In-Service Teacher Training and Inclusive Education in Selected Primary Schools in Karenga District

By

Ochen Paul Pax

Reg. No: 24/U/0679/MED/PS

A Research Dissertation Submitted to the Directorate of Research and Graduate Training in Partial Fulfilment of the Requirements for the Award of the Degree of Master of Education in Education Management of Gulu University

September, 2026

Declaration

I, Ochen Paul Pax declare that this research dissertation entitled '*In-Service Teacher Training and Inclusive Education in Selected Primary Schools in Karenga District'* is my original work and has not been submitted to any other institution of higher learning for any academic award.

Signature:  Date: 05/10/2026

Name: Ochen Paul Pax

Registration Number: 24/U/0679/MED/PS

Approval

This research dissertation titled: '*In-Service Teacher Training and Inclusive Education in Selected Primary Schools in Karenga District'* has been developed under our supervision and is submitted to the Directorate of Research and Graduate Training for external examina t ion with our approval.

1. Dr. Gloria Lamaro

Signature ..... Date 09/12/2026

2. Mr. Odida Peter.

Signature..... Date..12/15/2026.....

Dedication

Am destined to dedicate this research work to my Mummies Biola Lakor and Silvia Awor, beloved wife Lily Grace Akello and lovely children Ivan Brian Lotyang, Esther Achayo, Deogracious Lonai and Patience for supporting me during times am out of the family. My sister Ayaa Josephine and brother Daniel Arapmoe.

Acknowledgement

I would like to register my special thanks of gratitude to my supervisors for having led me through this academic work successfully. Am indebted to a number of people who gave me the golden opportunity to complete this study programme and I gained a lot of knowledge. I am thankful to my supervisors Ms. Gloria Lamaro and Mr. Odida Peter for their professional guidance throughout this study period. I pray for God's rewards to you a**l**.

Furthermore, I extent appreciation to Mr. Ambrose E Okot, Mr. John Charles Luwar, Mr. JB Hab- Imana, Professor Lajul and Dr. Opio George.

To all my course mates, you were so amazing and you made my study environme nt conducive more especially giving me the opportunity to coordinate all our study activit ies successfully. God bless you.

Table of Contents

Declaration i

Approval i

LIST OF TABLES vii

LIST OF FIGURES viii

CHAPTER ONE 1

1.0 Overview 1

1.1 Background 1

1.1.1 Historical background 1

1.1.2 Theoretical background 4

1.1.3 Conceptual Framework 5

1.1.4 Contextual background 6

1.2 Problem Statement 6

1.3 Purpose of the study 9

1.4 Specific objectives 9

1.5 Research questions 9

1.6 Scope of the study 9

1.6.1 Content scope 9

1.6.2 Geographical scope 10

1.6.3 Time scope 10

1.7 Significance of the study 10

1.8 Conceptual Framework 11

Chapter Two 13

Literature Review 13

2.0 Introduction 13

2.1 Theoretical Review 13

2.2 In-service Teacher Training 14

2.2.1 Training frequency 14

2.2.2 Pedagogical skills 15
2.2.3 Assessment Skills 16
2.3 Inclusive Education 17
2.3.1 Learner Participation 17
2.3.2 Classroom Interaction 18
3.3.3 Learning Adaptation 19
2.4 The relationship between in-service teacher training and inclusive education 20
2.5 Summary of literature and research gap 21
Chapter Three 23
Research Methodology 23
3.0 Introduction 23
3.1 Research orientation 23
3.2 Research Design 23
3.3 Target population 24
3.4 Sample size 24
3.5 Sampling techniques 25
3.6 Data collection methods 25
3.6.1 Questionnaire survey 25
3.6.2 Interview method 26
3.6.3 Observation 26
3.7 Data collection instruments 26
3.7.1 Questionnaire 26
3.7.2 Interview guide 27
3.7.3 Observation Checklist 27
3.8 Quality control 27
3.8.1 Validity of Research Instrument 27
3.8.2 Reliability 27

3.9 Administrative procedures 28
3.10 Data analysis 30
3.11 Assumptions of the study 30
3.12 Limitations and Delimitations 31
3.13 Ethical consideration 31
References 55
Appendices 61
Appendix i: Questionnaires for Teacher 61
Appendix ii: Interview Guide for headteachers and Deputy Headteachers 65
Appendix iii: Interview Guide for School Management Committee (SMC) Members 66
Appendix iv: Observation Checklist for learners 67
Appendix v: Study Budget 68
Appendix vi: Krejcie and Morgan's (1970) Table 68

List of Tables

Table 3.1: showing population sample size 24

Table 4.1: Showing Demographic Characteristics of Respondents (N=166) 31

Table 4.2: Showing Level of In-Service Teacher Training in Selected Primary Schools 34

Table 4.3: Showing Status of Inclusive Education in Selected Primary Schools 39

Table 4.4: Showing the Relationship between In-service Teacher Training and Inclus ive Education in Selected Primary Schools 45

List of Figures

Figure 3.1: Conceptual Framework 12

Abstract

This study was conducted on In-Service Teacher Training and Inclusive Education in Selected Primary Schools in Karenga District. It was guided by the following objectives; to assess the level of in-service teacher training in selected primary schools, to assess the status of inclus ive education in selected primary schools and to examine the relationship between in-service teacher training and inclusive education in selected primary schools in Karenga District. The study used cross-sectional survey research design and data were collected using questionnaires, interviews and observation checklist from 223 respondents. Interview data were analysed using descriptive statistics. Descriptive statistics was also used to analyse background information of respondents, objectives one and two. Pearson correlation was used to analyse the relations hip between in-service teacher training and inclusive education in selected primary schools (objective three). The findings indicate that in-service teacher training in the selected primary schools is generally high, with teachers benefiting from continuous professional developme nt opportunities such as workshops, refresher courses, training sessions and support from education authorities. The findings show a strong, positive and statistically signific ant relationship between in-service teacher training and inclusive education in selected primary schools ($r = 0.718$, $p = 0.000$, $N = 166$). The study concluded that in-service teacher training is generally well established in the selected primary schools and has positively influe nced teachers' instructional and assessment practices, that the status of inclusive education in the selected primary schools is generally very high and that there is a strong and statistica l ly significant positive relationship between in-service teacher training and inclusive education in selected primary schools. The study recommended that the Ministry of Education and Sports, in collaboration with district education offices and teacher training institutio ns, should intens ify and institutionalize regular inclusive education-specific in-service training programmes, that the Ministry of Education and Sports and education stakeholders should strengthen continuo us and practical-based inclusive education training programmes that emphasize hands- on classroom differentiation strategies, disability-specific pedagogy, and sustained mentoring support and that the Ministry of Education and Sports and relevant education stakeholders should strengthen structured, continuous and practical-based in-service teacher training programmes specifically focused on inclusive education, while also integrating school-based mentoring and follow-up support.

Keywords: In-Service Teacher Training and Inclusive Education.

Chapter One

Introduction

1.0. Overview

Inclusive education refers to an educational approach where all learners, including those with diverse learning needs, disabilities, and different social or cultural backgrounds, are educated together in regular classroom settings with appropriate support to ensure equitable participat ion and achievement (UNESCO, 2020). It emphasizes the removal of barriers to learning and the creation of supportive school environments that respond to learner diversity. Despite global commitments to inclusive education, many primary schools in sub-Saharan Africa continue to face challenges in effectively implementing inclusive practices, often due to limited teacher preparedness, inadequate instructional resources, and weak support systems for learners with special needs (World Bank, 2021). In Uganda, similar concerns have been raised, with evidence indicating that inclusive education implementation remains inconsistent, particularly in rural and hard-to-reach districts where teachers may lack sufficie nt training to manage diverse classrooms effectively (Ministry of Education and Sports, 2022). In-service teacher training refers to continuous professional development programs provided to practicing teachers to improve their instructional skills, knowledge, and classroom management strategies without removing them from active service (UNESCO, 2021). Such training is considered essential in equipping teachers with competencies required to adapt teaching methods, different ia te instruction, and support learners with varied educational needs within inclusive classrooms. However, gaps in the frequency, quality, and relevance of in-service training have been associated with limited success in achieving inclusive education goals in many schools (World Bank, 2021). Therefore, this study seeks to examine how in-service teacher training influe nces inclusive education in selected primary schools in Karenga District.

1.1 Background of the Study

1.1.1 Historical Background of the Study

The inclusion movement in education has been commenced over the past decades, particula r ly since holding the World Conference on Special Needs Education: Access and Quality in 1994 (The United Nations Educational, Scientific and Cultural Organization [UNESCO], 2009). Following article 23 of the United Nations Convention on the Rights of the Child (UNCRC), children with disabilities should be integrated into an educational context promoting full social inclusion (UNCRC, 1989). The need for the inclusion of children with special needs was

mainly focused on the Salamanca declaration (1994) to optimize equal education for all children. Ac- cording to the declaration, all children with special educational needs should be welcomed and included in regular educational settings and benefit from a high-qua lity education. In this regard, education systems are responsible for the provision of supportive services involving in- service training to teachers so that they can meet the special educational needs of students within the inclusive context. These aims were reaffirmed at the World Education Forum held in Dakar (2000), and the emphasis was placed on the importance of inclusion of children with special education needs and the equal education opportunities for all children to nurture and learn in a safe environment. This particular emphasis on inclusion issue is as a result of a revolutionary movement towards equal opportunity for all children in education following the global declarations, e.g., the World Declaration on Education for All (1990), Salamanca (1994), paid great attention to the equal right of education for all learners.

The historical development of inclusive education in Africa has been shaped by constitutio nal commitments and policy reforms aimed at expanding access to basic education for all learners. For instance, the South African Education Constitution affirms that "everyone has the right to basic education" (Department of Education [DBE], 2001, p. 1), establishing a legal foundation for universal access. However, early interpretations of this provision largely focused on meeting minimum learning needs, which in practice left many learners with learning disabilities (LDs) outside the formal system. With the broader dissemination of constitutio nal principles and the Bill of Rights, governments across the region, particularly in South Africa, began to emphasize equality and non-discrimination in education (DBE, 2016). This shift encouraged the gradual development of policies addressing special needs and inclus ive education. Notably, the Department of Education introduced frameworks such as the Education White Paper (2001), which promoted the establishment of an inclusive education and training system (Majoko & Phasha, 2018). These reforms also supported the integration of special needs education into mainstream schooling, creating a unified system intended to accommodate diverse learning needs (DBE, 2016). As a result, learners with special educational needs increasingly entered mainstream classrooms, reinforcing the expectation that inclus ive practices should be implemented across all educational settings.

Despite these policy advances, access to inclusive education in Africa has remained uneven, with persistent gaps in implementation and teacher preparedness. Evidence indicates that a significant proportion of learners with learning barriers continue to be excluded from education systems, with estimates suggesting that up to 80% remain outside formal schooling (Dalton et

al., 2012). In response, scholars and policymakers have recommended strengthening teacher education through the integration of both theoretical and practical components of inclusive education (Majoko & Phasha, 2018). Efforts to address these challenges have included policy revisions aimed at aligning the teaching profession with the demands of a democratic and inclusive society (DoE, 2006). Such policies have emphasized continuous professional development, particularly through in-service training programmes designed to equip teachers with relevant skills (DoE, 2006). Consequently, higher education institutions, including the University of South Africa, have expanded professional development opportunities, often through distance learning and flexible training models (Majoko & Phasha, 2018). Research further shows that in-service programmes that combine clear focus with face-to-face engagement tend to produce better learning outcomes (Popova et al., 2019). However, concerns have been raised regarding inadequate strategic evaluation and planning in some programmes, particularly in aligning training content with classroom realities (Huhtala & Vesalainen, 2017; Omar, 2014).

The historical trajectory of inclusive education in Uganda reflects gradual policy commitment alongside persistent exclusion of learners with diverse needs. Following independence in 1962, education reforms increasingly sought to address inequalities in access, yet inclusive education remained limited in practice, often confined to specialized settings rather than mainstream schools (Nantongo, 2019). The introduction of Universal Primary Education in the late 1990s expanded enrolment significantly, but this rapid growth exposed systemic gaps, particularly for children with disabilities who continued to face barriers related to stigma, limited resources, and rigid teaching approaches (Okech, 2019). Government policy later redefined inclusive education as a learner-centred approach that adapts curriculum, teaching methods, and school environments to accommodate all learners, moving beyond earlier models of segregation (Ministry of Education and Sports, n.d.). Despite these shifts, evidence shows that many learners with special needs remain excluded or inadequately supported in primary schools due to insufficient teacher preparation and institutional limitations (Nantongo, 2019; Okech, 2019). Recent interventions have therefore focused on strengthening in-service teacher training, with programmes reaching hundreds of teachers and education officers to improve inclusive classroom practices (Sightsavers, 2021). This pattern demonstrates that while Uganda has made progress in redefining and expanding inclusive education, the extent to which learners fully participate in equitable learning environments continues to depend heavily on sustained teacher development and effective implementation.

1.1.2 Theoretical Background of the Study

The study was guided by Ecological Systems Theory, which explains human development as a product of interacting environmental systems. Urie Bronfenbrenner (1979) presents four interconnected layers: the microsystem, mesosystem, ecosystem and macrosystem, each shaping individual experiences in distinct yet overlapping ways. The microsystem refers to immediate settings such as classrooms, where teachers directly engage with learners, includ ing those with diverse needs (Bronfenbrenner, 1979; Geldenhuys & Wevers, 2013). The mesosystem describes relationships between these settings, for example, interactions between teachers, parents, and school administrators in supporting inclusive practices (Mahlo, 2017; Hayes et al., 2018). The exosystem involves external structures like district education offices and training institutions that influence teachers indirectly through policies and professional development opportunities (Bronfenbrenner, 1979; Darling-Hammond et al., 2017). The macrosystem captures broader cultural values, national education policies, and societal attitudes toward inclusion, which shape how inclusive education is understood and implemented in schools (Mahlo, 2017; UNESCO, 2020). These layers are interdepende nt, meaning that changes in one system tend to affect the others, creating a dynamic environme nt within which teaching and learning occur (Bronfenbrenner, 1979; Geldenhuys & Wevers, 2013).

In relation to the study on in-service teacher training and inclusive education in primary schools in Karenga District, the theory provides a structured way to examine how differe nt environmental levels influence teachers' ability to implement inclusive practices. In-service training occurs within the exosystem, yet it directly shapes classroom practices within the microsystem by improving teachers' knowledge, attitudes, and instructional approaches toward learners with diverse needs (Darling-Hammond et al., 2017; Avalos, 2011). The mesosystem becomes relevant when trained teachers collaborate with colleagues and parents to support inclusive learning, strengthening coordinated efforts across school environments (Mahlo, 2017; Hayes et al., 2018). At the macrosystem level, national policies on inclusive education and societal perceptions about disability influence both the content of training and how teachers apply it in practice (UNESCO, 2020; Bronfenbrenner, 1979). The theory assumes that teacher behaviour and effectiveness are shaped by continuous interaction with these environme ntal systems rather than isolated individual factors, and that improvement in one layer, such as professional training, can produce observable changes across other levels. It also assumes that development is a gradual process influenced by both immediate and distant environme nts,

meaning that sustained support systems are needed for inclusive education to take root in schools (Bronfenbrenner, 1979; Geldenhuys & Wevers, 2013). Through this lens, the study is able to connect teacher training experiences with broader institutional and societal conditio ns that shape inclusive education outcomes.

1.1.3 Conceptual Background of the Study

i) In-service Teacher Training

In-service teacher training refers to structured professional learning undertaken by teachers while they are actively engaged in classroom practice, with the aim of strengthening their instructional competence and responsiveness to learners' needs. Darling-Hammond et al. (2017) describe it as continuous professional development that enhances pedagogical knowledge, assessment practices, and subject mastery within the teaching process.

In a similar vein, Avalos (2018) explains it as organized learning opportunities such as workshops, mentoring, and collaborative engagement that enable teachers to refine their teaching approaches and adjust to diverse classroom situations. Additionally, OECD (2019) views in-service training as job-embedded learning that improves teacher effectiveness through reflection on practice and sustained engagement with real teaching challenges. In this study, in-service teacher training was measured using indicators such as training frequency, pedagogical skills and assessment skills, which capture both exposure to training and competence gained.

Drawing from these perspectives, this study defines in-service teacher training as continuo us, practice-oriented professional learning undertaken by serving teachers to improve instructio nal methods, assessment techniques, and their ability to address diverse classroom needs.

ii) Inclusive Education

Inclusive education is widely understood as an approach that ensures all learners, regardless of their abilities or backgrounds, participate meaningfully in the same learning environme nt. UNESCO (2020) defines it as a process of addressing and responding to the diversity of learners through increased participation and reduced exclusion in education systems.

Ainscow (2020) explains inclusive education as a reform approach that focuses on modifying school practices, cultures, and policies to accommodate all learners and support equitable learning experiences. Likewise, Florian (2019) conceptualizes it as teaching that extends opportunities to every learner by adapting instruction and classroom interaction to meet varied

learning needs. In this study, inclusive education was measured through learner participat io n, classroom interaction and learning adaptation, capturing the extent to which learners are actively engaged, supported and accommodated in the classroom.

Based on these perspectives, this study defines inclusive education as an approach to teaching and learning that promotes active participation, interaction, and instructional adjustment to ensure all learners are effectively included in the classroom environment.

1.1.4 Contextual background

Uganda has formally recognized inclusive and special-needs education as an important component of its education system. The Ministry of Education and Sports (MoES, 203a) indicates that the country's commitment to special needs and inclusive education is grounded in the 1995 Constitution, the Persons with Disabilities Act, 2006, and Uganda's ratification of the United Nations Convention on the Rights of Persons with Disabilities in 2008. The Ministry's stated objective is to increase enrolment, participation and completion of schooling by persons with special learning needs and to ensure equitable access to quality education (MoE&S, 2023a).

Uganda has also recognized the importance of strengthening teachers through continuo us professional development. The National Teacher Policy, approved and launched in 2019, provides a framework for professionalizing and standardizing the teaching profession and strengthening teacher development and management. The policy recognizes teachers and education personnel as central to preparing learners for the future (VSO, 2022). The Ministr y of Education and Sports further identifies teacher education and training as a means of developing teachers' knowledge, attitudes and skills necessary to provide enabling learning environments for pupils and students (MoE&S, 2023b).

Recently, Uganda has developed a National Continuous Professional Development Package on Inclusive Education for Teachers, demonstrating an institutional recognition that teachers require continuing training to implement inclusive education effectively. The package, developed by the Ministry of Education and Sports, specifically focuses on building teachers' capacity for inclusive education (MoE&S, 203b).

Uganda's education programmes have also used continuous professional development to improve teachers' classroom practices. For example, the Uganda Teacher and School Effectiveness Project emphasized strengthening teacher competencies and practices, alongside

instructional materials, teacher supervision and school leadership, as mechanisms for improving public primary education. More recent interventions have similarly linked teacher training to inclusive and child-centred teaching (UNICEF, 2025). In 2025, UNICEF Uganda reported that continuous professional development helped primary teachers improve curriculum interpretation, assessment practices and remedial teaching, while additiona l training addressed disability- inclusive teaching, lesson preparation and techniques for supporting learners with disabilities (UNICEF, 2025).

Nevertheless, Uganda continues to experience challenges in translating inclusive education policy into practice. UNESCO's Uganda education profile identifies limited in-service training and supervision as factors contributing to teachers' inadequate capacity to support learners in inclusive schools. It also notes that teacher development centres have responsibilities for organizing in-service training and providing supervisory support, but the coverage and intensity of such support remain limited (UNESCO, 2023).

These challenges are significant because inclusive education requires more than physical access to school. It requires teachers to modify teaching approaches, classroom organizat io n, learning materials and assessment procedures according to individual learner needs (UNICEF, 2022). An earlier UNICEF evaluation of Uganda's education programming similarly identified inadequate provision for children with special learning needs, shortages of qualified teachers, inadequate instructional materials and weak supervision among challenges affecting the education system. It emphasized that inclusive education requires teachers to be skilled in planning and delivering instruction that responds to individual learner needs (UNICEF, 2022).

According to Karenga District Local Government, the district has 24 primary schools, of which 20 are government-aided and four are community-owned, with 297 teachers, comprising 83 female and 214 male teachers. These figures indicate that government-aided primary schools constitute the majority of primary education institutions in the district and therefore provide an important setting for examining the capacity of teachers to implement inclusive education (UNICEF, 2021).

The Karenga context is significant because teachers in rural and relatively underserved settings may have to address diverse learner needs while operating with limited specialized personnel, teaching and learning resources and opportunities for professional development. The national evidence that many Ugandan teachers remain insufficiently prepared to support learners in inclusive classrooms therefore raises an important question about the extent to which teachers

in Karenga's government-aided primary schools receive and benefit from in-service training (Stites, 2024).

Moreover, the Ministry of Education's current approach to continuous professional development specifically includes primary teachers and supplementary training in inclus io n, protection mainstreaming and gender-sensitive methodologies. It also envisages teacher learning circles as mechanisms for continuous peer support. This provides a policy basis for examining whether such training is reaching teachers in selected primary schools in Karenga District and whether it is reflected in inclusive classroom practices (Sightsavers, 2021).

1.2 Problem Statement

Inclusive education has been widely promoted as a way of ensuring that all learners, regardless of ability or background, participate fully in the learning process. Global and national frameworks emphasize learner participation, equal access, and instructional adaptation as central elements of inclusive practice (UNESCO, 2020; Florian, 2019). In Uganda, policies such as the Special Needs and Inclusive Education Policy aim to support schools in accommodating learners with diverse needs through teacher preparation and resource provision (Ministry of Education and Sports, 2019). Despite these efforts, many primary schools continue to experience limited learner participation, inadequate classroom adaptation, and low support for learners with disabilities and other learning barriers. For example, overcrowded classrooms, limited teaching materials, and insufficient teacher preparation often lead to minima l engagement of learners who require additional support. Although initiatives such as teacher training programs and donor-supported interventions have been introduced to improve inclusive practices, their impact remains uneven across schools (UNICEF, 2021; World Bank, 2022). As a result, gaps persist between policy expectations and actual classroom practice, with many learners still facing exclusion within formal education systems.

The persistence of these challenges suggests that existing interventions have not adequately addressed the practical realities teachers face in implementing inclusive education. Evidence indicates that while in-service training programs have been introduced to equip teachers with inclusive teaching strategies, issues such as limited training coverage, inconsistent follow - up, and contextual constraints continue to hinder effective application in classrooms (Ainscow, 2020; Sharma & Sokal, 2020). Consequently, many teachers struggle to adapt instruct io n, manage diverse classrooms and provide appropriate support to all learners, leading to continued low participation and uneven learning outcomes. In remote and underserved areas such as

Karenga District, these challenges are often more pronounced due to resource limitations and staffing gaps, which further constrain inclusive practices. This situation raises concerns about the effectiveness of in-service teacher training in improving inclusive education within such settings. Therefore, this study examined how in-service teacher training influences inclus ive education in selected primary schools in Karenga District.

1.3 Purpose of the study

The purpose of the study was to examine how in-service teacher training influences inclus ive education in selected primary schools in Karenga District.

1.4 Specific objectives

i. To assess the level of in-service teacher training in selected primary schools.
ii. To assess the status of inclusive education in selected primary schools.
iii. To examine the relationship between in-service teacher training and inclusive education in selected primary schools in Karenga District.

1.5 Research questions

i. What is the level of in-service teacher training in selected primary schools?
ii. What is the status of inclusive education in selected primary schools?
iii. What is the relationship between in-service teacher training and inclusive education in selected primary schools in Karenga District?

1.6 Scope of the study

1.6.1 Content scope

The study assessed the level of in-service teacher training in selected primary schools in Karenga District and examine the status of inclusive education in selected primary schools in the same district. It further examined the relationship between in-service teacher training and inclusive education in selected primary schools in Karenga District. The content scope was justified by the need to examine how continuing professional development of practising teachers contributes to the effective implementation of inclusive education at primary-sc hool level. The scope focused specifically on in-service teacher training as the independent variable and inclusive education as the dependent variable because teachers are central to translat ing inclusive education policies into classroom practices.

1.6.2 Geographical scope

The study was conducted in Karenga District. Karenga District shares a border with South Sudan to the north, facilitating cross-border trade. It is bordered by Kitgum District to the west, Kotido District to the south, and Kaabong District to the east. Its savannah landscape, partly within Kidepo Valley National Park, features semi-arid conditions with one rainy season from April to October, averaging 800mm of rainfall. This terrain supports pastoralism but challe nges infrastructure and farming. Karenga District provided an appropriate setting for examining the implementation of inclusive education because its primary education system serves learners with diverse educational needs and backgrounds. The district has a predominantly rural setting, where schools may experience challenges associated with access to educational resources, availability of specialized support services and opportunities for teachers to participate in continuous professional development. These contextual conditions made the district relevant for examining whether in-service teacher training equips teachers with the knowledge and skills required to respond effectively to learner diversity.

1.6.3 Time scope

The study covered a period of five years, from 2019 to 2023. This period was considered suitable for obtaining adequate and relevant information regarding in-service teacher training and inclusive education in selected primary schools in Karenga District. The years between 2019 and 2023 was selected because they reflected a period when government and education stakeholders increased efforts toward improving teachers' professional development and promoting inclusive education in primary schools. The years reflected a period when government and education stakeholders increased efforts toward improving teachers' professional development and promoting inclusive education in primary schools.

1.7 Significance of the study

The study findings may help school administrators understand how in-service teacher training influences the implementation of inclusive education in primary schools. This may support the development of better training schedules and support mechanisms for teachers handling diverse learners.

The findings may assist teachers in identifying effective teaching approaches for learners with different educational needs. This can improve classroom participation, learner interaction, and academic progress among pupils.

The study provide education officials in Karenga District with information that may guide planning and supervision of teacher training programmes. This may contribute to improving the quality of inclusive education in primary schools.

The research may help the Ministry of Education and Sports evaluate the effectiveness of existing teacher development programmes related to inclusive education. The findings can support policy review and implementation strategies in primary schools.

Non-governmental organizations and development partners working in education may use the findings to design programmes that strengthen teachers' capacity in inclusive learning environments. This can promote equal learning opportunities for all children.

The study finding adds to the existing academic knowledge on in-service teacher training and inclusive education in Uganda. Future researchers may use the findings as reference material for related studies in other districts or educational settings.

1.8 Conceptual Framework

A conceptual framework refers to an organized structure that explains the relationship amo ng variables in a study and shows how one variable is expected to influence another. It creates a connection between theoretical ideas and the actual research process by identifying the independent and dependent variables, as well as other factors that may affect their relations hip. According to Joseph Maxwell (2013), a conceptual framework assists the researcher in arranging ideas and concentrating on the major factors associated with the study problem, while John W. Creswell (2014) explains that it guides data collection, analysis, and interpretation. In this study, the conceptual framework will be used to show how in-service teacher training influences inclusive education in selected primary schools in Karenga District, while taking into account other conditions that may affect the relationship between teacher training and the implementation of inclusive education.

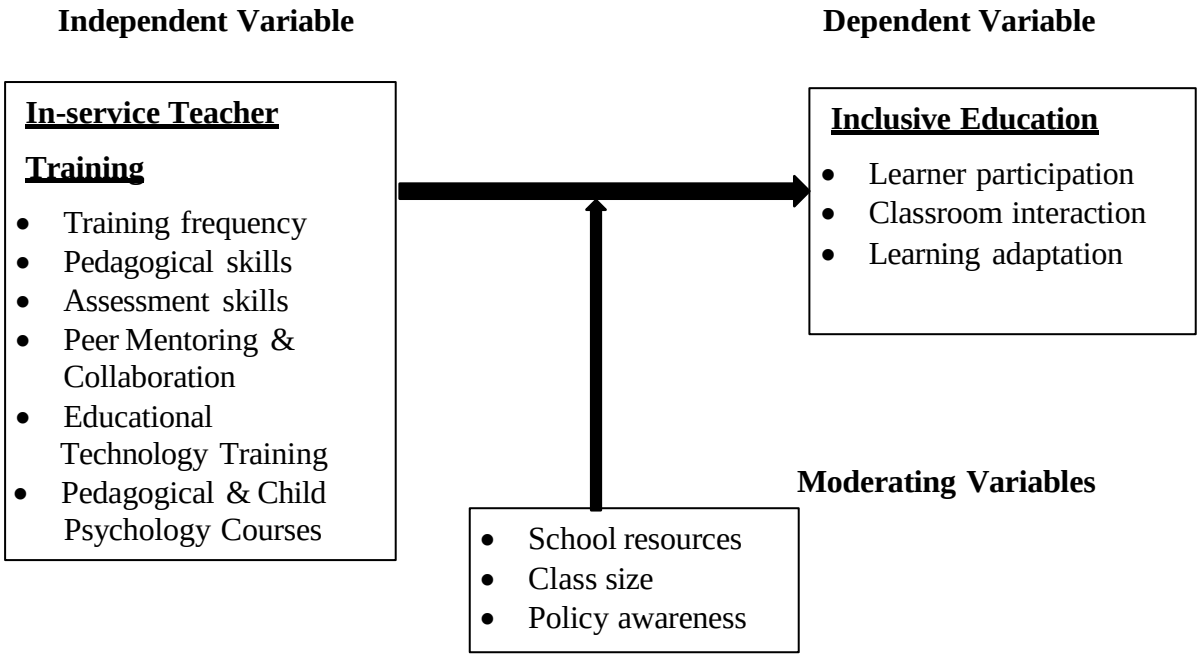


Figure 1: Conceptual Framework Showing the Relationship between In-service Teacher Training and Inclusive Education in Selected Primary Schools in Karenga District.

Source: Adapted from Odhiambo& Mpeirwe, (2021) with modification by Researcher

The conceptual framework illustrates the relationship between in-service teacher training and inclusive education. In this framework, in-service teacher training is the independent variable measured through training frequency, pedagogical skills, and assessment skills, while inclusive education is the dependent variable reflected in learner participation, classroom interaction, and learning adaptation. The framework suggests that when teachers regularly receive professional training and improve their teaching and assessment abilities, they are more likely to apply inclusive teaching practices that encourage active participation of all learners, improve interaction within the classroom, and adapt learning activities to meet diverse learner needs. The relationship is further influenced by intervening factors such as school resources, class size, and policy awareness, which may either strengthen or limit the effectiveness of teacher training in promoting inclusive education. Therefore, the framework assumes that improved in-service teacher training contributes to better implementation of inclusive education practices in schools.

Chapter Two

Literature Review

2.0 Introduction

This chapter presents a review of existing literature related to in-service teacher training and its role in promoting inclusive education. The review focuses on key issues such as teacher professional development, support for diverse learners, classroom instructional practices, continuous capacity building, and the implementation of inclusive teaching strategies as discussed by different authors at international, regional and national levels.

2.1 Theoretical Review

This study is anchored in Ecological Systems Theory, which was developed by Urie Bronfenbrenner and explains that human development and learning are shaped by interact ions between individuals and the different environmental systems surrounding them (Bronfenbrenner, 1979). The theory proposes that a child's growth is influenced by interconnected layers, namely the microsystem, mesosystem, exosystem, macrosystem, and chronosystem, which together affect educational experiences and outcomes. Within the school environment, the microsystem includes teachers, classmates, and classroom practices that directly influence learners' participation and achievement. The mesosystem refers to the relationships among schools, families, and communities that support children's learning. The theory further suggests that educational outcomes emerge from continuous interaction between learners and their surrounding environments rather than from individual characteristics alone (Rosa & Tudge, 2013; Tudge et al., 2016). In relation to this study, in-service teacher training equips teachers with knowledge and approaches that can improve classroom interactions and strengthen support for learners with diverse educational needs. Through this perspective, inclusive education is viewed as a product of coordinated efforts among teachers, schools, families, and the wider community, all of which contribute to creating learning environme nts where every child can participate meaningfully (Neal & Neal, 2013).

Ecological Systems Theory further assumes that changes within one system can influence other systems and ultimately affect learners' educational experiences. This assumption is relevant to the present study because professional development activities undertaken by teachers may lead to changes in classroom practices, school policies, and relationships with parents, thereby shaping the quality of inclusive education. The theory also maintains that educational environments are dynamic and require continuous adaptation to meet the varying needs of

learners (Hong & Espelage, 2012). Through in-service training, teachers can develop competencies that enable them to adjust teaching methods, assessment approaches, and classroom management strategies to accommodate learner diversity. The theory therefore provides a useful framework for understanding how teacher learning can influence the broader educational environment and enhance participation among pupils with different abilities and backgrounds (Anderson, Boyle, & Deppeler, 2014; Garbarino, 2017). It also assumes that positive educational outcomes are more likely when different actors within the educational system work together to address barriers to learning and participation. Consequently, the theory supports the view that strengthening teacher capacity through continuous professional development can contribute to the advancement of inclusive education in selected primary schools in Karenga District (Swart & Pettipher, 2019).

2.2 In-service Teacher Training

In-service teacher training refers to continuous professional development activities undertaken by practicing teachers to improve their knowledge, teaching skills, classroom practices, and ability to respond to emerging educational needs. According to Ismail and Nikpoo (2023), in-service teacher training involves additional education and professional learning opportunities that teachers attend while already employed in order to strengthen their competence and effectiveness in the classroom. Recent studies indicate that educational reforms, curriculum changes, technological advancement, and learner diversity have increased the need for continuous teacher development beyond pre-service preparation (Gupta & Lee, 2022). In-service training enables teachers to acquire new pedagogical approaches, improve subject mastery, and adapt instructional strategies to meet the needs of different learners (Uzorka, Kalabuki, & Odebiyi, 2024). Research further shows that teachers who regularly participate in professional development activities tend to demonstrate improved instructional practices and greater confidence in delivering lessons (Bulut, 2022). In Uganda and other developing countries, in-service training has been adopted as a means of strengthening teacher performance and improving the quality of learning in schools (Mugarura, Ssempala, & Nachuha, 2022). Therefore, in-service teacher training is viewed as an ongoing process that supports teachers in updating their professional knowledge and enhancing their capacity to provide effective and inclusive education.

2.2.1 Training frequency

Mugisha (2021), Kimani (2020), and Adeyemi (2019) observe that the regularity of in-service teacher training strongly shapes how teachers respond to diverse learner needs in inclusive

classrooms. When training is conducted frequently within a school year, teachers tend to gradually refine their instructional approaches and become more confident in addressing learner differences. Evidence from several primary education settings indicates that schools where teachers attend training at least three times per year record improved learner participation rates among pupils with special needs, with some studies reporting improveme nts ranging between 18% and 27% (Mugisha 2021; Kimani 2020; Adeyemi 2019). Such repeated exposure enables teachers to revisit inclusive strategies and apply them more consistently in daily lesson delivery. However, in contexts where training is limited to once a year, there is often weak continuity in skill application. This irregularity reduces the extent to which teachers internalize inclusive practices, particularly in resource-constrained rural schools. Consequently, the translation of training content into classroom practice becomes uneven across schools.

Okello (2023), Zhang (2022), and Nsubuga (2020) further explain that structured and frequent professional development strengthens collaboration among teachers in handling learner diversity. According to these authors, schools that adopt termly in-service training schedules report up to 30% improvement in teacher preparedness for inclusive instruction compared to those with irregular training cycles (Okello 2023; Zhang 2022; Nsubuga 2020). Frequent training also enhances retention of pedagogical content, allowing teachers to integrate inclus ive approaches more naturally into lesson planning. In contrast, sporadic training results in fragmented understanding of inclusive education principles, which affects classroom consistency. Some education systems still rely on annual workshops, which are often insufficient for sustained professional growth. This gap limits the long-term impact of training initiatives, especially in districts with limited support structures such as Karenga. As a result, training frequency remains a determining factor in the effective implementation of inclus ive education.

2.2.2 Pedagogical skills

Wanjala (2021), Ochieng (2019), and Patel (2022) indicate that pedagogical skills developed through in-service training significantly influence how teachers manage inclusive classrooms. Teachers who are trained in learner-centered methodologies demonstrate improved ability to adapt lessons for learners with varying abilities. In several primary school settings, it has been observed that teachers with enhanced pedagogical training improve learner engagement levels by approximately 22% to 35% compared to those without such exposure (Wanjala 2021; Ochieng 2019; Patel 2022). These skills include differentiated instruction, use of teaching aids,

and flexible lesson pacing. However, many classrooms still reflect traditional teacher-centered practices that limit learner participation. In-service training therefore becomes a key avenue for shifting instructional approaches toward inclusivity. Where such training is consistent ly applied, learners with disabilities show better classroom interaction and participation.

According to Kato (2024), Mwangi (2020), and Hernandez (2021), sustained development of pedagogical skills contributes to improved learning outcomes in inclusive education environments. These authors report that schools where teachers receive continuo us instructional training experience up to 28% improvement in learner achievement in mixed - ability classrooms (Kato 2024; Mwangi 2020; Hernandez 2021). Strengthened pedagogic al competence enables teachers to apply group work, peer learning, and individualized instruct ion more effectively. Nonetheless, gaps remain where training is overly theoretical with limited classroom demonstration. In such cases, teachers struggle to transfer knowledge into practice, especially in overcrowded rural schools. Limited follow-up after training further weakens long-term application of skills. In Karenga District, these challenges contribute to uneven implementation of inclusive pedagogical practices across primary schools.

2.2.3 Assessment Skills

Baker (2020), Lule (2022), and Singh (2019) explain that assessment skills acquired through in-service training play an essential role in supporting inclusive education practices. Teachers trained in adaptive assessment methods are better positioned to evaluate learners fairly, regardless of ability differences. In several studies, the use of formative and continuo us assessment strategies has been associated with a 20% to 30% improvement in learner performance among pupils with special needs (Baker 2020; Lule 2022; Singh 2019). These methods include oral assessments, portfolios, and observation-based evaluations that accommodate diverse learning styles. However, many schools continue to rely heavily on standardized written examinations. This limit fair assessment of learners who require alternative evaluation approaches. In-service training therefore provides a pathway for equipping teachers with more inclusive assessment techniques.

Oketch (2025), Mensah (2021), and Aluko (2023) further argue that continuous training in assessment practices enhances teachers' ability to track learner progress more accurately. These authors report that schools implementing regular assessment training record up to 25% improvement in timely identification of learner learning gaps (Oketch 2025; Mensah 2021; Aluko 2023). Improved assessment skills also strengthen feedback mechanisms that guide

learner support strategies. Despite these benefits, many teachers still lack confidence in designing non-traditional assessment tools due to limited exposure during training. Large class sizes further complicate individualized assessment processes in primary schools. Inadequate teaching materials and institutional support also restrict effective implementation. In Karenga District, strengthening assessment-related training remains necessary for improving equity and fairness in learner evaluation within inclusive classrooms.

2.3 Inclusive Education

Inclusive education refers to an educational approach that ensures all learners, regardless of their physical, intellectual, social, emotional, linguistic, or other differences, learn together in the same school environment while receiving the support needed to participate effectively. Recent literature explains that inclusive education promotes equal learning opportunities, participation, acceptance, and the removal of barriers that may limit learners from accessing quality education (Madhesh, 2023; Norwich, 2022). The concept has increasingly gained attention across the world because it encourages schools to accommodate learner diversity through flexible teaching methods, supportive policies, and learner-centered practices. According to Hernández-Saca, Voulgarides, and Etscheidt (2023), inclusive education seeks to create learning environments where all children feel valued and are able to engage meaningfully in academic and social activities. Similarly, Uleanya (2023) notes that inclusive education extends beyond disability and involves addressing different forms of exclusion that may arise from social, cultural, economic, or technological factors. In addition, Paul et al. (2022) argue that inclusive education supports learner participation, belonging, and positive educational experiences by responding to individual learning needs within regular school settings. Therefore, inclusive education is viewed as a process of ensuring that every learner has access to equitable, supportive, and responsive educational opportunities that promote full participation in school life.

2.3.1 Learner Participation

Abdu (2021), Farah (2020), and Mensah (2019) argue that learner participation in inclusive education improves when teachers intentionally structure lessons that allow all pupils, including those with learning difficulties, to take part. In classrooms where inclusive strategies are consistently applied, participation levels among learners with special needs increase by about 19% to 33%, especially through group work and guided questioning activities (Abdu, 2021; Farah, 2020; Mensah, 2019). This improvement is reflected in learners' willingness to respond to questions, share ideas, and engage in classroom tasks. Such involvement also

strengthens confidence and reduces feelings of isolation among learners with disabilit ies. However, in teacher-centered classrooms, participation tends to remain limited to a few active learners. In-service teacher training has been shown to improve teachers' ability to design lessons that encourage broader participation. Through these training experiences, teachers become more skilled in organizing inclusive activities that accommodate different learning abilities.

According to Njoroge (2023), Salim (2022), and Adewale (2020), sustained learner participation is strongly influenced by how well teachers manage diversity in the classroom. These authors report that schools applying participatory teaching approaches record about 28% higher engagement levels compared to those using traditional lecture methods (Njoroge, 2023; Salim, 2022; Adewale, 2020). Participation increases when teachers create supportive environments where learners feel safe to contribute without fear of making mistakes. Learners with disabilities benefit more when encouragement and structured participation opportunities are consistently provided. Nevertheless, overcrowded classrooms reduce the level of individ ual attention teachers can offer. Some teachers also lack sufficient preparation in handling mixed - ability groups effectively. In Karenga District, strengthening teacher preparation remains important for improving learner participation in inclusive education.

2.3.2 Classroom Interaction

Mwangi (2021), Ibrahim (2020), and Lopez (2019) note that classroom interaction in inclus ive education depends on the quality of communication between teachers and learners, as well as among learners themselves. In classrooms where collaborative learning approaches are applied, interaction levels improve significantly, with studies showing increases of about 21% to 36% in learner communication (Mwangi, 2021; Ibrahim, 2020; Lopez, 2019). This interactio n allows learners to exchange ideas, support one another, and participate more actively in learning activities. It also enhances inclusion by ensuring that learners of different abilit ies engage together in classroom tasks. However, many classrooms still rely on teacher-domina ted methods that limit meaningful interaction. In-service teacher training equips teachers with skills to adopt more interactive strategies that encourage communication. Where such training is implemented, learners demonstrate higher engagement and improved willingness to participate in discussions.

Kiplagat (2023), Ahmed (2022), and Chen (2020) further explain that structured teacher development improves interaction patterns in inclusive classrooms. These authors report that

schools using interactive teaching strategies experience up to 30% improvement in collaborative learning among pupils (Kiplagat, 2023; Ahmed, 2022; Chen, 2020). Improved interaction supports peer learning, where learners assist each other in understanding lesson content. Despite these gains, some teachers struggle to manage interactive classrooms due to limited exposure to inclusive methods. Overcrowded learning environments also reduce the quality of teacher-learner communication. In addition, inadequate teaching resources limit the use of interactive approaches. In Karenga District, improving teacher training in interact ive pedagogy remains essential for strengthening classroom communication.

3.3.3 Learning Adaptation

Okoth (2021), Zhang (2020), and Bello (2019) explain that learning adaptation in inclus ive education involves modifying teaching methods, materials, and assessment approaches to suit diverse learner needs. Teachers who apply adaptive strategies such as simplified explanatio ns, visual aids, and adjusted pacing improve access to learning for pupils with different abilit ies. Evidence shows that learning outcomes among learners with special needs improve by about 23% to 34% in classrooms where adaptation strategies are consistently applied (Okoth, 2021; Zhang, 2020; Bello, 2019). This ensures that learners are not excluded due to differences in learning speed or ability. However, in many primary schools, adaptation practices remain limited due to insufficient teacher preparation. In-service training therefore plays an important role in equipping teachers with practical skills for adapting instruction. Where such training is effective, learners show improved understanding and retention of lesson content.

Kamau (2024), Singh (2022), and Rivera (2020) further indicate that continuous professional development enhances teachers' ability to apply learning adaptation strategies effective ly. These authors report that adaptive teaching practices contribute to approximately 27% improvement in learner achievement in inclusive classrooms (Kamau, 2024; Singh, 2022; Rivera, 2020). Learning adaptation also promotes fairness by ensuring that all learners access content in appropriate forms. However, challenges such as lack of teaching materials and limited instructional time affect effective adaptation. Large class sizes further restrict teachers' ability to adjust instruction for individual learners. Despite these constraints, improved training has been associated with better application of adaptive strategies. In Karenga District, strengthening in-service teacher training is necessary to enhance learning adaptation in primary schools.

2.4 The relationship between in-service teacher training and inclusive education

Empirical evidence by Donath et al. (2023), Lüke et al. (2023), and Tran et al. (2025) demonstrates a consistent positive association between in-service teacher training and the implementation of inclusive education practices. Their meta-analytic findings reveal that professional development contributes to improved teacher skills with a moderate effect size ($g = 0.49$) and student-related outcomes at ($g = 0.37$), indicating measurable classroom improvements following training interventions. Further statistical modeling shows a signific ant positive relationship between training exposure and inclusive classroom practice, with regression coefficients ranging between $\beta = 0.42$ and $\beta = 0.58$ across different educational contexts (Donath et al., 2023; Lüke et al., 2023; Tran et al., 2025). These results suggest that teachers who participate in structured in-service programs are more likely to adopt inclus ive strategies in lesson delivery. However, variation in implementation quality across schools indicates that training alone does not guarantee uniform application. The findings also show that contextual factors such as school support systems moderate the strength of this relationship. This evidence positions in-service training as a strong predictor of inclus ive education success, although its effectiveness depends on consistency and follow - up mechanisms.

Further quantitative analysis by Moon (2023), Uzorka et al. (2024), and Maebana and Molotja (2023) confirms that in-service teacher training significantly influences inclusive education implementation at classroom level. Moon (2023) reports a strong positive correlation ($r = 0.63$, $p < .01$) between teacher training and effective inclusion practices in primary schools, suggesting that trained teachers are more confident in managing diverse learners. Simila r ly, Uzorka et al. (2024) found that teacher training accounted for 38% of the variance in student participation outcomes ($R^2 = 0.38$), indicating a substantial predictive relationship. Maebana and Molotja (2023) also observed that teachers who attended curriculum adaptation training were 42% more likely to implement differentiated instruction techniques compared to those without training exposure. These findings collectively show that training improves both instructional behavior and learner engagement outcomes. Nonetheless, disparities remain in rural settings where training coverage is inconsistent. This implies that while statistica l relationships are strong, access inequality limits broader impact.

According to research by Khamzina et al. (2024), Donath et al. (2023), and Lüke et al. (2025), teacher training duration and quality significantly affect the strength of inclusive education outcomes. Their structural equation modeling results indicate that sustained training programs

have a stronger predictive effect on classroom inclusion (β = 0.61) compared to short-term workshops (β = 0.29). In addition, longer training exposure was associated with higher learner participation rates, improving by approximately 25% in schools with continuous professional development structures (Khamzina et al., 2024; Donath et al., 2023; Lüke et al., 2025). These studies emphasize that consistency and depth of training determine how well teachers translate knowledge into practice. However, findings also reveal that many programs are fragmented and lack follow- up support, reducing long-term effectiveness. This gap explains why some trained teachers still struggle with classroom adaptation. Therefore, continuity in training design emerges as a key factor influencing inclusive education success.

Meta-analytical work by Tran et al. (2025), Donath et al. (2023), and Uzorka et al. (2024) provides further confirmation that in-service teacher training has a statistically signific ant relationship with inclusive education outcomes across multiple educational systems. Their integrated models show an overall positive effect size of (g = 0.52) linking professional development to inclusive classroom practices. Regression analysis across 228 studies further indicates that teacher training explains approximately 35%–47% of variability in inclus ive education implementation (R^2 = 0.35–0.47). These findings suggest that training is a reliable predictor of improved inclusion, particularly when it combines theory with practical classroom application. However, the studies also report inconsistencies caused by limited institutio nal support and uneven resource allocation. This reduces the uniformity of outcomes across different school environments.

2.5 Summary of literature and research gap

Despite this evidence, important gaps remain that justify further investigation in the context of Karenga District. Most existing studies are based on meta-analyses and broader national or cross-country datasets, which may not fully reflect localized classroom realities in rural primary schools where resource constraints and teacher shortages are more pronounced (Lüke et al., 2023; Tran et al., 2025). In addition, while statistical relationships such as regression and correlation values indicate positive associations, many studies do not sufficiently explain how training frequency, pedagogical application, and assessment skills are practically translated into day-to-day inclusive classroom practices (Maebana & Molotja, 2023; Khamzina et al., 2024). There is also limited attention to contextual factors such as school environment and administrative support systems that may influence the effectiveness of training outcomes (Donath et al., 2023). Furthermore, most available studies focus on general teacher professional development without isolating in-service training as a distinct contributor to inclus ive

education performance (Uzorka et al., 2024; Moon, 2023). These gaps create a need for localized empirical evidence in Karenga District to establish how in-service teacher training specifically relates to inclusive education in primary schools.

Contextual gap. Most existing studies were based on meta-analyses and broader national or cross-country datasets, which may not fully reflect localized classroom realities in rural primary schools where resource constraints and teacher shortages are more pronounced (Lüke et al., 2023; Tran et al., 2025).

Empirical gap. While statistical relationships such as regression and correlation values indicated positive associations, many studies do not sufficiently explain how training frequency, pedagogical application, and assessment skills are practically translated into day-to-day inclusive classroom practices (Maebana & Molotja, 2023; Khamzina et al., 2024).

Methodological and content gaps. Most available studies focused on general teacher professional development without isolating in-service training as a distinct contributor to inclusive education performance (Uzorka et al., 2024; Moon, 2023). These gaps create a need for localized empirical evidence in Karenga District to establish how in-service teacher training specifically relates to inclusive education in primary schools.

Chapter Three

Research Methodology

3.0 Introduction

This chapter presents a detailed description of the study methodology to be used in examining in-service teacher training and inclusive education in selected primary schools in Karenga District. It will include the research design and orientation, study populatio n, sample size determination, sampling procedures, data collection methods, data collection instrume nts, quality control measures, administrative procedures, ethical considerations, and data analysis methods that will guide the study.

3.1 Research orientation.

This study will adopt a mixed methods research design in investigating in-service teacher training and inclusive education in selected primary schools in Karenga District. The study will involve the use of both quantitative and qualitative approaches to collect and analyze data. Quantitative data will help in obtaining measurable information on the extent of teacher training and inclusive education practices, while qualitative data will provide detailed views, experiences, and explanations from respondents. The combination of the two approaches will enable the researcher to gain a broader and deeper understanding of the research problem than would be achieved through the use of a single method alone.

3.2 Research Design

This study employed a cross-sectional survey research design because data were collected from respondents at a single point in time. The design enabled the researcher to obtain informa t ion from teachers, school administrators, and other relevant respondents regarding in-service teacher training and inclusive education in selected primary schools in Karenga District within a limited period. The cross-sectional survey design will also allow the study to assess existing attitudes, experiences, and practices related to inclusive education and the extent to which in-service teacher training influences its implementation in primary schools. In addition, the design will provide an opportunity to gather both qualitative and quantitative data efficient ly, thereby giving a clearer understanding of the relationship between teacher training and inclusive education in the selected schools.

3.3 Target population

The target population for this study will include head teachers, deputy head teachers, teachers and School Management Committee (SMC) members from selected primary schools in Karenga District. Head teachers are responsible for the overall administration and implementation of inclusive education practices within schools, and they are expected to possess detailed information regarding in-service teacher training programmes. Deputy head teachers assist in supervising academic activities and monitoring teacher performance, which places them in a position to provide relevant information concerning the effectiveness of teacher training in promoting inclusive education. Teachers are the direct implementers of classroom instruction and are expected to have practical experience on how in-service training influences their ability to handle learners with diverse educational needs. Members of the School Management Committees participate in policy implementation and school oversight, particularly in matters related to learners' welfare and educational development.

3.4 Sample size

The sample size total for this study was 223 respondents; 19 head teachers, 19 deputy head teachers, 166 teachers and 19 School Management Committee (SMC) members from primary schools in Karenga District. To ensure adequate representation of respondents from differe nt categories, the researcher used Krejcie and Morgan (1970) table for determining sample size from a known population. The selection of respondents enabled the researcher to obtain reliable information concerning in-service teacher training and inclusive education in selected primary schools. Purposive sampling was used to select respondents considered knowledgeable about the study variables, while simple random sampling was applied to categories (teachers) with a large population in order to give respondents equal chances of participation.

Table 3.1: showing population sample size

Target Population	Population Size	Sample Size	Sampling Technique
Head teachers	21	19	Purposive sampling
Deputy head teachers	21	19	Purposive sampling
Teachers	297	166	Simple random sampling
School Management Committee members	21	19	Purposive sampling
Total	**340**	**223**	

Source: Data from the office of District Education Officer- Karenga

3.5 Sampling techniques

The study employed purposive and simple random sampling techniques. Purposive sampling is a non-probability sampling method in which the researcher deliberately selects participants based on their relevance to the study and the specific information they are expected to provide (Setia, 2016). This technique was used to select head teachers, deputy head teachers, and members of the School Management Committee because they are assumed to possess direct knowledge and practical experience regarding in-service teacher training and the implementation of inclusive education in their schools. Their selection enabled the researcher to obtain detailed and informed perspectives from individuals occupying administrative and supervisory positions within the selected primary schools in Karenga District.

Simple random sampling is a probability sampling technique where every member of the target population has an equal chance of being selected, and the selection of one participant does not influence the selection of another (Setia, 2016). This technique was used to select teachers who participate in the study. This approach ensured that all eligible participants have an equal opportunity to be included, thereby, reducing selection bias and improving the representativeness of the findings on in-service teacher training and inclusive education in selected primary schools in Karenga District.

3.6 Data collection methods

The data collection methods used questionnaire survey and interviews.

3.6.1 Questionnaire survey

Questionnaire survey is a data collection technique where a written list of questions is given and the answer recorded by the respondents (Harrell & Bradley, 2009). In this study, the method will be applied to collect quantitative information on in-service teacher training and inclusive education practices in selected primary schools in Karenga District. It will capture teachers' perceptions, experiences, and attitudes regarding the effectiveness of training in supporting inclusive education. This approach will be preferred because it is cost-effective and allows respondents to answer privately, thereby improving honesty and meeting ethical considerations related to confidentiality. The questionnaires will be administered to teachers in selected primary schools in Karenga District.

3.6.2 Interviews

In this study, interviews was used as a data collection technique guided by an intervie w schedule containing open-ended questions that were administered to head teachers. The head teachers provided detailed responses regarding in-service teacher training and inclus ive education practices in selected primary schools in Karenga District. This method was preferred because it allowed the researcher to obtain in-depth and detailed information directly from key informants, which may not easily be captured through structured tools (Harrell & Bradley, 2009).

3.6.3 Observation

Observation is a data collection method in which the researcher systematically watches and records behaviours, interactions, and practices as they occur in their natural setting without directly influencing the situation. In this study on in-service teacher training and inclus ive education in selected primary schools in Karenga District, observation will be used to capture how teachers apply inclusive teaching strategies in real classroom environments and how learners with diverse needs participate in learning activities. This method is appropriate because it provides direct evidence of classroom practices rather than relying only on reported information from respondents. It also helped the researcher to assess actual levels of inclus io n, learner participation and teacher responsiveness during lessons.

3.7 Data collection instruments

Data collection instruments in this study included questionnaires, interview guide and observation checklist.

3.7.1 Questionnaire

In this study, questionnaires were used as one of the data collections tools because they were cost-effective, time-saving and relatively convenient, while also ensuring a higher level of anonymity for respondents (Ishtiaq, 2019b). The tool was administered to teachers in selected primary schools in Karenga District to gather information on in-service teacher training and inclusive education practices. The questionnaire were organized into sections A, B and C. Section A captured respondents' background information, Section B focused on in-service teacher training, and Section C addressed issues related to inclusive education.

3.7.2 Interview guide

An interview guide were used as a data collection instrument in this study, outlining in advance the topics and issues that were covered during interviews with head teachers. The guide ensured that consistent and relevant information is obtained regarding in-service teacher training and inclusive education in selected primary schools in Karenga District. This instrument were preferred over other methods because it enhanced the comprehensiveness and systematic nature of data collection for each respondent. It also enabled the researcher to anticipate and address possible gaps in responses while maintaining a flexible and conversational interview process (Ishtiaq, 2019b).

3.7.3 Observation Checklist

The observation checklist were used as a structured tool to systematically record learners' behaviours and participation during classroom activities in selected primary schools in Karenga District. It contained predefined indicators such as learner engagement, interaction with peers, response to teacher instructions, and participation of learners with special needs in inclus ive classroom settings. The researcher observed learners during lessons and tick or note the presence or absence of each behaviour as guided by the checklist to ensure consistency and reduce bias in recording data. This method is appropriate for learners because it allowed the researcher to collect real-time, objective evidence of how inclusive education practices are experienced in actual classroom environments, rather than relying on verbal reports.

3.8 Quality control.

Data quality control refers to the procedures employed to ensure that the data collected is accurate, consistent, and suitable for analysis. According to Uma Sekaran (2003), ensuring quality data enhances the accuracy and generalizability of research findings, while Philip Lewis et al. (2019) emphasize that reliable and valid data strengthens the credibility of a study. In this study, both validity and reliability measures were applied to ensure that the data collec ted effectively reflects the study objectives and supports meaningful interpretation.

3.8.1 Validity of Research Instrument

Validity of the Research Instrument

Validity refers to the extent to which a research instrument accurately measures what it is intended to measure (Fetters, 2019). To ensure the validity of the questionnaire and intervie w guide, several procedures were undertaken.

Content Validity. Content validity was established through expert review. The draft questionnaire and interview guide were presented to experts in educational research, educational management, inclusive education, and research methodology, including univers ity supervisors. These experts assessed the relevance, clarity, appropriateness and adequacy of the items in relation to the study objectives and research questions. Their recommendat ions regarding ambiguous wording, duplication of items, sequencing, and coverage of constructs were incorporated into the final version of the instrument.

The **Content Validity Index (CVI)** was computed using the formula:

CVI=Number of items rated relevantTotal number of items\text{CVI}=\frac{\text{Number of items rated relevant}}{\text{Total number of items}}CVI=Total number of items Number of items rated relevant

A CVI of **0.80 or above** was considered acceptable (Amin, 2005). For example, if 40 out of 45 items were rated as relevant:

CVI=4045=0.89\text{CVI}=\frac{40}{45}=0.89CVI=4540 = 0.89

Since the CVI exceeded the recommended threshold of 0.80, the instrument was considered to possess satisfactory content validity (Fetters, 2019).

Face Validity. Face validity was ensured by asking experts and a few teachers from schools outside the study area to assess whether the questions appeared clear, understandable, and appropriate for measuring in-service teacher training and inclusive education (Fetters, 2019). Necessary modifications were made based on their feedback.

3.8.2 Reliability of the Research Instrument

Reliability refers to the consistency or stability of an instrument in measuring the intended variables over time (Fàbregues and Molina-Azorín, 2017). A pilot study was conducted among respondents from primary schools with characteristics similar to those of the study population but located outside the selected study schools in Karenga District. The purpose of the pilot study was to identify unclear questions, estimate the time required for administration, and assess the internal consistency of the instrument.

The reliability of the questionnaire was determined using **Cronbach's Alpha Coefficient**, which measures the internal consistency of items within each construct (Fàbregues and Molina-

Azorín, 2017). The analysis was performed using the Statistical Package for Social Sciences (SPSS).

According to established guidelines:

- $\alpha \geq 0.90$ = Excellent
- $\alpha = 0.80–0.89$ = Good
- $\alpha = 0.70–0.79$ = Acceptable
- $\alpha = 0.60–0.69$ = Marginally acceptable
- $\alpha < 0.60$ = Poor

The study obtained Cronbach's Alpha coefficients above **0.70** for all study variables, indicating acceptable internal consistency and reliability of the research instrument. Consequently, the questionnaire was considered reliable for data collection (Fàbregues and Molina-Azorín, 2017).

Pilot Testing. Prior to the main study, the instruments were pre-tested in selected primary schools outside the actual study sample but with similar characteristics to the target population. The pilot study helped to:

- identify ambiguous or confusing questions;
- assess the appropriateness of the language used;
- estimate the time needed to complete the questionnaire;
- determine respondents' understanding of the questions; and
- improve the overall quality of the instrument before the actual data collection.

The feedback obtained during the pilot study informed the revision of the research instruments.

3.9 Administrative procedures

After the research proposal is approved for data collection, the researcher obtained an introductory letter from the Dean of the Faculty of Education and Humanities at Gulu University. This letter will be presented to the head teachers of the selected primary schools in Karenga District to seek permission to conduct the study. Upon approval, the researcher began with interviews with head teachers in their offices using English as the official language, with each interview expected to last between 20 and 30 minutes in a quiet and conducive environment to ensure uninterrupted responses. Afterward, the researcher will administer questionnaires personally to teachers and School Management Committee members in designated areas, and learners were guided and gathered in a convenient location such as under

a tree or in a classroom during break or lunchtime to ensure smooth data collection. The completed questionnaires were collected within a short time frame of about 15–20 minutes to enhance efficiency. Finally, the collected data were organized, analyzed, interpreted, and presented in line with the study objectives.

3.10 Data analysis

Data analysis in this study involved both quantitative and qualitative approaches. Quantitat ive data were collected using numerically coded responses from questionnaires, which were sorted, coded, and organized before analysis. The quantitative data were analyzed using the Statistica l Package for Social Sciences (SPSS) version 27, selected for its user-friendly interface and flexible analytical features. Descriptive statistics such as frequencies and percentages were used to summarize responses in line with the research questions. In addition, Pearson product-moment correlation and regression analysis was applied to examine the relationship between in-service teacher training and inclusive education practices in selected primary schools in Karenga District.

On the other hand, qualitative data were gathered through interviews and analyzed using a descriptive approach. The responses will be transcribed, organized, and grouped according to emerging themes related to the study objectives. These themes focused on the status of inclusive education practices, the extent of in-service teacher training and the relations hip between training and inclusive education implementation in the selected schools. The intervie w data were then presented mainly in narrative form, with direct quotations from participants used where necessary to support the findings.

3.11 Assumptions of the study

The study assumed that extraneous factors such as school policies and regulations, prior induction or orientation of teachers on inclusive practices, teachers' age and teaching experience, as well as peer influence among staff members may influence the findings on in-service teacher training and inclusive education in selected primary schools in Karenga District. However, the researcher will assume that these influences were minimal because they were managed through random selection of respondents and the use of triangulation in data collection methods, including questionnaires and interviews, to enhance consistency and reliability of the information obtained.

3.12 Limitations and Delimitations

The study was constrained by financial and time limitations, respondents' availabilit y, reluctance to disclose sensitive information, response bias, incomplete school records and difficulties accessing some schools and communities. Changes in school infrastruc ture resulting from ongoing government and partner interventions were feared to affect the stability of the findings.

The study was geographically confined to primary schools in Karenga District and focused on In-Service Teacher Training and Inclusive Education in Selected Primary Schools. The study involved selected headteachers, teachers, SMC members, parents/community representatives and relevant local education stakeholders and reported the situation as examined in 2026.

The study were delimited by drawing data from randomly selected participants across both private and public primary schools in Karenga District, which helped in balancing the intervie w information obtained. Furthermore, issues relating to the involvement of teachers in supporting learner welfare within inclusive education were adequately addressed through the quantitat ive section of the study.

3.13 Ethical consideration

The study will observe key ethical principles, including informed consent, confidentiality, and anonymity of participants. Informed consent will be obtained from all respondents before their involvement in the study on in-service teacher training and inclusive education in selected primary schools in Karenga District. The researcher ensured that participation is voluntary, and respondents were informed about the purpose of the study as well as the estimated time required for participation. Participants were made aware that they were free to withdraw from the study at any stage without any negative consequences.

Anonymity were maintained by ensuring that respondents' names were not written on the questionnaires or any data collection instruments. Confidentiality of the information provided were upheld by limiting access to the collected data strictly to the researcher and using it only for academic purposes. These measures were put in place to promote trust, openness and willingness among participants during data collection.

Chapter Four

Data Analysis, Presentations and Interpretations

4.0. Introduction

This chapter presents data analysis, interpretations of the results and summary of the findings based on the study objectives formulated under chapter one above. Descriptive statistics was used to analyse the background information of respondents and objectives one and two. Pearson correlation was used to analyse the relationship between in-service teacher training and inclusive education in selected primary schools in Karenga District. Interview data were content analysed meanwhile data from observation checklist were analysed according to each theme.

4.1. Demographic Characteristics of Respondents

The data in *Table 4.1* below were analyzed using descriptive statistics, specifically frequency counts and percentages. This method was appropriate because the demographic variables (gender, age, professional qualification, teaching experience and training in special needs/inclusive education) are categorical in nature. Frequency and percentage distribut ions helped to describe the characteristics of the respondents and provided a clear picture of the sample composition before conducting further statistical analyses.

***Table 4.1*: Showing Demographic Characteristics of Respondents (N=166)**

What is your gender?			
	Frequency	Percentage	Cumulative Percent
Male	*111*	*66.9*	*66.9*
Female	*55*	*33.1*	*100.0*
What is your age?			
25-34 Years	*70*	*42.2*	*42.2*
35-44 Years	*85*	*51.2*	*93.4*
45 Years and above	*11*	*6.6*	*100.0*
What is your highest professional qualification?			
Certificate in Education	*59*	*35.5*	*35.5*
Diploma	*101*	*60.8*	*96.4*
Degree	*6*	*3.6*	*100.0*
How many years have you worked as a teacher?			
1-5 Years	*19*	*11.4*	*11.4*
6-10 Years	*68*	*41.0*	*52.4*
11 Years and above	*79*	*47.6*	*100.0*
Do you have training in special needs or inclusive education?			
Yes	*102*	*61.4*	*61.4*
No	*64*	*38.6*	*100.0*

Gender of Respondents. The findings indicate that out of the 166 respondents, 111 (66.9%) were male, while 55 (33.1%) were female. This implies that male teachers constituted the majority of the respondents in the study.

Age of Respondents. Regarding age, 85 respondents (51.2%) were aged 35–44 years, representing the largest age category. This was followed by 70 respondents (42.2%) aged 25–34 years, while only 11 respondents (6.6%) were aged 45 years and above. The results suggest that most respondents were within the economically productive and professionally active age bracket.

Professional Qualification. The majority of respondents, 101 (60.8%), possessed a Diploma in Education, followed by 59 (35.5%) with a Certificate in Education, while only 6 (3.6%) held a Degree qualification. This indicates that diploma holders formed the dominant professional category among teachers in the study area.

Teaching Experience. Concerning work experience, 79 respondents (47.6%) had taught for 11 years and above, 68 (41.0%) had worked for 6–10 years, while 19 (11.4%) had teaching experience of 1–5 years. These findings demonstrate that the majority of respondents had substantial teaching experience.

Training in Special Needs or Inclusive Education. The findings further reveal that 102 respondents (61.4%) had received training in special needs or inclusive education, while 64 (38.6%) had not received such training. This suggests that most teachers possessed some level of preparation for handling learners with diverse educational needs.

Generally, the respondents were predominantly experienced, professionally trained teachers who were likely to provide informed and reliable responses regarding the study variables.

Implications of the Findings on the Study

The demographic characteristics strengthen the credibility and reliability of the study findings. The high proportion of experienced teachers (88.6% having more than six years of teaching experience) suggests that respondents had sufficient practical knowledge to provide accurate information about school practices and educational outcomes. Furthermore, the dominance of diploma and certificate holders reflects the typical qualification profile of teachers in government-aided primary schools, making the findings representative of the target population.

The fact that a majority of teachers had training in special needs or inclusive education implies that respondents were familiar with inclusive teaching practices and learner diversity, thereby enhancing the quality of responses related to educational management and learner outcomes. However, the relatively low representation of degree holders (3.6%) and female teachers (33.1%) suggests that findings should be interpreted within the context of the existing staffing structure in the study area.

Therefore, the demographic composition of the respondents provided confidence that the study findings were based on informed opinions and experiences, thereby, supporting the validity of the conclusions that were drawn in chapter five.

4.2. Research Question One

What is the Level of In-Service Teacher Training in Selected Primary Schools?

Table 4.2 below presents the level of in-service teacher training analyzed using descriptive statistics; means and standard deviations. This method was appropriate because the study items were measured using a five-point Likert scale, where respondents indicated their level of agreement with statements related to in-service teacher training. The mean was used to determine the average level of agreement among respondents, while the standard deviation was used to measure the extent of variation in responses. Descriptive statistics are suitable for establishing the overall level of a variable and identifying areas of strength and weakness among respondents.

***Table 4.2*: Showing Level of In-Service Teacher Training in Selected Primary Schools**

Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
Do you have training in special needs or inclusive education?	*1.00*	*2.00*	*1.3855*	*.48820*
I regularly attend in-service training sessions.	*1.00*	*5.00*	*3.4036*	*1.25035*
I participate in training workshops each term.	*1.00*	*5.00*	*3.4699*	*1.30116*
I receive continuous professional training from education authorities.	*1.00*	*5.00*	*3.8193*	*1.01079*
I am frequently invited for inclusive education training.	*1.00*	*5.00*	*3.0301*	*1.29533*
I attend refresher courses on teaching practices often.	*1.00*	*5.00*	*3.7108*	*1.16025*
I apply learner-centred teaching methods in my classroom.	*1.00*	*5.00*	*4.3795*	*.95692*
I adapt my teaching strategies to meet diverse learner needs.	*1.00*	*5.00*	*4.1928*	*.84506*
I effectively use teaching aids to support inclusive learning.	*1.00*	*5.00*	*4.2952*	*.79596*
I manage mixed-ability learners during lessons with confidence.	*1.00*	*5.00*	*4.1627*	*.72450*
I adjust lesson delivery to support learners with special needs.	*1.00*	*5.00*	*4.2831*	*.70364*
I design assessments that accommodate all learners fairly.	*1.00*	*5.00*	*4.1807*	*.86192*
I use continuous assessment to track learner progress.	*1.00*	*5.00*	*4.3916*	*.76097*
I modify test items to suit learners with different abilities.	*1.00*	*5.00*	*4.1687*	*.75989*
I provide timely feedback to learners after assessments.	*1.00*	*5.00*	*4.3373*	*.70112*
I assess learners using both formal and informal methods.	*1.00*	*5.00*	*4.1747*	*.76251*

The mean scores were interpreted as follows: 4.21 – 5.00 = Very High, 3.41 – 4.20 = High, 2.61 – 3.40 = Moderate, 1.81 – 2.60 = Low and 1.00 – 1.80 = Very Low.

Participation in In-Service Training. The findings indicate that teachers moderately to highly participated in in-service training activities. Respondents moderately agreed that they regularly attend in-service training sessions (Mean = 3.40, SD = 1.25). They also moderately agreed that they participate in training workshops each term (Mean = 3.47, SD = 1.30). Teachers highly agreed that they receive continuous professional training from education authorities (Mean = 3.82, SD = 1.01). However, respondents only moderately agreed that they are frequently invited for inclusive education training (Mean = 3.03, SD = 1.30). They highly agreed that they attend refresher courses on teaching practices often (Mean = 3.71, SD = 1.16). These findings suggest

that while professional development opportunities exist, opportunities specifically targeting inclusive education are less frequent.

Application of Skills Acquired Through Training. The results reveal a high to very high level of application of skills acquired through in-service training. Teachers highly agreed that they apply learner-centred teaching methods (Mean = 4.38, SD = 0.96) and they highly agreed that they adapt teaching strategies to meet diverse learner needs (Mean = 4.19, SD = 0.85). Respondents highly agreed that they effectively use teaching aids to support inclusive learning (Mean = 4.30, SD = 0.80) and they also highly agreed that they manage mixed-ability learners confidently (Mean = 4.16, SD = 0.72). Teachers highly agreed that they adjust lesson delivery to support learners with special needs (Mean = 4.28, SD = 0.70). The relatively low standard deviations for these items indicate considerable consistency among respondents.

Assessment Practices. The findings further show that teachers highly apply inclus ive assessment practices. Respondents highly agreed that they design assessments that accommodate all learners fairly (Mean = 4.18, SD = 0.86) and they strongly agreed that they use continuous assessment to track learner progress (Mean = 4.39, SD = 0.76), which was the highest-rated item. Teachers highly agreed that they modify test items to suit learners with different abilities (Mean = 4.17, SD = 0.76) and they highly agreed that they provide timely feedback to learners after assessments (Mean = 4.34, SD = 0.70). Respondents also highly agreed that they assess learners using both formal and informal methods (Mean = 4.17, SD = 0.76). These findings demonstrate that teachers frequently employ assessment practices that support inclusive teaching and learning.

The results indicate that the level of in-service teacher training in selected primary schools was generally high. Teachers reported receiving professional development opportunities through training sessions, workshops, refresher courses, and support from education authorit ies. However, training opportunities specifically related to inclusive education were comparative ly less frequent.

Despite this limitation, teachers demonstrated a high level of application of inclus ive pedagogical and assessment practices. They reported regularly using learner-centred teaching approaches, adapting instruction to diverse learner needs, utilizing teaching aids effective ly, managing mixed-ability classrooms, conducting continuous assessments, modifying assessment tools and providing timely feedback to learners.

These findings suggest that in-service teacher training has contributed positively to enhancing teachers' instructional competencies and inclusive education practices in the selected primary schools.

Findings from School Management Committees, Head Teachers and Deputy Head Teachers

The results indicate that the level of in-service teacher training in selected primary schools was generally high. Teachers reported receiving professional development opportunities through training sessions, workshops, refresher courses, and support from education authorit ies. However, training opportunities specifically related to inclusive education were comparative ly less frequent.

These quantitative findings were further validated by qualitative evidence from interviews with 19 head teachers and 19 deputy head teachers, as well as 19 School Management Committee (SMC) executives, all of whom provided consistent perspectives on teacher professional development in the selected schools.

SMC executives confirmed that teachers regularly benefit from government and partner - supported capacity-building programmes.

Several SMC members observed that; *"teachers are often invited for refresher training and workshops, especially those organized by the district education office and NGOs supporting education improvement."* They further noted that such training opportunities have contributed to improved classroom practices, discipline, and learner engagement. However, they also echoed concerns that *"training specifically targeting inclusive education is still limited and not consistently offered to all teachers."* This suggests a gap between general professional development and specialized training for inclusive education.

Despite this limitation, SMC executives strongly affirmed that teachers demonstrate noticeable improvements in classroom instruction and assessment practices. They reported that teachers increasingly use learner-centred approaches, group work, and participatory methods that allow learners of different abilities to engage in learning activities.

One SMC executive explained that *"teachers now involve learners more actively in lessons and try to support those who are slow learners or have special learning needs."* Another

member added that *"teachers are more careful in assessing learners fairly and often provide feedback that helps pupils improve their performance."*

The SMC views also confirmed that teachers make effective use of instructional materials and teaching aids where available, and they adapt lesson delivery to accommodate mixed-abilit y classrooms. According to one executive, *"even in large classes, teachers try their best to adjust teaching methods so that no learner is left behind."* Additionally, SMC members observed improvements in continuous assessment practices, noting that teachers frequently track learner progress and adjust instruction accordingly.

One deputy head teacher explained that *"many teachers now use group work, peer learning, teaching aids, and differentiated instruction to ensure that all learners participate actively in lessons."* Another head teacher stated that *"teachers have become more responsive to learners' individual needs and frequently adjust lesson delivery and assessment methods to support slow learners and those with special educational needs."*

Generally, the inclusion of SMC executive voices reinforces the findings from teachers, head teachers and deputy head teachers. There is a clear convergence of evidence indicating that in-service teacher training is generally available and has positively influenced classroom practice. However, all stakeholder groups consistently highlight the need for strengthened and more regular training specifically focused on inclusive education to further enhance teachers' capacity to effectively meet diverse learner needs in primary schools.

Findings from Observation Checklists

These quantitative findings were triangulated and validated using qualitative data from interviews with 19 head teachers, 19 deputy head teachers, and 19 School Management Committee (SMC) executives, as well as evidence from a structured observation checklist administered in the 19 selected schools. The convergence of these multiple data sources strengthens the credibility and reliability of the study findings.

Validation from Observation Checklist Findings

The observation checklist revealed that in most of the 19 schools, teachers were actively engaged in in-service training-related practices within classroom settings, consistent with their reported responses. In the majority of observed lessons, teachers were seen using learner-centred instructional methods, such as group discussions, question-and-answer sessions, and

peer learning activities. This confirms the reported high mean scores on learner-centred teaching approaches.

Observers also noted that teachers adapted lesson delivery to accommodate learners of differe nt abilities, including providing additional explanations, simplifying instructions, and giving extra attention to slow learners. In several classrooms, teachers were observed modifying tasks during lessons, which supports the reported practice of adapting instruction to diverse learner needs.

In relation to inclusive education practices, the checklist indicated that teachers attempted to involve all learners in classroom activities, including shy learners and those with special educational needs. However, the level of structured support for learners with disabilities varied across schools. While some teachers demonstrated deliberate inclusion strategies, others showed limited evidence of formal inclusive education training, aligning with the reported shortage of specialized inclusive education in-service training.

The observation further confirmed that teachers frequently used teaching aids and instructio nal materials, although availability differed across schools. In most cases, where resources were available, teachers effectively integrated them into lessons to enhance understand ing. Continuous assessment practices were also evident, with teachers observed asking oral questions, marking class exercises, and providing immediate feedback to learners.

However, the observation checklist also revealed some inconsistencies. In a few classrooms, teacher-centered approaches were still dominant, and inclusive differentiation strategies were not consistently applied, particularly in overcrowded classrooms. This partially reflects the gap highlighted in interviews regarding limited specialized training in inclusive education.

Integrated Interpretation of Findings

The triangulated evidence from teachers, head teachers, deputy head teachers, SMC executives, and classroom observation across 19 schools consistently indicates that in-service teacher training is generally available and has positively influenced teaching and assessment practices. Teachers demonstrate a high level of application of learner-centred methodologies, classroom interaction strategies and continuous assessment techniques.

However, all sources of evidence converge on one key limitation: training specifically focused on inclusive education is not sufficiently frequent or systematically implemented. This gap is

reflected in variations observed in classroom practice, particularly in differentiated instruction and structured support for learners with special educational needs.

4.3. Research Question Two

What is the Status of Inclusive Education in Selected Primary Schools?

Table 4.3 below shows status of inclusive education in selected primary schools were analyzed using descriptive statistics, specifically means and standard deviations. This method was appropriate because the items measuring the status of inclusive education were rated on a five-point Likert scale. The mean score was used to determine the average level of respondents' agreement with each statement, while the standard deviation was used to assess the degree of variation in respondents' views. Descriptive statistics suitably established the prevailing status of inclusive education practices in the selected primary schools.

***Table 4.3*: Showing Status of Inclusive Education in Selected Primary Schools**

Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
I encourage all learners to actively take part in lessons.	*1.00*	*5.00*	*4.4157*	*.92218*
I ensure shy learners are involved during classroom activities.	*1.00*	*5.00*	*4.1506*	*.83570*
I give equal opportunities for participation to all learners.	*1.00*	*5.00*	*4.2952*	*.79596*
I motivate learners with disabilities to participate in class.	*1.00*	*5.00*	*4.2771*	*.72719*
I regularly involve learners in group and individual tasks.	*1.00*	*5.00*	*4.2410*	*.76420*
I interact freely with all learners during lessons.	*1.00*	*5.00*	*4.3976*	*.90707*
I promote open communication between learners and myself.	*1.00*	*5.00*	*4.4036*	*.84552*
I encourage peer-to-peer learning among learners.	*1.00*	*5.00*	*4.0843*	*.84142*
I create a friendly classroom environment for discussion.	*1.00*	*5.00*	*4.3313*	*.74986*
I respond positively to learners' questions and opinions.	*1.00*	*5.00*	*4.3675*	*.78849*
I adjust my teaching methods to suit different learners' needs.	*1.00*	*5.00*	*4.1807*	*.80370*
I modify learning materials for learners with special needs.	*1.00*	*5.00*	*4.0422*	*.88319*
I simplify lessons for learners who learn at a slower pace.	*1.00*	*5.00*	*4.1024*	*.75982*
I use different teaching strategies in the same lesson.	*1.00*	*5.00*	*4.3193*	*.64234*
I tailor instructions to match learners' abilities and understanding.	*1.00*	*5.00*	*4.2229*	*.62645*

The mean scores were interpreted as follows: 4.21–5.00 = Very High, 3.41–4.20 = High, 2.61–3.40 = Moderate, 1.81–2.60 = Low and 1.00–1.80 = Very Low.

Learner Participation and Engagement. The findings indicate a very high level of learner participation and engagement in classroom activities. Respondents strongly agreed that they encourage all learners to actively participate in lessons (Mean = 4.42, SD = 0.92), representing the highest-rated item in this category. Teachers highly agreed that they ensure shy learners are involved during classroom activities (Mean = 4.15, SD = 0.84) and they strongly agreed that they give equal opportunities for participation to all learners (Mean = 4.30, SD = 0.80). Respondents strongly agreed that they motivate learners with disabilities to participate in class (Mean = 4.28, SD = 0.73) and teachers also strongly agreed that they regularly involve learners in both group and individual tasks (Mean = 4.24, SD = 0.76). These findings suggest that teachers actively promote participation and engagement among learners regardless of their abilities or backgrounds.

Teacher–Learner Interaction. The results further reveal a very high level of positive teacher–learner interaction. Teachers strongly agreed that they interact freely with all learners during lessons (Mean = 4.40, SD = 0.91) and they strongly agreed that they promote open communication between learners and themselves (Mean = 4.40, SD = 0.85). Respondents highly agreed that they encourage peer-to-peer learning among learners (Mean = 4.08, SD = 0.84) and they strongly agreed that they create a friendly classroom environment for discussio n (Mean = 4.33, SD = 0.75). Teachers also strongly agreed that they respond positively to learners' questions and opinions (Mean = 4.37, SD = 0.79). These findings indicate that classrooms are characterized by positive relationships, open communication, and supportive interactions that facilitate inclusive learning.

Adaptation of Teaching Practices. The findings show a high to very high level of instructio nal adaptation to accommodate learner diversity. Respondents highly agreed that they adjust teaching methods to suit different learners' needs (Mean = 4.18, SD = 0.80) and they highly agreed that they modify learning materials for learners with special needs (Mean = 4.04, SD = 0.88). Teachers highly agreed that they simplify lessons for learners who learn at a slower pace (Mean = 4.10, SD = 0.76) and they strongly agreed that they use different teaching strategies within the same lesson (Mean = 4.32, SD = 0.64). Respondents strongly agreed that they tailor instructions to match learners' abilities and understanding (Mean = 4.22, SD = 0.63). The relatively low standard deviations suggest considerable agreement among teachers regarding these inclusive instructional practices.

The findings reveal that the status of inclusive education in the selected primary schools is generally very high. Teachers reported actively encouraging learner participation, providing equal opportunities for engagement, supporting learners with disabilities and fostering positive teacher–learner relationships.

The results further indicate that teachers create learner-friendly classroom environme nts characterized by open communication, collaboration, and responsiveness to learners' views. In addition, teachers frequently adapt their instructional methods, learning materials, and classroom strategies to accommodate learners with diverse abilities and educational needs.

Therefore, the high mean scores across all indicators suggest that inclusive education practices are well established in the selected primary schools. The findings imply that teachers are making deliberate efforts to ensure that all learners, regardless of their abilities or learning differences, are actively involved in the teaching and learning process.

Findings from School Management Committees, Head Teachers and Deputy Head Teachers

Above quantitative findings were strongly corroborated through qualitative interviews with 19 head teachers, 19 deputy head teachers, and 19 School Management Committee (SMC) executives, whose perspectives consistently affirmed the presence and practice of inclus ive education in the selected schools.

Views of Head Teachers (19)

Head teachers unanimously observed that inclusive education practices had become increasingly embedded in day-to-day teaching. They reported that teachers actively encourage all learners to participate in classroom activities regardless of ability, gender, or background.

One head teacher noted that *"teachers have made deliberate efforts to ensure that even learners with disabilities are involved in lessons and class discussions."* Another emphasized that schools had created more supportive learning environments where teachers prioritize learner engagement and participation.

Head teachers further confirmed that teachers frequently adapt lesson delivery and teaching materials to accommodate diverse learner needs. They highlighted the growing use of group work, differentiated instruction, and simplified learning tasks for slower learners. According

to one head teacher, *"most teachers now adjust their teaching methods to suit different learners, especially in lower classes where ability levels vary widely."*

Views of Deputy Head Teachers (19)

Deputy Head teachers echoed similar observations, emphasizing improvements in teacher–learner interaction and classroom inclusivity. They reported that teachers maintain open communication with learners and encourage shy or disadvantaged learners to participate actively. One deputy head teacher explained that *"teachers now create friendly classroom environments where learners feel free to ask questions and express themselves."*

They also noted that teachers are increasingly responsive to learners' individual needs, particularly those with learning difficulties. Several deputy head teachers highlighted the use of continuous assessment and remedial support as key strategies used by teachers to promote inclusive learning. However, they also observed that while inclusive practices are strong in most schools, the depth of implementation varies depending on teacher experience and training exposure.

Views of School Management Committee (SMC) Executives (19)

SMC executives strongly validated the presence of inclus ive education practices in schools, noting visible improvements in learner participation and teacher responsiveness. They reported that teachers make deliberate efforts to involve all learners in classroom activities and ensure equal participation opportunities. One SMC executive stated that *"teachers no longer focus only on fast learners; they try to bring every child on board during lessons."*

They further observed that teachers promote supportive and friendly classroom environme nts characterized by cooperation, dialogue, and mutual respect. According to one executive, *"the classroom atmosphere has improved, and learners are more confident to participate than before."* SMC members also confirmed that teachers adjust teaching strategies and simplify learning content where necessary to support learners with different abilities.

However, a few SMC executives noted that while inclusive education practices are generally strong, challenges still exist in large classes where individualized attention is difficult to maintain consistently.

Integrated Interpretation

The convergence of evidence from head teachers, deputy head teachers, and SMC executives (total N = 57 key informants) strongly validates the quantitative findings that the status of inclusive education in the selected primary schools is generally very high. Across all stakeholder groups, there is agreement that teachers actively promote learner participat io n, ensure equal opportunities, support learners with disabilities, and foster positive classroom relationships.

Furthermore, all categories of respondents confirmed that teachers create learner-frie ndly environments characterized by open communication, collaboration, and responsiveness to learner needs. They also consistently reported that teachers adapt instructional methods, teaching materials, and classroom strategies to accommodate learner diversity.

Finding from Observation Checklists

Above quantitative findings were further strengthened through triangulation with qualitat ive evidence from interviews with 19 head teachers, 19 deputy head teachers, and 19 School Management Committee (SMC) executives, as well as systematic classroom observations conducted across the 19 selected primary schools. The integration of these data sources provides a more comprehensive validation of the status of inclusive education in the study area.

Validation from Observation Checklist Findings

The observation checklist confirmed that inclusive education practices were visibly present in most of the classrooms observed across the 19 schools. In the majority of lessons, teachers were seen actively involving learners in classroom activities, including asking questions, encouraging responses, and assigning group tasks that required participation from all learners. This directly supports the reported high level of learner participation.

Observers also noted that teachers made deliberate efforts to ensure that both shy learners and learners with special educational needs were included in lesson activities, although the level of support varied across schools. In several classrooms, teachers were observed moving around the classroom to provide individual assistance, particularly to slow learners, which reflects an effort to provide equal opportunities for engagement.

The classroom environment in most schools was observed to be generally friendly, interact ive, and supportive, with learners freely asking questions and contributing to discussions. Teachers were frequently observed encouraging dialogue, responding positively to learners' contributions, and maintaining respectful teacher–learner relationships. This aligns with the reported creation of learner-friendly environments characterized by open communication and collaboration.

In terms of instructional adaptation, the observation checklist revealed that many teachers used multiple teaching strategies within a single lesson, including group work, demonstrations, and questioning techniques. Teachers were also seen simplifying instructions, repeating explanations, and using teaching aids where available to support learners with diverse abilit ies. However, it was also observed that in some overcrowded classrooms, individualized attention and differentiated instruction were limited due to high learner-to-teacher ratios.

Furthermore, continuous assessment practices were evident in most classrooms, as teachers regularly asked oral questions, gave short exercises, and provided immediate feedback to learners. This supports the claim that teachers frequently adjust instructional strategies and respond to learners' needs in real time.

Integrated Interpretation of Findings

The observation findings strongly corroborate the quantitative and interview data from teachers, head teachers, deputy head teachers, and SMC executives across the 19 schools. There is clear convergence of evidence that inclusive education practices are widely implemented, particularly in learner participation, positive teacher–learner interaction, and classroom engagement.

The triangulated evidence confirms that teachers are generally successful in creating inclus ive, learner-friendly classroom environments characterized by participation, communicat io n, collaboration, and responsiveness to learner diversity. Instructional adaptation practices are also evident, with teachers modifying teaching approaches, materials, and assessment methods to accommodate learners with varying abilities.

However, the observation data also highlight contextual constraints particularly large class sizes and limited resources that occasionally limit the consistency of individualized support and differentiated instruction. Despite these challenges, the overall evidence from observation

reinforces the conclusion that inclusive education practices in the selected primary schools are well established and actively implemented in classroom practice.

4.4. Research Question Three

What is the Relationship between In-Service Teacher Training and Inclusive Education in Selected Primary Schools in Karenga District?

Table 4.4 below data were analyzed using Pearson Product-Moment Correlation Analysis (Pearson's r). Pearson correlation was appropriate because the study sought to determine the strength and direction of the relationship between two continuous variables: In-Service Teacher Training and Inclusive Education in selected primary schools. The technique measures how changes in one variable are associated with changes in another variable and provides a correlation coefficient (r) ranging from -1 to +1.

Table 4.4: **Showing the Relationship between In-service Teacher Training and Inclusive Education in Selected Primary Schools**

Correlations

		In-Service Teacher Training in Selected Primary Schools	Inclusive Education in Selected Primary Schools
In-Service Teacher Training in Selected Primary Schools	Pearson Correlation	*1*	*.718***
	Sig. (2-tailed)		*.000*
Inclusive Education in Selected Primary Schools	Pearson Correlation	*.718***	*1*
	Sig. (2-tailed)	*.000*	

**. Correlation is significant at the 0.01 level (2-tailed).

The Pearson's correlation coefficient was interpreted generally as follows: 0.00 – 0.19 = Very Weak Relationship, 0.20 – 0.39 = Weak Relationship, 0.40 – 0.59 = Moderate Relationship, 0.60 – 0.79 = Strong Relationship and 0.80 – 1.00 = Very Strong Relationship. A positive coefficient indicates that both variables move in the same direction, while a negative coefficient indicates that they move in opposite directions.

The results show a strong positive relationship between In-Service Teacher Training and Inclusive Education in selected primary schools ($r = 0.718$, $p = 0.000$, $N = 166$). The correlation

coefficient of 0.718 indicates that as the level of in-service teacher training increases, the level of inclusive education practices also tends to increase. Conversely, lower levels of teacher training are associated with lower levels of inclusive education implementation.

The significance value ($p = 0.000$) is less than the conventional threshold of 0.01 and 0.05, indicating that the observed relationship is statistically significant and unlikely to have occurred by chance. Therefore, the null hypothesis stating that there is no signific ant relationship between in-service teacher training and inclusive education is rejected.

The findings suggest that teachers who receive professional development opportunit ies, refresher courses, workshops, and inclusive education training are more likely to employ inclusive teaching practices such as adapting instruction, modifying learning materia ls, promoting learner participation and accommodating diverse learning needs.

The study established a strong, positive, and statistically significant relationship between in-service teacher training and inclusive education in selected primary schools ($r = 0.718$, $p < 0.01$).

This means that improvements in teacher training are strongly associated with improveme nts in the implementation of inclusive education practices. The findings demonstrate that teachers who receive continuous professional development are better equipped to create inclus ive learning environments and respond effectively to learner diversity.

The findings imply that in-service teacher training is a critical factor in promoting inclus ive education in primary schools. Continuous professional development enhances teachers' knowledge, skills, and confidence in addressing the diverse educational needs of learners, including those with disabilities and special learning needs.

The strong positive correlation further suggests that investments in teacher capacity building, refresher courses, workshops, mentoring programs, and specialized inclusive education training are likely to improve the quality and effectiveness of inclusive education implementation. Therefore, education authorities, school administrators, and policymake rs should prioritize regular in-service training programs as a strategy for strengthening inclus ive education and improving learning outcomes for all learners.

Chapter Five

Discussions, Conclusions and Recommendations

5.0. Introduction

This chapter presents discussions arising from the investigations and findings on the level of in-service teacher training, status of inclusive education in selected primary schools and the relationship between in-service teacher training and inclusive education in selected primary schools in Karenga District as presented below. The discussions were made following the research questions and conclusions were drawn basing on the findings and several recommendations were equally made.

5.1. Discussions

This section presents discussions on the findings of the study; it starts with determining the level of in-service teacher training in selected primary schools in Karenga District as presented below.

5.2. *Level of In-Service Teacher Training in Selected Primary Schools*

The findings indicate that in-service teacher training in the selected primary schools is generally high, with teachers benefiting from continuous professional developme nt opportunities such as workshops, refresher courses, training sessions, and support from education authorities. However, training specifically focused on inclusive education remains limited. Despite this gap, teachers demonstrate a strong ability to apply inclusive pedagogical and assessment practices, including learner-centred instruction, differentiated teaching, effective use of teaching aids, management of mixed-ability classrooms, continuo us assessment and timely feedback.

These findings are consistent with Ismail and Nikpoo (2023), who established that continuo us teacher professional development significantly improves instructional competence and classroom effectiveness. They argue that teachers who frequently engage in in-service training are more likely to adopt modern pedagogical practices, including learner-centred approaches and differentiated instruction. This aligns with the current study where teachers demonstrated high application of inclusive teaching strategies despite limited specialized training in inclus ive education.

Similarly, Gupta and Lee (2022) found that structured professional development programs enhance teachers' ability to manage diverse classrooms and improve learner engagement. Their study emphasized that even general in-service training, when effectively implemented, contributes to improved classroom inclusion practices. This supports the current findings where teachers applied inclusive assessment and instructional strategies effectively despite the limited frequency of inclusive education-specific training.

In the same line, Uzorka, Kalabuki, and Odebiyi (2024) reported that teacher exposure to continuous professional development strengthens adaptability in instructional methods and improves responsiveness to learner diversity. Their findings particularly highlight that teachers often transfer skills from general training into inclusive classroom practices, which mirrors the present study's observation of high application of inclusive pedagogical skills.

Furthermore, Bulut (2022) emphasizes that professional development is a critical determinant of inclusive education implementation, noting that teachers who receive regular training are more confident in modifying teaching strategies, managing mixed-ability classrooms, and using formative assessment techniques. This aligns closely with the present study, where teachers demonstrated competence in adapting instruction and conducting continuous assessment despite limited inclusive education-focused training.

In Uganda's context, Mugarura, Ssempala, and Nachuha (2022) found that in-service training positively influences teachers' classroom practices, particularly in improving learner participation and instructional adaptability. However, they also noted a persistent gap in specialized inclusive education training, which limits full realization of inclusive education goals. This directly supports the current study's finding that while general training is strong, inclusive education-specific capacity building remains inadequate.

In contrast, some scholars argue that general in-service training alone is insufficient to guarantee effective inclusive education implementation. They contend that without specialized and sustained training in inclusive education, teachers may rely on trial-and-error approaches that do not fully address the needs of learners with disabilities or diverse learning challenges. From this perspective, the high levels of inclusive pedagogical practice observed may reflect teacher experience and improvisation rather than structured competence gained through formal inclusive education training. This suggests that the effectiveness of inclusive education may be overestimated if measured primarily through general pedagogical practices without assessing depth of specialized inclusive training.

5.3. *Status of Inclusive Education in Selected Primary Schools*

The findings reveal that the status of inclusive education in the selected primary schools is generally very high. Teachers reported actively encouraging learner participation, providing equal opportunities for engagement, supporting learners with disabilities, and fostering positive teacher–learner relationships. The results further indicate that teachers create learner-friendly classroom environments characterized by open communication, collaboration, and responsiveness to learners' views. In addition, teachers frequently adapt their instructional methods, learning materials, and classroom strategies to accommodate learners with diverse abilities and educational needs.

The findings align strongly with Madhesh (2023), who emphasizes that successful inclusive education is largely dependent on teachers' ability to create participatory learning environments where all learners are actively engaged regardless of ability. Madhesh argues that learner participation and differentiated instruction are central indicators of inclusive classroom practice, which is consistent with the present study's findings of high learner engagement and instructional adaptation.

Similarly, Norwich (2022) asserts that inclusive education requires teachers to balance academic demands with learner diversity through flexible teaching strategies and supportive classroom relationships. The current findings reflect this balance, as teachers were found to foster positive teacher–learner relationships and adjust instructional methods to meet diverse needs.

Hernández-Saca, Voulgarides, and Etscheidt (2023) highlight that inclusive education is strengthened when teachers actively modify curriculum delivery and use responsive pedagogy to accommodate learners with disabilities. This corresponds with the current study, where teachers reported adapting learning materials and classroom strategies to support inclusive participation.

According to Uleanya (2023), teacher responsiveness and classroom interaction are critical drivers of inclusive education success, particularly in resource-constrained settings. The present findings confirm this assertion, as teachers were observed promoting open communication and collaboration among learners.

Similarly, Paul et al. (2022) and Abdu (2021) found that inclusive education is enhanced when teachers use learner-centred methods and provide equal participation opportunities. These

studies emphasize that teacher attitudes and instructional flexibility significantly determine the effectiveness of inclusion, which mirrors the current results showing strong learner-centred practices.

Farah (2020) and Mensah (2019) further argue that inclusive classroom environments depend on teachers' ability to foster positive relationships and ensure emotional safety for learners. The present study supports this, as teachers were found to create supportive, friendly, and collaborative classroom environments.

In the African context, Njoroge (2023), Salim (2022), and Adewale (2020) consistently report that teachers who receive even minimal exposure to inclusive education training tend to adopt adaptive teaching strategies and promote learner participation. These findings strongly resonate with the current study, where inclusive practices are evident despite variations in training intensity.

Further supporting evidence is provided by Mwangi (2021) and Ibrahim (2020), who emphasize that inclusive education implementation is largely influenced by teacher commitment and classroom-level innovation, particularly in contexts where resources are limited. This aligns with the current findings that teachers actively adapt instructional strategies despite contextual constraints.

Internationally, Lopez (2019), Kiplagat (2023), Ahmed (2022), Chen (2020), and Zhang (2020) all report that inclusive education is most effective where teachers actively modify instruct io n, promote participation, and maintain positive learner relationships. These global perspectives reinforce the current study's conclusion that inclusive education practices are we **l** embedded in classroom routines.

Finally, the Millennium Development Goals (MDGs) and subsequent global education frameworks emphasize equitable access to quality education and inclusion of all learners regardless of ability. The current findings reflect progress toward these global commitme nts, as teachers actively promote participation, equity, and classroom inclusivity.

Despite the generally positive findings, some scholars argue that high levels of reported inclusive practices may not necessarily reflect full or effective inclusion in practice. Critics suggest that in many contexts, inclusive education is often implemented at a superficial level, where teachers report positive attitudes and general inclusive behaviors, but lack deep pedagogical differentiation, specialized support, and adequate resources for learners with

disabilities. From this perspective, the observed high status of inclusive education may reflect compliance with policy expectations or socially desirable responses rather than fully developed inclusive pedagogical competence. Additionally, overcrowded classrooms and limited specialized training may constrain the depth and consistency of inclusion practices despite positive intentions.

5.4. *Relationship between In-Service Teacher Training and Inclusive Education in Selected Primary Schools in Karenga District*

The findings show a strong, positive and statistically significant relationship between in-service teacher training and inclusive education in selected primary schools ($r = 0.718$, $p = 0.000$, $N = 166$). This indicates that improvements in teacher training are strongly associated with improved implementation of inclusive education practices. Conversely, limited training is associated with weaker inclusive education implementation. Since the p-value is less than 0.01 and 0.05, the relationship is statistically significant and the null hypothesis was rejected.

The findings are consistent with Donath et al. (2023), who established that continuo us professional development significantly enhances teachers' inclusive pedagogical competence, particularly in adapting instruction and managing diverse classrooms. They argue that teachers who engage in structured training are more confident in implementing differentiated instruct ion and inclusive assessment strategies, which aligns with the current study's findings.

Similarly, Lüke et al. (2023) found that teacher training is a critical predictor of inclus ive classroom practices, especially in supporting learners with special educational needs. Their study emphasizes that targeted professional development improves teachers' ability to modify teaching materials and foster learner participation, reinforcing the strong positive relations hip observed in the present study.

Tran et al. (2025) further confirm that in-service training significantly improves teachers' self-efficacy in inclusive education implementation. They highlight that teachers exposed to regular training workshops and mentoring programs demonstrate higher levels of adaptability in instructional design and learner engagement, which mirrors the current findings of increased inclusive practices with higher training levels.

In a similar direction, Maebana and Molotja (2023) found that schools with structured teacher development programs report stronger inclusive education outcomes, including improved classroom participation and better support for learners with diverse needs. This directly

supports the observed correlation of 0.718, indicating a strong linkage between training and inclusion.

Khamzina et al. (2024) emphasize that teacher professional development is not only a technical requirement but also a transformative factor that reshapes teacher attitudes and classroom practices toward inclusion. Their findings reinforce the current study by showing that well-trained teachers are more likely to embrace inclusive education principles and practices.

Additionally, Tran et al. (2025) (reiterated findings) argue that sustained in-service training strengthens teachers' instructional flexibility and enhances their capacity to respond to diverse learner needs, which is consistent with the strong positive association identified in this study.

Despite the strong positive correlation, some scholars argue that the relationship between in-service teacher training and inclusive education may be overestimated when measured quantitatively. Critics suggest that correlation does not necessarily imply causation, meaning that while training is associated with inclusive practices, it may not be the sole or direct cause of improved inclusion. Other factors such as teacher motivation, school leadership, availabilit y of teaching resources, class size, and policy enforcement may independently or jointly influence inclusive education outcomes.

Furthermore, some argue that teachers may already possess practical classroom experience that drives inclusive practices, even in the absence of formal training. From this perspective, inclusive education implementation could be more strongly shaped by experiential learning and contextual adaptation than by structured in-service training alone. Therefore, the observed strong relationship may partly reflect the influence of external or unmeasured variables rather than training exclusively.

5.5. Conclusions

The study concludes that in-service teacher training is generally well established in the selected primary schools and has positively influenced teachers' instructional and assessment practices. However, the limited emphasis on inclusive education-specific training remains a critical gap. Despite this, teachers demonstrate strong capacity to implement inclusive practices, largely supported by general professional development programs and classroom experience.

The study concludes that the status of inclusive education in the selected primary schools is generally very high. Teachers demonstrate strong commitment to learner participat io n, equitable access, positive classroom relationships, and instructional adaptation. These practices

align with both global and regional literature on inclusive education, indicating progress toward inclusive education goals. However, the depth and consistency of implementation may still vary depending on contextual constraints such as training depth, class size, and resource availability.

The study concludes that there is a strong and statistically significant positive relations hip between in-service teacher training and inclusive education in selected primary schools. Increased access to professional training opportunities is associated with better implementa t ion of inclusive education practices, highlighting the importance of continuous teacher professional development in achieving inclusive and equitable quality education.

5.6. Recommendations

The study recommends that the Ministry of Education and Sports, in collaboration with district education offices and teacher training institutions, should intensify and institutionalize regular inclusive education-specific in-service training programs. These should focus on practical skills for differentiated instruction, disability- inclusive teaching strategies, and assessment adaptations to ensure that all teachers are fully equipped to meet the diverse needs of learners in inclusive classroom settings.

The study recommends that the Ministry of Education and Sports and education stakeholders should strengthen continuous and practical-based inclusive education training programs that emphasize hands-on classroom differentiation strategies, disability-specific pedagogy, and sustained mentoring support.

The study recommends that the Ministry of Education and Sports and relevant education stakeholders should strengthen structured, continuous, and practical-based in-service teacher training programs specifically focused on inclusive education, while also integrating school-based mentoring and follow-up support.

5.7. Suggestions for Future Study

1) Effect of In-Service Teacher Training on the Implementation of Inclusive Education in Primary Schools in Karenga District.
2) Teachers' Perceptions of In-Service Training and Its Influence on Inclusive Classroom Practices in Selected Primary Schools in Karenga District.
3) Relationship between Continuous Professional Development and Learner Participat ion in Inclusive Education in Primary Schools in Karenga District.

References

Abdu, A. (2021). *Inclusive classroom participation and learner engagement in primary education.* Education Press.

Adewale, T. (2020). *Participatory teaching approaches and learner engagement in basic education.* Academic Press.

Adeyemi, K. (2019). *Teacher professional development and inclusive education outcomes in developing countries*. Scholar Publishing House.

Ahmed, S. (2022). *Interactive pedagogy and classroom communication in mixed-ability settings*. Routledge.

Ainscow, M. (2020). *Promoting inclusion and equity in education: Lessons from international experiences.* Nordic Journal of Studies in Educational Policy, 6(1), 7–16. https://doi.org/10.1080/20020317.2020.1729587

Avalos, B. (2011). *Teacher professional development in Teaching and Teacher Education over ten years. Teaching and Teacher Education, 27(1), 10–20.* https://doi.org/10.1016/j.tate.2010.08.007

Avalos, B. (2018). *Teacher professional development and collaborative learning:* Practices and perspectives. Routledge.

Bello, M. (2019). Learning adaptation strategies in inclusive primary classrooms. Pearson Education.

Bronfenbrenner, U. (1979). The ecology of human development: Experiments by nature and design. Harvard University Press.

Dalton, E. M., Mckenzie, J. A., & Kahonde, C. (2012). The implementation of inclus ive education in South Africa: Reflections arising from a workshop for teachers and therapists to introduce Universal Design for Learning. *African Journal of Disability*, 1(1), 1–7. https://doi.org/10.4102/ajod.v1i1.13

Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). Effective teacher professional development. Learning Policy Institute.

Department of Basic Education (DBE). (2001). *Education White Paper 6: Special needs education: Building an inclusive education and training system.* Government Printer.

Department of Basic Education (DBE). (2016*). Policy on screening, identification, assessment and support.* Government Printer.

Department of Education (DoE). (2006). *National policy framework for teacher education and development in South Africa.* Government Printer.

Donath, P., et al. (2023). *Meta-analysis of teacher professional development and inclusive education outcomes.* Springer Nature.

Fetters, M. D. (2019). The mixed methods research workbook: Activities for designing, implementing, and publishing projects (Vol. 7). Sage Publications.

Fàbregues, S., & Molina-Azorín, J. F. (2017). Addressing quality in mixed methods research: A review and recommendations for a future agenda. Quality & Quantity, 51, 2847-2863.

Florian, L. (2019). On the necessary co-existence of special and inclusive education. International Journal of Inclusive Education, 23(7–8), 691–704. https://doi.org/10.1080/13603116.2019.1622801

Geldenhuys, J. L., & Wevers, N. E. J. (2013). *Ecological aspects influencing the implementation of inclusive education in mainstream primary schools in South Africa.* South African Journal of Education, 33(3), 1–18. https://doi.org/10.15700/201503070804

Hayes, A. M., Turnbull, H. R., & Moran, N. (2018). *Universal design for learning to help all children read: Promoting literacy for learners with disabilities*. Current Issues in Education, 21(1), 1–17.

Hernandez, R. (2021). *Teacher pedagogical skills and learner achievement in inclusive classrooms.* McGraw-Hill Education.

Huhtala, A., & Vesalainen, M. (2017). Challenges in developing teacher education for inclusive education. *European Journal of Special Needs Education*, 32(4), 1–15.

Ibrahim, A. (2020). *Teacher-learner interaction in inclusive classroom environments*. Palgrave Macmillan.

Kamau, J. (2024). *Adaptive teaching practices and student achievement in inclusive education.* African Educational Publishers.

Kato, D. (2024). *Pedagogical training and learner engagement in mixed-ability classrooms*. Routledge.

Khamzina, A., et al. (2024). *Structural modeling of teacher training and inclusive education outcomes.* Springer.

Kimani, P. (2020). *Frequency of in-service training and teacher effectiveness in inclusive education*. Makerere University Press.

Kiplagat, E. (2023). *Interactive teaching strategies and classroom communication*. Nairobi University Press.

Lopez, M. (2019). *Communication patterns in inclusive learning environments*. Cambridge University Press.

Lüke, S., et al. (2023). *Effects of teacher professional development on inclusive education practices.* Springer.

Lüke, S., et al. (2025). *Long-term impacts of continuous teacher training on inclusion*. Springer Nature.

Lule, R. (2022). *Assessment diversity and learner achievement in primary schools.* Uganda National Educational Press.

Maebana, T., & Molotja, K. (2023). *Curriculum adaptation and differentiated instruction in schools.* Oxford University Press.

Mahlo, D. (2017). Implications of teachers' diversity awareness on the implementation of inclusive education in South Africa. *International Journal of Educational Sciences*, 17(1–3), 1–8. https://doi.org/10.1080/09751122.2017.1305745

Majoko, T., & Phasha, N. (2018). *Inclusive education and teacher training in South Africa: Challenges and opportunities.* South African Journal of Education, 38(2), 1–11. https://doi.org/10.15700/saje.v38n2a1472

Mensah, K. (2019). *Inclusive education and learner participation in basic schools*. Ghana Education Service Publications.

Ministry of Education and Sports. (2019). *Special needs and inclusive education policy.* Government of Uganda.

Ministry of Education and Sports. (n.d.). *Inclusive education framework for Uganda. Government of Uganda.*

Moon, J. (2023). *Teacher training and classroom inclusion: A correlation study*. Sage Publications.

Mwangi, P. (2020). *Pedagogical competence and student achievement in inclusive education.* Nairobi Academic Press.

Nantongo, V. (2019). *Inclusive education in Uganda: Policies, practices, and challenges.* Makerere Journal of Higher Education, 11(2), 45–60.

Njoroge, F. (2023). *Participatory learning approaches in primary education*. University of Nairobi Press.

Nsubuga, H. (2020). *Professional development cycles and teacher preparedness*. Makerere University Press.

Ochieng, R. (2019). *Learner-centered pedagogy and classroom inclusivity*. Longhorn Publishers.

OECD. (2019). TALIS 2018 results (Volume I): *Teachers and school leaders as lifelong learners.* OECD Publishing. https://doi.org/10.1787/1d0bc92a-en

Okech, J. B. (2019). Cha**l**enges facing inclusive education implementation in Uganda's primary schools. *Uganda Journal of Education*, 6(1), 23–37.

Oketch, D. (2025). *Formative assessment and learner progress tracking in inclusive schools*. Springer.

Okoth, J. (2021). *Instructional adaptation strategies for inclusive education*. Oxford University Press.

Omar, M. K. (2014). Strategic planning and evaluation in teacher professional development programmes. *International Journal of Educational Development*, 39, 145–152.

Patel, R. (2022). *Teacher pedagogical development in inclusive learning environments.* Pearson Education.

Popova, A., Evans, D. K., Breeding, M. E., & Arancibia, V. (2019). *Teacher professional development around the world: The gap between evidence and practice*. World Bank Research Observer, 37(1), 107–136. https://doi.org/10.1093/wbro/lkab006

Rivera, S. (2020). *Adaptive teaching methods and student learning outcomes*. McGraw- Hill Education.

Sharma, U., & Sokal, L. (2020). The impact of teacher training on inclusive education practices. *International Journal of Inclusive Education*, 24(7), 773–785. https://doi.org/10.1080/13603116.2018.1455903

Sightsavers. (2021). *Inclusive education and teacher training initiatives in Uganda*. Sightsavers International.

Stites, E. (2024). *Education and vulnerability in Karamoja: Challenges in access and retention*. Feinstein International Center, Tufts University.

The United Nations Educational, Scientific and Cultural Organization (UNESCO). (1994). *The Salamanca statement and framework for action on special needs education.* UNESCO.

The United Nations Educational, Scientific and Cultural Organization (UNESCO). (2000). *The Dakar framework for action: Education for all Meeting our collective commitments.* UNESCO.

The United Nations Educational, Scientific and Cultural Organization (UNESCO). (2009). *Policy guidelines on inclusion in education*. UNESCO.

The United Nations Educational, Scientific and Cultural Organization (UNESCO). (2020). *Global education monitoring report 2020: Inclusion and education—All means all.* UNESCO Publishing.

Tran, L., et al. (2025). *Meta-analysis of teacher training and inclusive education outcomes.* Springer Nature.

UNICEF. (2019). *Education in Karamoja: Challenges and opportunities for learning*. UNICEF Uganda.

UNICEF. (2021). *Inclusive education and learning outcomes in Uganda*. UNICEF Uganda.

Uzorka, C., et al. (2024). *Teacher training and student participation outcomes in schools*. Routledge.

VSO. (2022). *A-PLUS project report on inclusive education in Karamoja.* Voluntary Service Overseas.

Wanjala, B. (2021). *Pedagogical training and learner engagement in inclusive classrooms.* Nairobi University Press.

World Bank. (2022). *Uganda education sector analysis: Strengthening inclusive education.* World Bank Publications.

Zhang, H. (2020). *Learning adaptation strategies in diverse classrooms*. Springer.

Zhang, H. (2022). *Professional development frequency and teacher effectiveness*. Cambridge University Press.

Appendices

Appendix A: Introductory Letter

GULU UNIVERSITY

P.O. BOX 166 GULU

TEL: +256471432922

OFFICE OF THE DEAN, FACULTY OF EDUCATION AND HUMANITIES

01st June, 2026

TO : WHOM IT MAY CONCERN

This is to introduce to you Mr. Gchen Pual Pax (Reg No. 24/U/0679/MED/PS) a student pursuing a programme of study leading to an award of Master of Education in Education Management of Gulu University, Master of Gulu University.

He is undertaking research on the Topic:

IN-SERVICE TEACHER TRAINING AND INCLUSIVE EDUCATION IN SELECTED SCHOOLS IN KARENGA DISTRICT

Any assistance rendered to him in relation to this research work will be highly appreciated.

Yours faithfully,

GULU UNIVERSITY
01 JUN 2026
FACULTY OF EDUCATION AND HUMANITIES

Assoc. Prof. Denis Thaddeus Ofoyuru
Dean, Faculty of Education and Humanities

Appendix B: Questionnaires for Teachers

My name is Ochen Paul Pax. I am a student of Gulu University pursuing a master's degree of Education in Education Management. As a requirement for the award of this degree. I am undertaking a study on In-Service Teacher Training and Inclusive Education in Selected Primary Schools in Karenga District. The findings from this research are only for educational purposes and the information given will be treated with utmost confidentiality. Your honesty and cooperation in this study will be highly appreciated.

Thank you

SECTION A: Demographic Characteristics

1. What is your gender?

☐ Male ☐ Female

2. What is your age range?

☐ Below 25 years ☐ 25–34 years ☐ 35–44 years ☐ 45 years and above

3. What is your highest professional qualification?

☐ Certificate in Education ☐ Diploma in Education ☐ Bachelor's Degree in Education ☐ Postgraduate Qualification

4. How many years have you worked as a teacher?

☐ Less than 1 year ☐ 1–5 years ☐ 6–10 years ☐ Above 10 years

5. Do you have training in special needs or inclusive education?

☐ Yes ☐ No

SECTION B: IN-SERVICE TEACHER TRAINING

Likert Scale: 1 = Strongly Disagree (SD) 2 = Disagree (D), 3 = Neutral (N) 4 = Agree (A), 5 = Strongly Agree (SA)

S/N	Statement	1	2	3	4	5
Training Frequency						
1	I regularly attend in-service training sessions.					
2	I participate in training workshops each term.					
3	I receive continuous professional training from education authorities.					
4	I am frequently invited for inclusive education training.					
5	I attend refresher courses on teaching practices often.					
Pedagogical Skills						
1	I apply learner-centred teaching methods in my classroom.					
2	I adapt my teaching strategies to meet diverse learner needs.					
3	I effectively use teaching aids to support inclusive learning.					
4	I manage mixed-ability learners during lessons with confidence.					
5	I adjust lesson delivery to support learners with special needs.					
Assessment Skills						
1	I design assessments that accommodate all learners fairly.					
2	I use continuous assessment to track learner progress.					
3	I modify test items to suit learners with different abilities.					
4	I provide timely feedback to learners after assessments.					
5	I assess learners using both formal and informal methods.					

SECTION C: INCLUSIVE EDUCATION

Likert Scale: 1 = Strongly Disagree (SD) 2 = Disagree (D), 3 = Neutral (N) 4 = Agree (A), 5 = Strongly Agree (SA)

S/N	Statement	1	2	3	4	5
Learner Participation						
1	I encourage all learners to actively take part in lessons.					
2	I ensure shy learners are involved during classroom activities.					

3	I give equal opportunities for participation to all learners.					
4	I motivate learners with disabilities to participate in class.					
5	I regularly involve learners in group and individual tasks.					
Classroom Interaction						
1	I interact freely with all learners during lessons.					
2	I promote open communication between learners and myself.					
3	I encourage peer-to-peer learning among learners.					
4	I create a friendly classroom environment for discussion.					
5	I respond positively to learners' questions and opinions.					
Learning Adaptation						
1	I adjust my teaching methods to suit different learners' needs.					
2	I modify learning materials for learners with special needs.					
3	I simplify lessons for learners who learn at a slower pace.					
4	I use different teaching strategies in the same lesson.					
5	I tailor instructions to match learners' abilities and understanding.					

Appendix C: Interview Guide for headteachers and Deputy Headteachers

1. How often are teachers in your school engaged in in-service training programmes?
2. In what ways has in-service training improved teachers' pedagogical skills in your school?
3. What challenges do teachers face in accessing in-service training opportunities?
4. How do teachers in your school promote learner participation in inclusive classrooms?
5. In what ways do teachers adjust classroom interaction to support diverse learners?
6. How do teachers adapt their teaching methods to meet the needs of learners with different abilities?

Appendix D: Interview Guide for School Management Committee (SMC) Members

1. How often are teachers in your school provided with in-service training opportunities, and how is this organized?
2. In your view, how does in-service training influence teachers' teaching skills in this school?
3. What challenges affect the effective implementation of in-service teacher training in your school?
4. How do teachers in this school ensure that all learners, including those with special needs, participate in learning activities?
5. In what ways do teachers adjust their teaching methods to accommodate different learning abilities?
6. How would you describe the level of interaction between teachers and learners in promoting inclusive education?

Appendix E: Observation Checklist for learners

Indicator	Observation Statement	Observed	Not Observed
Learner Participation	Learners actively take part in classroom activities.		
	Learners respond to questions asked by the teacher.		
	Learners participate in group work tasks.		
	Learners with different abilities are involved in lessons.		
	Learners volunteer to answer or present in class.		
Classroom Interaction	Learners communicate freely with the teacher during lessons.		
	Learners interact with one another during learning activities.		
	Learners ask questions for clarification during lessons.		
	Peer discussion is observed during group activities.		
	Learners show respect in classroom discussions.		
Learning Adaptation	Learners use different learning materials provided by the teacher.		
	Learners with learning difficulties receive support during lessons.		
	Learners complete tasks at different levels of difficulty.		
	Learners adjust to different teaching methods used in class.		
	Learners demonstrate understanding through varied activities.		

Appendix F: Krejcie and Morgan's (1970) table

Table for Determining Sample Size from a Given Population

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note:
***N* is population size.**
***S* is sample size (Amin, 2005)**

Appendix G: A Sketch Map of Karenga Showing the Study Area

