 332 pupils, 610 education stakeholders including teachers, tutors, head teachers, DISs and DEOs.
5.2 Discussion

The study findings show that teachers with a diploma or a bachelors or postgraduate degree were more likely to have in-service teacher training than teachers with Grade III qualification. This was expected seeing as grade III is the current minimum required qualification for in-service teacher training in Uganda. Findings also show that teachers with 1-5 years teaching experience were more likely to have in-service teacher training than those with 6-10 years. This could be due to the increasing efforts by the Ugandan government in the last five years towards encouraging teachers to start in-service teacher training immediately after recruitment.

On age, findings show that older persons were less likely to have in-service teacher training. In fact, the rate of in-service trained teachers reduced with increase in age. This is also due to the fact that in-service teacher training is a recent intervention and older teachers use their nearing retirement age as an excuse not to train. Finally, the study shows that teachers in Bushenyi were more likely to have in-service training than those in Rukungiri and Sheema districts.

The following section presents a discussion of the findings categorized along the defined research questions. It also includes a proposed model for in-service teacher training prepared by the researcher based on the study findings.

5.2.1 Effect of in-service teacher training on teachers

The study findings reveal that in-service teacher training had its largest influence on upgrading teachers’ academic qualifications. This finding concurs with Mbiti’s (1990) which pointed out the role played by in-service teacher training in upgrading teachers’ education which in turn enables teachers rectify the faults, superficiality, duplication and irrelevance of classroom settings in relation to real life society. Further, findings show that in-service teacher training enables teachers to pursue promotion opportunities in support to Morrison’s (1993) findings.
that teachers train to upgrade and qualify for higher positions. In the Uganda school system, one must have acquired a degree in education to qualify as a head teacher.

By enabling teachers upgrade their academic qualifications and improving their attitude towards their job, in-service teacher training instigates a reform in the education system. In line with Morrison’s (1993) and Hersey and Blanchard’s (1998) findings that in-service trained teachers acquire higher qualifications, which provide opportunity for academic development in the field of education.

The study also shows that in-service teacher training plays a big role in equipping, broadening and deepening teachers’ knowledge and skills which in turn fosters an increase in teachers’ competence, reliability and responsibility. This finding is in line with Kajubi’s (1989) conclusion that in-service teacher training increases teachers’ competence and produces highly motivated and efficient teachers with a deep reverence for their work. Further, the study shows that by motivating teachers on their job, in-service teacher training instigates a change in teachers’ behavior, attitudes and capabilities all focused on cultivating professional etiquette required to perform adequately. This resonates with conclusions arrived at by Hersey and Blanchard (1988), Ololube (2005) and Junaid and Maka (2015) that in-service teacher training enhances professional and personal development of teachers.

The study findings show that in-service teacher training significantly affects teachers’ professional ethics. Results show that in-service trained teachers are more likely to exhibit professional discipline, co-operate with the staff, effectively carry out their teaching tasks, make schemes of work, make lesson plans, teach remedial lessons, keep time, manage co-curricular activities, efficiently control their classes during teaching and learning, efficiently utilize instructional materials, give homework, mark pupils’ books, assess pupils’ work and mark pupils’ registers.
In-service teacher training also showed a significant influence on teachers’ ability with trained teachers displaying a good command of their academic subjects and an ability to meet the needs of learners. The findings reveal that in-service teacher training enables teacher to master the content, which not only increases their performance and level of professionalism but also enables them to provide quality education to learners. The extent of influence of in-service trained teachers on the learners’ attainment of education is however dependent on a number of other confounding factors such as the teachers’ level of interest, commitment and needs (Glickman, 1990).

Furthermore, findings show that in-service teacher training enables teachers to play a key role in the proper implementation of various education policies and programs. The training is also associated with equipping head teachers and teachers alike with administrative skills.

Another finding showed that in-service teacher training enables teachers to ensure good pupil-teacher relationship. This makes the learning environment more conducive which improves the teaching-learning situation. This finding is in line with Baker et al. (2008) who reported that positive teacher-student relationship enables students to feel safe and secure in their learning environment and provides avenues for transference of important social and academic skills.

Finally, the study findings reveal that there are other conditions that enable in-service trained teacher to teach effectively including availability of sufficient scholastic materials, presence of a conducive learning environment, acquired knowledge, appropriate skills and techniques, availability of incentives and conducive teachers’ accommodation. At the same time, there are social factors that might hinder in-service trained teachers from providing good education such as alcoholism, lack of motivation and supervision, absenteeism, laziness, short training period and incompetence among others.

5.2.2 Effect of in-service teacher training on learners’ attainment of education
Findings show that in-service trained teachers are more likely to be considered better teachers by learners. Learners presented a high level of controversy. The study findings reveal that learners considered a teacher who did not give them daily homework to be better than those who did. However, in-service trained teachers had a higher likelihood to give daily homework than untrained teachers. Findings also show that learners preferred in-service trained teachers because they were the most likely to allow them time for games and other co-curricular activities. This confirms the finding that in-service trained teachers are more likely to use better and variety of methods when teaching pupils. Morrison (1993) in his study in the USA observed that the use of better methods of teaching led to increased enrolment.

With further regard to methods, the study findings show that in-service teacher training introduces better and wider variety of teaching methods including but not limited to guided discovery, dramatization, brainstorming, field trips, discussion and role-play. Additionally, teachers employ the new knowledge and skills imparted by in-service teacher training during teaching, which contributes to the ability of learners to attain education and leads to improved performance, effective teaching and improved quality of education. This finding concurs with that of Cooper (2004) who noted that in-service teacher training leads to the building of knowledge, skills and attitudes among teachers that lead to improved learners’ outcomes.

The study also reveals that in-service trained teachers have a higher likelihood of improving social uprightness of pupils. In-service trained teachers are more likely to impart good morals and social skills in learners, encourage participation in social activities and aid development of better teacher-pupil and pupil-pupil relationships. This leads to building a good classroom environment which concurs with Kajubi (1989) findings which revealed that in-service teacher training, if well designed, equips teachers with the ability and techniques to greatly improve classroom environment which, in turn improves effectiveness of the learning process.
The study findings further show that in-service teacher training plays an important role in improving co-operation and networking between teachers and education service personnel as well as equipping them with the skill to promote co-operation with and amongst pupils. This finding concurs with Wentzel (1991) finding that children taught by in-service trained teachers socialize easily with their teachers as well as with fellow pupils. This enables classroom interaction and knowledge exchange, which fuel academic achievement.

The findings show that pupils taught by in-service trained teachers are more likely to perform better in primary leaving examinations. This resonates with Khan (2003) conclusion that students taught by in-service trained teachers achieve higher scores than those taught by other teachers.

Findings also show that in-service trained teachers have a higher likelihood to encourage their pupils to perform in co-curricular activities. In-service teacher training equips teachers with improved approaches to co-curricular activities, which result in increased participation and competition among learners. Further, pupils taught by in-service trained teachers are more likely to make better decisions about their future than those taught by non in-service trained teachers. These findings are in line with those of Bameka (1996), Mahmood (1999) and Khan (2007) which show that learners taught by in-service trained teachers develop the ability to overcome difficulties, become familiar with hard work and acquire the habits of independent work.

However, other findings reveal that not all in-service trained teachers provide the necessary teaching-learning requirements. This is in line with Kajubi (1989) who observed that after teachers have attained higher qualifications and are not promoted, they become stubborn and undisciplined and thus do not conduct the teaching-learning situation effectively. Therefore, for in-service teacher training to be beneficial to the education system, teachers should be
provided with incentives such as increased remuneration and promotional opportunities, which in turn increase their motivation and efficiency. Other findings as reflected in Table 4.24 indicate that some in-service trained teachers lack interest in their job, are lazy and thus incompetent. These negative findings can be solved by providing avenues to motivate teachers to pursue in-service training.

Findings also show that pupils taught by in-service trained teachers are more likely to acquire proper education because they acquire improved content, knowledge and skills. Further, in-service trained teachers are more likely to encourage pupils to share knowledge. This shows that in-service teacher training leads to improvement in learners’ attainment of education, which in turn improves performance at primary leaving examination. This is in line with Zaman (2004), Mahmood (1999) and Ololube (2005) who observed that teacher development is fundamental to the quality of the education system and thus demands immediate, careful and continued attention to ensure its maintenance and sustainability.

Also found out was that learners taught by in-service trained teachers are good at using instructional materials. This enhances their learning as manifested by their good results at primary leaving examinations. This finding concurs with Morrison (1993) whose study showed that in-service trained teachers equip learners with skills to use innovations such as scientific audiovisual aids during the learning situation.

5.2.3 Process of designing and delivering in-service teacher training

Findings show that though the choice to undergo in-service teacher training is guided by individual interests, teachers are selected for the training through an application process based on their academic qualifications. The study shows that in-service teacher training starts with the recruitment of the correct candidates that meet the needs that are current and allow for future growth potential.
Findings reveal that teachers for in-service teacher training are not selected according to the needs of the school. This is contrary to Cross (1981) proposition that a complete training needs assessment should be done prior to any training process. Furthermore, findings show that there is no model in place that schools follow when selecting teachers for in-service teacher training. This implies that teachers join in-service teacher training based on their own volition. This finding contradicts Bramley (1991) and Goldstein (1989) who pointed out that changing the performance of people on the job advocates the increased effectiveness model planned at the organization rather than individual level.

This study shows that selected teachers are not briefed on the school’s expectation and a variety of opportunities and needed skills are not considered before starting the training. This finding disregards Mbiti (1990) proposal that teacher training must be based on an understanding of the underlying defects in the present education system. It further contradicts Goldstein (1989) recommendation that job analysis should show an outline of job specifications and requirements. The study findings also show that pre-training program evaluation or cost benefit comparisons of various methods of achieving changes are not always done before the training. These present a challenge to the realization of the training’s objectives.

The study findings further show that head teachers often find effective ways to support their staff to remove obstacles and help them undergo in-service teacher training. It seems that head teachers, more than officials in higher hierarchies in the education sector, appreciate the benefits of having in-service trained teachers in their schools. This is in line with Maicibi (2007) conclusion that maximum results are yielded when managers find effective ways to support their staff by removing obstacles that could be holding them back.

Findings also show that the in-service teacher training process does not start with a briefing on the expected level of effectiveness of teachers in guiding learners in academics, decision-making and co-curricular activities. However, findings reveal that not all teachers recruited for
in-service training complete the course. This finding is in disagreement with Goldstein (1989) recommendation that the process of in-service teacher training should include a list of targets and standards for judging satisfactory performance. Further findings reveal that the school mission and vision are not considered while selecting teachers for in-service teacher training. This implies that the needs of the schools are not considered given the fact that teachers solely make the choice to go for in-service training. This contradicts Morgan (1996) whose findings showed that re-examination and confirmation of what the organization stands for in terms of coherence between vision, mission, identity and roles in society give the organization overall direction and maximizes impact on the society.

It was also found out that in-service teacher training starts from recruiting the correct candidates (Table 4.18). This implies that teachers apply for the training and only those with the required qualities in terms of academic qualification and experience among others are selected. This finding is in line with the conclusion by Armstrong (1997) that the training process is a systematic one planned using a systems approach going from step to step in a logical fashion.

5.3 Conclusions

The study revealed that qualification, age and number of years of service were significantly associated with status of in-service teacher training. More specifically, teachers with diplomas, bachelors or postgraduate degrees had a higher likelihood to have in-service teacher training than Grade III teachers. Younger teachers also had a higher chance of having in-service teacher training than their older colleagues. Further, teachers with 1-5 years of service had a higher likelihood to have in-service teacher training than those with 6-10 years. The latter two could be related to the fact that in-service teacher training is a recent intervention and younger persons are more motivated to partake in professional development. Finally, teachers in Rukungiri
district had a significantly lower likelihood to have in-service teacher training than teachers in Bushenyi and Sheema.

In relation to the research objectives, the study revealed that in-service teacher training was generally effective in improving teachers’ effectiveness as well as learners’ attainment of education.

Objective one sought to assess the effect of in-service teacher training on teachers. Findings show that in-service teacher training had significant effect on upgrading teachers’ qualification and professional conduct with varying degrees. The training also equips teachers with new skills and broadens and deepens their knowledge thereby increasing their competence, reliability and responsibility. In-service teacher training is also associated with motivating teachers on their job, enabling teachers have a good command of their academic subjects and ably meet the needs of learners, enabling teachers mastering the content and provide quality education to learners. Furthermore, the training equips teachers with skills that enable them to play a key role in the proper implementation of various education policies and programs and as such improves their performance. In-service teacher training also significantly improves administration skills of head teachers. Findings also reveal that in-service trained teachers are more professionally grounded than untrained teachers thus in-service teacher training aids the building of a qualified teaching workforce, which instigates a reform in the education system.

Finally, the Mann Whitney tests revealed that in most cases, teachers without in-service training ranked the effects of in-service teacher training less favorably than teachers who had received the training. This might be interpreted as ignorance on the benefits of the training given that they have not partaken in it.

Despite the effectiveness of in-service teacher training in boosting professional development and learners’ attainment of education, the study findings show that there are other factors and
conditions that come into play to enable in-service trained teachers teach effectively such as possession of sufficient scholastic materials, availability of incentives, acquired knowledge, appropriate skills and techniques, conducive accommodation and conducive learning environment. Therefore, the study rejects hypothesis one and concludes that in-service teacher training has a significant effect on teacher.

Objective two was to assess the effect of in-service teacher training on learners’ attainment of education. The findings show that pupils taught by in-service trained teachers acquire proper education as they acquire improved content, knowledge and skills. Findings also show that pupils trained by in-service trained teachers are better at making decisions for their future. In-service training leads to improved staff co-operation and socialization which was noted to have a spillover effect on classroom interaction, social uprightness as well as knowledge exchange. Furthermore, in-service trained teachers use better and wider variety of teaching methods and encourage their students to partake in all activities including co-curricular activities which contribute to learners’ attainment of education. The study thus rejects hypothesis two and concludes that in-service teacher training has a significant effect on learners’ attainment of education.

Findings however show that even though in-service teacher training significantly improves performance of pupils, the number of division one and two students is still not significantly different from that of students taught by other teachers. Furthermore, it is still widely believed that personal coaching of pupils imparts more knowledge and yields better and faster results/effect on learners’ attainment of education than in-service teacher training. Findings also show that teachers without in-service teacher training do not recognize the effect of in-service teacher training on learners’ attainment of education, particularly on pupils’ performance. Based on these findings, it might be interpreted that teachers without training need to be sensitized on the benefits of in-service teacher training to motivate them into partaking the training.
Objective three was to examine the process by which in-service teacher training is designed and delivered. Based on the study findings, in-service teacher training starts from recruiting the correct candidates that meet the needs that are current and allow for future growth potential. It was also revealed that in most schools, head teachers find effective ways to support their staff to remove obstacles and help them study.

The findings revealed glaring weaknesses of the in-service teacher training process in Uganda such as some teachers recruited for in-service training not completing the course. Further, pre-training program evaluation or cost benefit comparison of various methods of achieving change is not always done before the training. It was also revealed that teachers for in-service teacher training are not selected according to the needs of the school. In fact, the in-service teacher training process does not start with a decision about the expected levels of pupils’ effectiveness in academics, decision-making and co-curricular activities. School mission and vision are also not considered while selecting teachers for in-service teacher training and there is no model in place that schools have to follow when selecting teachers for in-service teacher training. It was revealed that teachers for in-service teacher training are not briefed on the schools’ expectations before starting the training and there is no predefined set of opportunities and needed skills considered before in-service teacher training is conducted.

5.4 Practical implications of the findings

This study contributes to the understanding of the importance of in-service teacher training towards improving the education process in Uganda. By providing a clear portrait of the process of designing and delivering in-service teacher training in Uganda, the study shows the weaknesses that continue to hinder the country’s education sector from realizing benefits of in-service teacher training on learners’ attainment of education that have been realized in other countries.
By following the in-service teacher training process from selection of trainees to the course and effect of in-service teacher training, the findings of this study raise important issues for education administrators on programme implementation.

5.5 Recommendations

After careful analysis of the in-service teacher training in Uganda, it is evident that it has not realized its objectives and has rather been adopted as a means towards promotion and consequent salary increment. The disparities and glaring weakness in the implementation of in-service teacher training could not be over emphasized here. With this in mind, the researcher proposes the following suggestions to guide policy analysis and implementation as well as further research.

First, all teachers should be sensitized on the importance of in-service teacher training and its effect on learners’ attainment of education.

Second, the Ministry of Education and Sports should put in place a system for all universities and training institutions to follow when conducting in-service teacher training.

Third, the study recommends that learning environments within education institutions should be made more conducive for the teaching-learning process.

Last, further research on in-service teacher training and learners’ attainment of education should be conducted in other parts of Uganda to enable comparison, raise awareness and instigate a reform in the education sector.
REFERENCES


Bushenyi Core Primary School Teachers College. (1995). *The Training of Trainers Workshop to Prepare for the PTE Residential Course. TDMS/Super In-Service, Bushenyi PTC administration.*


Yadav, B., & Bhardwaj, P. (2013). Impact of In-Service Teacher Education Programmes on Class Room Transactions, 2(6).

APPENDICES

Appendix 1: Introduction to Questionnaires

Dear Sir/Madam,

Greetings!

I am Jackson Nzariwehi, a Ph.D candidate at Kampala International University. In partial fulfillment of the requirements for the award of the degree of doctor of philosophy, I am conducting a study entitled “In-service Teacher Training and Learners’ Attainment of Education in Primary Schools in Western Uganda.”

I am requesting you to participate in this study by answering the questionnaire to the best of your ability. Any data you provide shall be used for academic purposes only. All provided information will be kept confidential.

Your prompt assistance and cooperation will be greatly appreciated.

Thank you very much.

JACKSON NZARIRWEHI
Appendix 2: Research permit

College Of Education, Open and Distance E-Learning
Office of the Principal

6th September, 2016

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

SUBJECT: PERMISSION TO CONDUCT A RESEARCH STUDY IN YOUR ORGANISATION

With reference to the above subject, this is to certify that Mr. NZARIRWEHI JACKSON Reg. No. PhD-EM 42497/141/Du is a bonafide student of Kampala International University pursuing PhD of Educational Management and Administration.

He is currently conducting a field research entitled, “In-Service Training of Teachers and Learners’ Attainment of Education in Primary Schools in Western-Uganda”

This area has been identified as a valuable source of information pertaining to his research project. The purpose of this letter therefore is to request you to avail him with the pertinent information as regards to his study.

Any data shared with him will be used for academic purposes only and shall be kept with utmost confidentiality.

Any assistance rendered to him will be highly appreciated.

Yours truly,

SSEMUGENYI FRED (PhD)
Principal - College of Education Open and Distance e-Learning
Tel.: +256-782-498-809
Email: ssemugeniyfred@yahoo.com
Appendix 3: Verbal consent template

I am Jackson Nzairwehi, a Ph.D student at Kampala International University. As part of my doctoral pursuit, I am conducting a research study on “in-service training of teachers and learners’ attainment of education in primary schools in western Uganda.” It is to this cause that I request for your participation by completing the questionnaire and/or interview. The study should take approximately thirty minutes and your participation is voluntary. Your responses will not affect your status and will be treated with utmost confidentiality. Only the researcher will access your responses with your permission. Your name, personal information or other information that can be traced back to you will not be published anywhere. If you do not wish to participate or change your mind about participating in the study, you have the right to withdraw at any time.

If you would like a copy of this letter for your records, please let me know and I will provide one. If you have any questions regarding the research, you may contact the principal College of Education Open and E-Learning, Kampala International University or my supervisors Dr. Maurice B. Tamale and Dr. Anumaka Ijeoma at P.O Box 20000 Kampala, Uganda.

Thank you.
Appendix 4: Questionnaire for education stakeholders (teachers, head teachers, tutors, district inspectors of schools and district education officers)

SECTION A
Instructions: Tick the box with your appropriate response
1. Background information
   a) Gender: Male ☐ Female ☐
   b) Qualification: Grade III ☐ Diploma ☐ Bachelors ☐ Masters ☐ Ph.D. ☐
   c) Age:
   d) Number of years of service:
      1-5yrs ☐ 6-10yrs ☐ 11-15yrs ☐ 16-20yrs ☐ above 20yrs ☐
   e) Have you ever attended in-service teacher training program? Yes ☐ No ☐

SECTION B
Instructions: Write the number (from 1-4 below) in the box indicating your response to each phrase
The following ratings will be used in subsections a) to e) below:
4  strongly agree
3  agree
2  disagree
1  strongly disagree

a) Effect of in-service teacher training on teachers
   i. In-service teacher training programs enable teachers to acquire new skills and knowledge ☐
   ii. In-service teacher training enables teachers to provide quality education to learners ☐
iii. In-service teacher training has enabled teachers upgrade their academic qualification

iv. In-service teacher training has enabled many teachers to acquire promotion

v. In-service teacher training has enabled teachers to play a key role in the proper implementation of various education policies and programs

vi. In-service teacher training broadens and deepens their own knowledge, increases on their competence, reliability and responsibility

vii. In-service teacher training enables them master the content

viii. In-service teacher training motivates teachers on their job

ix. In-service trained teachers have a good command of their academic subjects and ably meet the needs of learners

x. Primary teachers trained through in-service teacher training programs are better in performance than those trained through other programs

xi. Head teachers of primary schools taught through in-service teacher training are better administrators than those taught through other programs

b) Effect of in-service teacher training on learners’ attainment of education

i. Pupils taught by in-service trained teachers perform better in primary leaving examinations

ii. Children like to be taught by in-service trained teachers because they use a variety of teaching methods

iii. Pupils taught by in-service trained teachers acquire quality education because they have improved content knowledge and skills

iv. Pupils acquire more knowledge through in-service trained teachers than through coaching

v. Pupils taught by in-service trained teachers are encouraged to share knowledge
vi. In-service trained teachers instill decision making techniques in pupils

vii. In-service trained teachers have a good teacher-pupil relationship

viii. Pupils taught by in-service trained teachers are socially upright

ix. Pupils taught by in-service trained teachers are good at co-curricular activities

x. Majority of learners taught by in-service trained teachers pass in division one at PLE

c) Professional ethics fulfilled by teachers who have had in-service teacher training

1. Keeping time
2. Making schemes of work
3. Making lesson plans
4. Marking pupils register
5. Assessing pupils work
6. Marking pupils books
7. Giving home work
8. Remedial teaching
9. Efficient use of instructional materials
10. Managing co-curricular activities
11. Professionally disciplined
12. Effective in carrying out their teaching tasks
13. Efficient control of the class during teaching and learning
14. Co-operation with staff

d) Other conditions that enable in-service trained teachers to teach effectively:

i. Possession of sufficient scholastic materials
ii. Availability of incentives
iii. Acquired knowledge, appropriate skills and techniques
iv. Conducive accommodation  □

v. Conducive learning environment  □

e) Process of designing and delivering in-service teacher training

i. Teachers for in-service training are selected according to the needs of the school  □

ii. Teachers for in-service training are briefed on the schools expectations before starting the training  □

iii. Pre-training program evaluation or cost benefit comparisons of various methods of achieving changes are always done before the training  □

iv. In-service teacher training process starts with a decision about the expected levels of effectiveness  □

v. Head teachers find effective ways to support their staff, to remove obstacles and help them to study  □

vi. In-service teacher training starts from recruiting the correct candidates that meet the needs that are current and allow for future growth potential  □

vii. A variety of developmental opportunities and needed skills are considered before in-service teacher training is conducted  □

viii. School mission and vision are considered while selecting teachers for in-service teacher training  □

ix. All teachers recruited for in-service teacher training complete the course  □

x. There is a model in place that schools follow when selecting teachers for in-service teacher training  □
SECTION C

Instructions: Please fill the gaps with your appropriate response

a. Mention five methods used by in-service trained teachers while teaching learners
   ..........................................................................................................................................
   ..........................................................................................................................................

b. Mention the indicators of good pupil learning
   ..........................................................................................................................................
   ..........................................................................................................................................

c. How can you assess good pupil learning?
   ..........................................................................................................................................
   ..........................................................................................................................................

d. Give reasons why not all in-service trained teachers provide good education
   ..........................................................................................................................................
   ..........................................................................................................................................

e. How can you solve the issues in d. above?
   ..........................................................................................................................................
   ..........................................................................................................................................

Process of selecting teacher for in-service training

f. How are teachers for in-service teacher training selected?
   ..........................................................................................................................................
   .............................................................................................................................................
Appendix 5: Questionnaire for Pupils

Instruction: Tick the answer of your choice

1. a. Your class………………………………………
   b. Age………………………………………
   c. Sex………………………………………

2. Our teacher goes for studies during the holidays: a. Yes ☐ b. No ☐

3. Our teacher teaches everyday: a. Yes ☐ b. No ☐

Indicators of learners’ attainment of education

4. What time do lessons begin in your school?
   a. Before 8:00am ☐
   b. At exactly 9:00am ☐
   c. After 9:00am ☐

5. How many lessons do you study per day?
   a. 1-4 ☐ b. 5-8 ☐ c. I don’t know ☐

6. Does your teacher mark exercises given to you every day?
   a. Yes ☐ b. No ☐ c. I don’t know ☐

7. Does your teacher give you homework every day?
   a. Yes ☐ b. No ☐ c. I don’t know ☐

8. Teachers who go for holiday studies teach better than those who do not:
   a. Yes ☐ b. No ☐ c. I don’t know ☐

9. Teachers who go for holiday studies are better class teachers than those who do not:
   a. Yes ☐ b. No ☐ c. I don’t know ☐

10. The head teacher of your school is a good administrator because he/she also goes for holiday studies:
    a. Yes ☐ b. No ☐ c. I don’t know ☐
11. Our teacher uses different methods while teaching us:
   a. Yes ☐   b. No ☐

Co-curricular activities
12. Our teacher gives us time to go for games:
   a. Yes ☐   b. No ☐

13. Involvement in games makes me a good learner:
   a. Yes ☐   b. No ☐   c. I don’t know ☐

14. The class teacher gives us time for games:
   a. Yes ☐   b. No ☐   c. I don’t know ☐

15. During games, pupils choose from a variety of games in the school
   a. Yes ☐   b. No ☐   c. I don’t know ☐

16. Our school has indoor games like playing cards, draught and chess:
   a. Yes ☐   b. No ☐   c. I don’t know ☐

17. Mention two games in your school that are not mentioned above

   ........................................................................................................................................

Social Adjustment
18. Our teacher tells us to always form discussion groups:
   a. Yes ☐   b. No ☐   c. I don’t know ☐

19. The teacher-pupil relationship is good so we learn well:
   a. Yes ☐   b. No ☐   c. I don’t know ☐

20. My friends help me understand difficult questions while having discussions:
   a. Yes ☐   b. No ☐   c. I don’t know ☐

21. My elder brother/sister helps me to do my homework:
   a. Yes ☐   b. No ☐   c. I don’t have one ☐
Appendix 6: Interview Guide for key informants

1. What are the effects of in-service teacher training?
2. What are some of the problems faced by in-service trained teachers?
3. How can the problems above be solved?
4. Comment on in-service trained teachers as far as provision of education is concerned.
5. Apart from pupils’ academic performance, what other areas do in-service trained teachers assist pupils in?
6. What problems hinder in-service teachers from teaching efficiently?
7. Suggest ways of improving in-service teachers’ performance.
8. Do all teachers recruited for in-service teacher training complete the course? What is your comment if not?
9. How does your school/district select teachers for in-service teacher training?
10. What support do you give teachers on in-service training?

Thank you.
Appendix 7: Primary Leaving Examinations Results (2011-2015) and number of in-service trained teachers by District

**BUSHENYI**

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<th>DIV II</th>
<th>DIV III</th>
<th>DIV IV</th>
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Appendix 8: Study area map