TRANSFORMATIONAL LEADERSHIP INFLUENCE ON TEACHER ADAPTABILITY, INNOVATION AND COLLABORATION IN PRIMARY SCHOOLS IN EASTERN UGANDA

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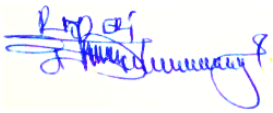
DECLARATION

I Robert Bugwata, declare that I am the author of this dissertation and that any assistance I received in its preparation is fully acknowledged and disclosed in the paper. I have also cited any sources from which I used data, ideas or words, either quoted directly or paraphrased. I also certify that this paper was prepared by me specifically for the partial fulfillment for the Award of the PhD in Education Administration and Management of Uganda Christian University.

Student's Signature and Date



ROBERT BUGWATA, 15/09/2026

APPROVAL

This is to certify that this research titled: "*Transformational Leadership Influence on Teacher Adaptability, Innovation and Collaboration in Primary Schools in Eastern Uganda*" by Robert Bugwata, Reg. No. RJ23P02/003, in partial fulfilment of the award of the PhD in Education Administration and Management of Uganda Christian University, has been done under my supervision and it is now ready for submission.

Supervisor's name, signature and date

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DEDICATION

The researcher dedicates this dissertation to Betty Babirye Nabiddo Bugwata (wife), and their beloved children—Rinnah Abigail Bugwata, Hannah Adriel Bugwata, Victoria Babirye Bugwata, and David Elijah Bugwata for their unwavering support and the time they graciously allowed for him to devote to this study.

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LIST OF ACRONYMS

4IR –	Fourth Industrial Revolution
IIEP -	International Institute for Educational Planning
NTP -	National Teacher Policy
OECD -	Organization for Economic Cooperation and Development
REC -	Research Ethics Committee
SDG –	Sustainable Development Goal
STEM -	Science Technology Engineering and Mathematics
TTAIC Model –	Transformational leadership Teacher Adaptability Innovation and Collaboration Model
UCU -	Uganda Christian University
UNCST -	Uganda National Council of Science and Technology
UNESCO -	United Nations Education Scientific Cultural Organization

ABSTRACT

This study examined the influence of headteachers' transformational leadership on teacher adaptability, innovation, and collaboration in primary schools in Eastern Uganda. Specifically, it sought to; (i) investigate its influence on teachers' adaptability, (ii) examine its influence on teachers' innovation, (iii) and to analyze its influence on teachers' collaboration. The study was underpinned by Transformational Leadership theory and Adaptive Performance theory. The study adopted a post-positivist quantitative correlational design. Data were collected from 704 teachers in rural and urban schools in Eastern Uganda using validated instruments, including the Multifactor Leadership Questionnaire, Adaptability Scale-Domain Specific Questionnaire, the OECD Innovation Survey and the Teacher Collaboration Assessment Survey. Reliability analysis yielded Cronbach's alpha values above 0.90 for all constructs Methods of analysis included Spearman correlation analysis, quantile regression analysis, multiple linear regression analysis and standardized beta coefficient analysis. Findings revealed that headteachers, in general showed high rates at transformational leadership especially on vision setting, ethical behavior, and intellectual stimulation. The non-parametric analyses showed that transformational leadership and teacher adaptability are strongly and significantly positively correlated (Spearman 0.699, $p < 0.001$) with leadership accounting 58.6 percent of the variance in teacher adaptability (Pseudo $R^2 = 0.586$). Transformational leadership had a high predictive validity of teacher innovation ($\rho = 0.586$, $p < .001$; Pseudo $R^2 = 0.030$) but the magnitude of the effect was low. Transformational leadership was not a significant predictor of teacher collaboration ($\beta = -0.007$, $p = 0.291$), but there was a weak yet significant bivariate relationship ($\rho =$

0.184, $p < 0.001$); organizational conditions, such as school culture, professional development and policy support, came out as the most significant predictors of collaborative practice. Overall, the results highlight transformational leadership as an important factor that contributes to adaptability and innovation among teachers, whereas structured collaborative practices become one of the primary outcomes in which primary school teachers enhance adaptability. The study contributes theoretically by integrating transformational leadership and adaptive performance frameworks into a contextualized model; the Transformational leadership–Teacher Adaptability, Innovation and Collaboration (TTAIC) Model of school leadership—that illustrates pathways from leadership behaviors to teacher and school outcomes. Practically, it underscores the importance of leadership development programs that emphasize emotional intelligence, mentoring, and intellectual stimulation, alongside systemic reforms that decentralize decision-making and strengthen resource allocation for innovation. Future research should adopt longitudinal and cross-national designs to test the scalability of the TTAIC model of school leadership and its potential impact on learner outcomes.

CHAPTER ONE INTRODUCTION

1.1 Introduction

Education is widely recognized as the foundation of national development and social transformation, with profound effects on economic productivity, social equity, and even population health outcomes (Balaj et al., 2024). In the 21st century, the demands of globalization, technological change, and the Fourth Industrial Revolution (4IR) have redefined teacher performance to include adaptability, innovation, and collaboration (Schwab, 2017). These dimensions are particularly vital in primary education, where foundational skills are cultivated to prepare learners for lifelong success (Shahroom & Hussin, 2018). However, in Sub-Saharan Africa, and Uganda in particular, teacher performance continues to face challenges stemming from limited resources, resistance to reform, and inadequate professional support (Mazaki, 2017; Akala, 2021). Such barriers hinder the ability of teachers to implement learner-centered pedagogies, integrate technology, and respond effectively to diverse learners' needs (Zikanga et al., 2021). Leadership has been identified as a critical determinant of teacher effectiveness, shaping attitudes, motivation, and professional practice (Chimier et al., 2019). Transformational leadership, with its emphasis on vision, inspiration, intellectual stimulation, and individualized support, offers a framework for addressing these challenges (Bass & Riggio, 2006). This study therefore investigated the influence of headteachers' transformational leadership on teacher adaptability, innovation, and collaboration in primary schools in Eastern Uganda.

1.2 Background to the study

The advent of the Fourth Industrial Revolution (4IR) prompted a global re-evaluation of education systems to better align with emerging technologies and workforce competencies (Schwab, 2017). While reforms such as Science, Technology, Engineering, and Mathematics (STEM) initiatives primarily targeted secondary and tertiary education, the foundational role of primary education in shaping future skills could not be understated (Shahroom & Hussin, 2018; Lase, 2019). Contemporary educational imperatives necessitated that teachers, even at the primary level, embodied adaptability, creativity, and technological integration to respond effectively to dynamic learning environments (OECD, 2020). The Sustainable Development Goals (SDGs), particularly SDG 4 on quality education, underscored the global commitment to transforming education systems to foster inclusive and equitable learning opportunities (United Nations, 2023).

In Africa, the expansion of universal primary education led to increased student enrollment from diverse socioeconomic backgrounds, presenting unique pedagogical challenges. Teachers were expected to cater for heterogeneous learners' needs while concurrently adapting to curricular changes and technological advancements (Nganga & Kambutu, 2017; Akala, 2021). Nonetheless, some studies highlighted persistent concerns regarding teacher underperformance across African countries; in Kenya, low teacher innovation was linked to diminished instructional effectiveness (Akala, 2021), while South Africa grappled with widespread school dysfunction attributed to teacher

inadequacies (Moloi, 2019). In Nigeria, professional development opportunities remained limited, further impeding instructional innovation (Prince-Ifoh, 2022).

Uganda similarly navigated the pressures of the 4IR, with national agendas increasingly emphasizing automation, data-driven decision-making, and digital productivity (Dogaru, 2020). Despite these developments, many Ugandan primary school teachers struggled to meet the evolving instructional demands due to inadequate preparation, resistance to curricular reforms, and challenges in implementing learner-centered pedagogies (Mazaki, 2017; Zikanga et al., 2021; Okia et al., 2021). Such constraints were correlated with declining student performance and reduced school effectiveness (Poro et al., 2019).

The performance of teachers, conceptualized as a multidimensional construct, includes task performance, contextual performance, and adaptive performance (Ramawickrama et al., 2017; Limon & Nartgün, 2020). Task performance pertains the execution of core teaching duties using specialized skills and knowledge (Van Scotter et al., 2000). Contextual performance involves behaviors that supported the institutional environment, such as collaboration and organizational citizenship behaviors (Robbins & Judge, 2013). Adaptive performance, increasingly critical in volatile education contexts, referred to the ability to modify behaviors and strategies in response to emerging demands and environmental uncertainties (Campbell, 2012).

In addition to these components, modern employee performance frameworks incorporated factors such as innovation, engagement, skills development, and responsiveness to stakeholder needs (Hartutik et al., 2024). While these indicators were

extensively studied in corporate settings, their intersection with primary education, especially in developing contexts like Uganda, remained underexplored.

Amid these performance dynamics, leadership emerged as a crucial enabler of teacher development and institutional transformation. Research by the United Nations Education Scientific Cultural Organization (UNESCO) International Institute for Educational Planning (IIEP) emphasized the role of effective leadership in empowering educators, fostering innovation, and aligning school practices with quality standards (Chimier et al., 2019; UNESCO-IIEP Pôle de Dakar, 2014). The transformational leadership model, initially conceptualized by Burns (1978) and later expanded by Bass (1990), provided a robust framework for examining how school leaders inspired, motivated, and stimulated performance change amongst teachers.

Transformational leadership comprised idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration—each fostering a climate conducive to professional growth and innovation (Bass & Riggio, 2006). Within school contexts, transformational headteachers were positioned to significantly influence teacher adaptability, innovation and collaboration through their vision, support mechanisms and capacity to manage change (Leithwood & Sun, 2012).

Given this backdrop, this study explored transformational leadership influence on teacher adaptability, innovation and collaboration. These aspects are categorized under the three teacher-performance multidimensional constructs, that is; adaptive performance, task performance and contextual performance (Ramawickrama et al., 2017; Limon & Nartgün, 2020). In doing so, the study addressed a critical knowledge

gap at the nexus of educational leadership and teacher performance in low-resource settings.

The study was anchored on an eclectic theoretical framework that integrated transformational leadership theory and adaptive performance theory for examining the connection between transformational leadership, teacher adaptability, innovation and collaboration within Uganda's primary school context. Each of these theories offered unique lenses through which the leadership practices of headteachers and their impact on teacher performance dimensions were comprehensively analysed.

a) Transformational Leadership Theory

The primary theoretical underpinning of this study was the Transformational leadership theory, originally proposed by Burns (1978) and further developed by Bass (1985). This theory was critical for explaining the behaviors and influence of headteachers as change agents within educational institutions. It posited that transformational leaders inspired and motivated followers through idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass & Riggio, 2006; Lamçja, 2024; Lin et al., 2022; Siregar et al., 2024; Mohebi & ElSayary, 2023).

In the context of Uganda's primary schools, this theory was employed to investigate how headteachers used visionary strategies and motivation to enhance teachers' professional engagement, adaptability to reforms, and innovative teaching practices (Guavis et al., 2023; Wu, 2023; Kareem et al., 2023). Transformational leadership was considered as a driver that cultivated intrinsic motivation among teachers to embrace

change and adopt new pedagogical methods (Nurrizayani et al., 2024; Litz, 2021). This theory was particularly appropriate because it directly addressed leadership behaviors that aligned with organizational change and individual development, which were key variables in this study (Virgana & Fitriani, 2024; Wang & Dapat, 2024; Mudd-Fegett & Mudd, 2024).

b) Adaptive Performance Theory

The study was grounded in Adaptive performance theory, which offered a framework for understanding how individuals modified their behaviors in response to dynamic work environments (Bonini et al., 2024; Pulakos et al. (2000). The theory conceptualized adaptive performance as a multidimensional construct that included coping with uncertainty, solving novel problems, and demonstrating interpersonal adaptability (Velcu-Laitinen, 2024). The three dimensions were represented by Teacher Adaptability, Innovation and Collaboration.

This theory was utilized to examine how teachers in Uganda's primary schools responded to systemic changes, including curricular reforms, technological integration, and learner diversity (Sundowo et al., 2024; Norris, 2018). The relevance of this theory lay in its focus on behavioral flexibility, resilience, and continuous learning—all of which were crucial attributes for effective teaching in the 21st century (Schulze & Pinkow, 2020). By applying Adaptive performance theory, the study analyzed how transformational leadership practices facilitated or constrained teachers' adaptive responses to educational demands (Westover, 2024). This theory was highly appropriate as it directly connected the study's outcome variables (teacher adaptability, innovation

and collaboration) with the underlying mechanisms that enabled performance in rapidly changing environments.

1.2.1 Contextual background

Uganda's education sector, like in other developing countries is undergoing transformation which is mostly driven by global shifts in technology, policy reforms and the pursuit for quality education (Sustainable Development Goal-SDG 4). Several complex demands on education systems being driven by the 4IR have not only called for curriculum reform but also a need to redefine teacher performance and competences to include adaptability, innovation and collaboration, of which school leadership is a critical factor to consider (Schwab, 2017).

The move towards Universal Primary Education (UPE) led to increased access to education services, and the enrolment of pupils in schools outpacing the capacity of teachers and the available infrastructure. Diverse learners with varying backgrounds crowd the classrooms, calling for pedagogical responsiveness and professional agility amongst teachers (Mazaki, 2017). Teachers in Eastern Uganda were expected to adapt to curriculum reforms, integrate technology and foster collaborative learning. However, several challenges were observed amongst primary school teachers in Eastern Uganda, including limited professional development, resistance to change and inadequate support systems, which hinder their ability to adapt and innovate (Zikanga et al., 2021, Okia et al., 2021).

Teacher performance encompasses several dimensions including task execution, contextual engagement and adaptive behavior, which are increasingly observed through the lens of leadership influence (Leithwood & Sun, 2012). These three dimensions are represented by three variables in this study (task execution – Teacher Innovation, contextual engagement – Teacher Collaboration and adaptive behaviour – Teacher Adaptability). Transformational leadership with its attributes of idealized influence, intellectual stimulation, inspirational motivation and individualized consideration, was identified as a catalyst and a powerful tool for enhancing teacher performance (Bass & Riggio, 2006).

Studies in Uganda have shown that headteachers who embody transformational leadership attributes significantly impact on academic outcomes, teacher commitment, and innovation (Sengendo & Eduan, 2024). However, most of this research particularly focused on secondary schools, leaving a gap in understanding the operation of transformational leadership in rural and peri-urban primary schools particularly in Eastern Uganda.

Headteachers are often the primary agents of change, even though they are faced with constraints like; limited autonomy, inadequate training and other systemic inefficiencies. Despite these challenges, they play a pivotal role through their leadership practices in shaping teachers' attitudes and behaviors. By fostering a supportive and visionary culture, headteachers through the transformational leadership style can ably empower teachers to adapt to the evolving educational demands,

embrace pedagogical innovation and collaborate effectively (Bandura, 1986, Pulakos et al., 2000)

The study sought to assess the influence of transformational leadership on teacher adaptability, innovation and collaboration in primary schools particularly in Eastern Uganda. It filled a critical gap by exploring how transformational leadership dynamics intersect with teacher performance in a region marked by persistent challenges. The study informed policy, leadership training and school improvement strategies tailored to the realities of Uganda's primary education system

1.3 Statement of the problem

In 2018, the Government of Uganda introduced the National Teacher Policy (NTP) with the aim of enhancing teacher professionalism, standardizing qualifications, and ensuring quality in the teaching profession. Despite these policy efforts, teacher performance in Uganda's primary schools remained consistently low (Kamonges, 2021; Otaka et al., 2023). This underperformance continued to undermine national educational goals, particularly within the context of the Fourth Industrial Revolution, where adaptability, innovation, and collaboration were crucial for effective teaching and learning.

Empirical evidence pointed to teacher adaptability as a critical and persistent challenge. Recent studies revealed that many of Uganda's primary school teachers struggled to adjust to evolving curricular reforms, technological demands, and pedagogical shifts (Kabugo et al., 2024). These challenges were compounded by

contextual barriers such as large class sizes (average student-teacher ratio of 53:1), limited availability of instructional resources in local languages, and resistance among long-serving teachers to adopt new teaching strategies (UBOS, 2021; Kamonges, 2021).

In the wake of the COVID-19 pandemic, additional pressures emerged, including increased instructional workload, deteriorating learner discipline, and teacher shortages. Simultaneously, developments such as blended learning, increased digitalization, and emerging staff development opportunities made it imperative for teachers to not only adapt, but also innovate and collaborate to meet educational demands (Omara & Akwongo, 2022; Kiyimba, 2023). However, many teachers lacked the structural and professional support necessary to successfully navigate these changes.

Although leadership had for long been recognized as a key driver of teacher motivation and performance, limited research existed that empirically linked transformational leadership practices with specific teacher performance outcomes—particularly adaptability, innovation and collaboration at primary education level in Uganda. Much of the existing literature tended to focus on secondary or tertiary education, often overlooking the foundational significance of primary school teaching, where performance issues were most acute.

This study addressed this critical gap by developing and empirically validating a contextualized leadership-performance interaction model named as the TTAIC Model of School Leadership. This model specifically mapped how the dimensions of transformational leadership—idealized influence, inspirational motivation, intellectual

stimulation, and individualized consideration impacted teachers' adaptability, innovation and collaboration in primary schools in Eastern Uganda. In doing so, the study made an original contribution to educational leadership literature by offering a framework tailored to low-resource, high-need educational environments, where traditional leadership models may not have sufficiently explained performance dynamics.

By advancing a theoretical model that integrated leadership behavior with teacher performance dimensions in a primary school context, this study not only enriched scholarly understanding but also provided practical, evidence-based insights to inform leadership training, school policy, and systemic educational reforms in Uganda and other similar educational settings.

1.4 Purpose and Objectives of the study

1.4.1 Purpose of the study

To examine the influence of transformational leadership style amongst headteachers and teachers' performance as determined by teachers' adaptability, innovation, and collaboration in selected primary schools in Eastern Uganda.

1.4.2 Specific Objectives of the study

a) To investigate the influence of headteachers' transformational leadership on teachers' adaptability in primary schools in Eastern Uganda.
b) To examine the influence of headteachers' transformational leadership on teachers' innovation in primary schools in Eastern Uganda.

c) To analyze the influence of headteachers' transformational leadership on teachers' collaboration in primary schools in Eastern Uganda.

1.5 Research questions

a) How did headteachers' transformational leadership influence teachers' adaptability in primary schools in Eastern Uganda?
b) What was the influence of headteachers' transformational leadership on teachers' innovation in primary schools in Eastern Uganda?
c) In what ways did headteachers' transformational leadership shape teachers' collaboration in primary schools in Eastern Uganda?

1.6 Scope of the study

1.6.1 Content Scope

The study focused on transformational leadership style as one of the leadership styles in the full range leadership model (Bass, 1990). Four attributes of transformational leadership were examined: idealized influence, inspirational motivation, intellectual stimulation, and individual consideration.

The study examined the influence of transformational leadership attributes on three dimensions of teacher performance. These dimensions were teacher adaptability, innovation, and collaboration.

The study further analyzed the influence of transformational leadership on teacher adaptability in six aspects of the teaching-learning environment. These aspects

included curriculum implementation, pedagogy and assessment, teaching-learning environment, teamwork, technology, and general changes in the school.

The study also explored the influence of transformational leadership style on teacher innovation in four aspects: pedagogy and assessment, teacher organization, extracurricular activities, and technology. Finally, the study investigated the influence of transformational leadership on four dimensions of teacher collaboration: dialogue, decision-making, action, and evaluation.

1.6.2 Time Scope

The study considered literature between 2014–2025. This was a period during which substantial changes in the education sector occurred, including the post-COVID era which required high-level adaptability, innovation, and interdependence in the form of collaboration among teachers. This period also entailed curriculum changes, acceleration of educational technology, and new policies that demanded teacher adaptability, innovation, and collaboration.

1.6.3 Geographical scope

The study included teachers from 70 selected primary schools in the Eastern region of Uganda from 6 districts including, Kapchworwa, Mbale, Bududa, Manafa, Bugiri and Mayuge. These schools were randomly selected from both urban and rural areas.

1.7 Justification of the study

Given the fact that education was always evolving and changes were implemented based on prevailing needs, teachers were expected to adapt quickly and to transmit

new knowledge or teaching styles in their classrooms. Hence, the need to study teacher adaptability to educational changes and evolving learner needs was urgent (Onen, D. 2024, MoES, 2018).

Teachers in Uganda frequently moved between employers, inconsistent leadership structures, and dynamic learner communities. Teachers were challenged as they navigated institutional hierarchies in their search for better working conditions (Onen, 2024, Kabugo et al, 2024). It was imperative for teachers to possess adaptability skills to manage these transitions, collaborate with dynamic work teams, and demonstrate innovation.

Given the recent reforms in primary education in Uganda that required professional development from certificate and diploma levels to bachelor's degree qualifications, and the implementation of the new curriculum (Kabugo et al, 2024, MoES, 2018), it was vital to study the adaptability, innovation, and collaboration required to ensure the success of these reforms.

Transformational leadership style was prioritized over other leadership styles because of its proven effectiveness in instilling motivation and transmitting the leader's vision to followers. Education as a service was effectively facilitated by transformational leaders who motivated teachers to serve learners. Therefore, this study anticipated transformational leadership style to be dominant in primary schools.

The widened digital space eased research in education. Teachers in this era were expected to be proficient with technological access, adapt to digital tools, utilize them for better performance, and interact with colleagues through digital platforms.

1.8 Significance the study

This study held both theoretical and practical significance for various stakeholders in the education sector. The following were the key contributions it offered:

a) Enhancing headteacher leadership practice: The findings of this study provided evidence-based insights to improve the leadership practices of headteachers in Uganda's primary schools. Specifically, it demonstrated how transformational leadership enhanced teacher adaptability, innovation, and collaboration, thereby improving overall school performance.

b) Informing policy and educational reforms: The study provided valuable input for national education policymakers by presenting a model that integrated teacher adaptability, innovation, and collaboration as essential dimensions of school effectiveness. This informed the formulation of leadership training programs and policies aligned with 21st-century educational demands.

c) Contribution to academic scholarship: By focusing on the intersection of transformational leadership and teacher-related outcomes in primary schools, the study expanded the current body of knowledge, particularly in the Ugandan and Sub-Saharan African context where such empirical studies were still limited.

d) Development of a leadership model: The study proposed a practical model (TTAIC model) for school leadership that highlighted the strategic role of adaptability, innovation, and collaboration in teacher performance. This model served as a framework for school leaders aiming to foster a supportive and progressive teaching environment.

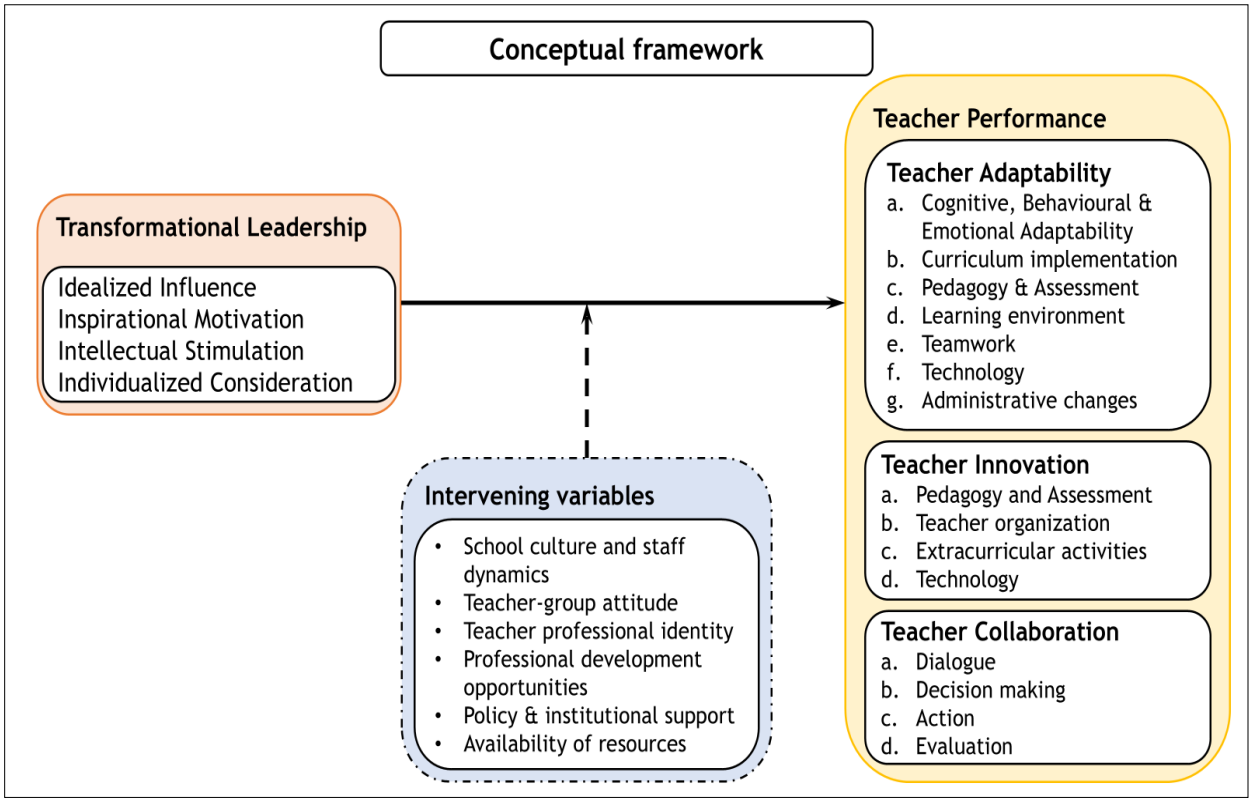
e) Empowering Educational Practitioners: Findings from the study are guides to educational practitioners, particularly school administrators in identifying and nurturing teacher capabilities that supported adaptive and innovative teaching approaches critical for curriculum delivery and learner engagement.

f) Guidance for leadership training institutions: Institutions involved in the training and professional development of headteachers, such as National Teacher Colleges and universities, benefit from the study by integrating transformational leadership dimensions into their development programs.

g) Stimulating further research: The study highlighted underexplored areas related to leadership and teacher performance in the primary education sector, particularly in low-resource contexts. It served as a reference point for future researchers interested in transformational leadership and educational innovation in similar settings.

1.9 Conceptual framework

Figure 1: Conceptual framework



The conceptual framework was adopted from Swaen & George (2024), and Hassan (2024). They explain three major components of a conceptual framework in a cause-effect relationship. These components are; the independent variable which is the predictor variable that can be manipulated to cause a response or change; the dependent variable being the response or outcome variable as a result of the independent variable; and lastly the intervening/mediating/moderating variable which can alter the effect that the independent variable can cause on the dependent variable, thereby explaining the underlying mechanisms and internal processes in a relationship.

As illustrated in figure 1, transformational leadership style is the independent variable with its four attributes. These attributes are; idealized influence, inspirational

motivation, intellectual stimulation and individualized consideration (Bass 2006). Teacher performance is the dependent variable assessed by three elements. These elements include teacher adaptability, innovation and collaboration.

Adaptability as a dependent variable was assessed based on seven attributes, that is to say; cognitive, behavioral and emotional adaptability, curriculum implementation, pedagogy and assessment, learning environment, teamwork, technology and administrative changes. According to Rincon-Flores, et al. (2024), adaptability in education requires a multifaceted approach to improve the learning-teaching process.

Teacher innovation was assessed by four education attributes; pedagogy and assessment, teacher organization, extracurricular activities and technology. These attributes were supported by Kukulska-Hulme, et al. (2024) in their exploration of the emerging pedagogical innovations including assessment strategies and digital integration. This was complemented by Yadav and Singh (2025) and the UNICEF Superstar Teacher toolkit (2024) delve into digital pedagogy and the study on the integration of technology, and teacher organization. Xia, & O'Shea, (2025) further expanded on the role of extracurricular engagement by teachers as an innovative aspect for teachers' performance.

Teacher collaboration entailed four components. These are; dialogue, decision making, action and evaluation. According to Woodland (2013), teacher collaboration is more than just congeniality. It requires a structured professional dialogue, shared decision making, a coordinated action and a reflective evaluation as part of teacher performance.

Based on the available literature, the intervening variables include; School culture and staff dynamics were identified as mediating variables that affect leadership outcomes in a school setting (Heenan et al. 2023). Furthermore, Bao, (2025) explored teacher-group attitude creates uncertainty avoidance and sense of meaning towards teacher innovation. Other scholars and reports indicated teacher professional identity, professional development opportunities, policy and institutional support, and availability of resources as key factors that in supporting the role of leadership in enhancing teacher adaptability, innovation and collaboration (Hargreaves, 2025, Global Education Monitoring Report Team & African Centre for School Leadership, 2025, Ministry of Education and Sports (MoES) - National Teacher Policy, 2018). These intervening variables may affect the relationship between transformational leadership style and teachers' adaptability, innovation and collaboration.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

Educational leadership has long been recognized as a decisive factor in shaping teacher performance and driving school improvement, particularly in contexts undergoing rapid change. Within this discourse, transformational leadership has emerged as a compelling framework for understanding how leaders inspire, motivate, and support teachers to adapt to evolving pedagogical demands. Rooted in the seminal works of Burns (1978) and later refined by Bass (1985), transformational leadership emphasizes visionary influence, intellectual stimulation, individualized support, and motivational alignment attributes that are highly pertinent to the challenges faced by primary schools in Uganda. The urgency of fostering teacher adaptability has intensified in the wake of curriculum reforms, increasing learner diversity, and post-pandemic shifts in instructional delivery, prompting renewed interest in leadership approaches that not only respond to change but actively shape it.

This chapter situates transformational leadership within the broader theoretical landscape by drawing on the Full Range Leadership Model (Bass & Avolio, 1994) and integrating insights from Adaptive Performance Theory. Together, these frameworks illuminate the mechanisms through which leadership influences teachers' capacity to navigate uncertainty, innovate in resource-constrained settings, and sustain professional growth through collaboration. The review synthesizes global and local empirical evidence linking transformational leadership to teacher adaptability, pedagogical innovation and collaboration, with particular attention to how leadership

behaviors facilitate curriculum alignment, foster team autonomy, and stimulate grassroots initiatives. It further interrogates methodological limitations in the existing literature, including the overreliance on student evaluations to measure adaptability and the fragmented treatment of leadership, adaptability, innovation and collaboration as discrete constructs.

By mapping these theoretical, contradictory, and underexplored gaps, this chapter establishes the rationale for the present study, which proposed and tested an integrated conceptual model linking the four dimensions of transformational leadership to teacher adaptability, innovation and collaboration. Through a multi-method assessment approach that incorporates both self-assessments and supervisor evaluations, the study sought to produce more valid and contextually relevant insights into leadership's role in enhancing teacher performance. In doing so, it contributes to the scholarly understanding of leadership in low-resource primary school contexts and offers practical guidance for policymakers, headteachers, and teacher educators committed to cultivating adaptive, innovative and collaborative teaching practices.

2.2 Theoretical framework.

This study was theoretically anchored in Transformational leadership theory, which offered a robust framework for understanding how headteachers in primary schools functioned as change agents and influenced teacher performance. Originally conceptualized by Burns (1978) and later expanded by Bass (1985), transformational leadership theory emphasized the ability of leaders to inspire, motivate, intellectually stimulate, and individually support followers, thereby achieving meaningful

organizational change and elevated performance (Bass & Riggio, 2006; Lamçja, 2024; Lin et al., 2022; Mohebi & ElSayary, 2023).

In the context of primary schools in Uganda, this theory was applied to examine how headteachers deployed visionary strategies to foster teacher adaptability, encouraged innovative teaching practices, and enhanced professional engagement in a rapidly evolving educational landscape (Guavis et al., 2023; Wu, 2023; Kareem et al., 2023). Transformational leadership was conceptualized as a catalyst for intrinsic motivation amongst teachers, empowering them to embrace pedagogical reforms and adapt to post-pandemic shifts in instructional delivery (Nurrizayani et al., 2024; Litz, 2021). The theory's core relevance to this study lays in its explicit focus on leadership behaviors that aligned with both organizational transformation and individual professional development, which were key components of teacher performance (Virgana & Fitriani, 2024; Wang & Dapat, 2024).

This study specifically adopted the Full Range Leadership Model, developed by Bass and Avolio (1994), which situated transformational leadership within a continuum of leadership styles. Building upon Burns' (1978) dichotomy between transactional and transformational leadership—derived from Max Weber's earlier work on bureaucratic authority, the model outlined transformational leadership as a proactive, developmental style that sought to elevate both the institution and its members by creating a compelling shared vision and empowering followers to surpass ordinary expectations (Avolio, 2004; Bass & Avolio, 1994; Wu, 2023).

The model identified four interrelated dimensions of transformational leadership, each of which was used to guide the study's conceptualization of headteacher influence: individualized consideration, intellectual stimulation, inspirational motivation, and idealized influence. These elements were arranged hierarchically from least active to most transformative leadership practices, forming the foundation of this research.

In recent years, the need for school leaders to foster adaptability, innovation and collaboration among educators became increasingly critical, particularly within resource-constrained and reform-intensive educational contexts such as Uganda. Transformational leadership, as articulated by Bass and Avolio (1994), comprised four key dimensions—idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration—that collectively drove follower development and organizational change. These leadership attributes were particularly relevant to enhancing adaptive performance, which referred to the capacity of individuals to adjust effectively to change, ambiguity, and novel challenges (Bonini et al., 2024).

Bonini et al. (2024) provided a meta-analytic perspective that established a significant and positive relationship between transformational leadership and adaptive performance across organizational settings. This relationship was particularly relevant for schools in Uganda, where teachers faced increasing demands for curriculum flexibility, learner diversity, and post-pandemic recovery interventions. The ability of headteachers to act as transformational leaders influenced teachers' willingness to embrace pedagogical reforms, integrate technology, and develop creative strategies to engage learners with varying academic needs.

2.2.1 Idealized Influence and Teacher Modeling.

Idealized influence involves leaders acting as role models who were respected, trusted, and ethically grounded (Guavis et al., 2023). This modeling effect contributes to an adaptive climate where educators take ownership of school goals and strive for excellence in the face of institutional challenges (Kusmiaji et al., 2024). Teachers were most likely to emulate transformational leaders who demonstrated resilience—a quality crucial for adapting to fluctuating policy environments and infrastructural constraints common in Uganda's schools.

2.2.2 Inspirational Motivation and Goal Alignment:

Inspirational motivation referred to the leader's ability to articulate a compelling vision and motivate teachers towards shared goals. As Norman and Pahlawati (2024) argued, adaptive and flexible leadership styles enhanced organizational resilience, particularly in settings influenced by digital transformation and systemic volatility (Litz, 2021). In the Ugandan context, headteachers who provided a clear and purpose-driven vision helped unify teaching staff toward school improvement goals, even amid external pressures such as overcrowded classrooms and curriculum shifts. Motivation grounded in shared vision promoted psychological safety and nurtured teacher engagement, thus enabling adaptability in instructional practices.

2.2.3 Intellectual Stimulation and Professional Growth:

Intellectual stimulation entailed encouraging innovation, critical thinking, and problem-solving among teachers. This dimension of leadership was crucial in contexts

that required frequent instructional adjustments—such as Uganda's competency-based curricula and multi-lingual learning environments. According to Kusmiaji et al. (2024), transformational leaders promoted human resource development by challenging existing assumptions and encouraging new approaches to professional practice. In Uganda's primary schools, where teachers were often reluctant to deviate from traditional methods, intellectually stimulating leadership facilitated experimentation with learner-centered teaching strategies, digital tools, and differentiated instruction.

2.2.4 Individualized Consideration and Teacher Support:

Individualized consideration involved recognizing and responding to each teacher's unique needs, experiences, and developmental goals. In the Ugandan primary school setting—where teacher morale was often affected by workload, resource scarcity, and limited professional development—headteachers who offered personalized support significantly enhanced adaptive capacity. Bonini et al. (2024) emphasized that transformational leaders who mentored and provided constructive feedback contributed to greater employee adaptability and innovation. When headteachers exhibited empathy and fostered mentoring relationships, teachers were more likely to cope effectively with change, pursue professional development opportunities, and collaborate with peers in problem-solving.

2.2.5 Implications for School Change and Instructional Leadership:

Together, these dimensions of transformational leadership contributed to a school environment that supported continuous learning and systemic improvement. As Norman and Pahlawati (2024) highlighted, leadership flexibility and adaptability were essential

to navigating the uncertainty and complexity of modern educational systems. For Uganda's primary schools, transformational leadership offered a practical and empirically grounded approach to enabling teacher-led innovation, fostering collaboration, and improving instructional leadership. The integration of Adaptive Performance Theory provided a useful lens through which to assess how leadership behavior catalyzed teacher responses to evolving demands in the classroom and school environment.

2.3 Adaptive Performance Theory:

This theory referred to an individual's ability to remain effective in a changing work environment by demonstrating flexibility, creativity, and learning agility (Jundt & Shoss, 2023). Originally developed in response to rapidly evolving organizational landscapes, the theory gained relevance in education, particularly in low-resource and reform-heavy contexts such as Uganda (Norman & Pahlawati, 2024). Adaptive performance involved not only the capacity to adjust to technological, procedural, or policy changes, but also to demonstrate resilience, interpersonal adaptability, and proactive problem-solving—qualities that became essential in teaching roles (Velcu-Laitinen, 2024).

Bonini et al. (2024) argued that leadership played a foundational role in enhancing adaptive performance. In school settings, this suggested that instructional leaders had to foster environments where teachers were equipped and motivated to respond to complex classroom demands, curriculum reforms, and broader systemic shifts (Kusmiaji et al., 2024). This was particularly crucial in Uganda's primary schools, where teachers

faced large student-teacher ratios, multi-lingual classrooms, and post-COVID-19 recovery efforts (Schulze & Pinkow, 2020).

2.3.1 Dimensions of Adaptive Performance in Education:

There are eight dimensions of adaptive performance: handling emergencies, dealing with work stress, solving problems creatively, learning new tasks and technologies, demonstrating interpersonal adaptability, cultural adaptability, physical adaptability, and overall adaptability to uncertainty (Jundt and Shoss, 2023). While not all dimensions directly translated to classroom settings, several were highly pertinent to Uganda's primary schools:

- Creative Problem-Solving was increasingly critical for teachers navigating limited instructional materials and heterogeneous learner profiles.
- Learning Agility supported the integration of new pedagogical methods, such as competency-based curricula and technology-enhanced learning.
- Interpersonal Adaptability enabled collaboration across staff teams and alignment with school leadership during change initiatives.

In these domains, adaptive teachers were most likely to innovate, experiment with diverse strategies, and contribute constructively to school reform.

2.3.2 Leadership as a Catalyst for Teacher Adaptability:

Leadership was a major antecedent of adaptive behavior in organizational contexts. Bonini et al. (2024) affirmed that leaders who displayed clarity, emotional intelligence,

and vision significantly boosted adaptive performance among subordinates (Norris, 2018). In primary school contexts, this aligned with the role of headteachers as instructional leaders, responsible not only for administrative oversight but also for creating a culture of innovation and continuous improvement (Westover, 2024).

Westover (2024) highlighted the critical traits of adaptive leaders—including openness to feedback, strategic foresight, and the ability to lead through ambiguity—as essential to fostering employee agility. In Uganda's schools, headteachers who modeled adaptive thinking empowered teachers to take calculated risks, reframe instructional challenges, and actively participate in school change initiatives. Such leadership also helped buffer the psychological stress teachers faced from high workloads and systemic instability (Shields, 2023).

2.3.3 Adaptive Performance and Teacher Innovation.

Teacher innovation was inherently linked to adaptive performance, particularly in environments characterized by limited resources and shifting expectations. As Norman and Pahlawati (2024) observed, adaptive and flexible leadership supported organizational resilience, which in turn nurtured individual innovation. This insight was particularly relevant to Uganda, where innovation was not merely about integrating advanced technology, but also about resourcefulness, improvisation, and pedagogical creativity.

Kusmiaji et al. (2024) added that transformational and adaptive leadership styles both promoted creative human resource development. In a school setting, this implied that

headteachers had to design professional development frameworks that not only trained teachers in technical skills, but also cultivated mindsets geared toward change and innovation. Teachers with high adaptive performance were more inclined to try new methods, differentiate instruction, and seek learner-centered approaches despite systemic challenges.

2.3.4 School Change Through Adaptive Practices.

Adaptive performance did not occur in isolation—it was tightly interwoven with institutional processes and cultural norms. Velcu-Laitinen (2024) emphasized the role of identity, metacognition, and creative orientation in developing adaptive leaders capable of driving transformation in post-information societies. For Uganda's primary schools to undergo meaningful change, it was essential that both teachers and school leaders internalized the values of lifelong learning, collaboration, and reflective practice (Hussain et al., 2024). At the systemic level, schools had to embed adaptive capacity into their professional cultures. This was achievable through decentralized decision-making, encouragement of grassroots innovations, and inclusion of teacher voices in policy implementation. Teachers who perceived their school environment as flexible and psychologically safe were more likely to contribute constructively to reforms and performance improvement strategies (Sundowo et al., 2024).

2.3.5 Summary and Identified Gaps

This section reviewed existing literature on leadership styles with a specific emphasis on transformational leadership. While foundational theories offered robust insight into how transformational leaders influenced their followers, several gaps persisted:

Theoretical Gap:

There was limited application of transformational leadership theory in studies focused on educational settings in low-resource contexts. This study extended the theory's application to Ugandan primary schools.

Contradictory Gap:

While transformational leadership was broadly linked with innovation and adaptability, some studies suggested variability in its effectiveness across contexts and leadership hierarchies. This study sought to clarify the consistency of these outcomes in the education sector.

Underexplored Gap:

Constructs such as digital leadership and entrepreneurial leadership remained insufficiently explored in relation to teacher performance, particularly in non-industrial sectors like education.

Neglected Gap:

The mediating roles of adaptability, innovation and collaboration in the relationship between headteachers' leadership styles and teacher performance received little empirical attention.

By addressing these gaps, the current study contributed to the literature by examining how transformational leadership among headteachers in Ugandan primary schools

influenced teacher adaptability, innovation and collaboration. It also offered a nuanced understanding of leadership's role in fostering institutional effectiveness within complex educational landscapes.

2.4 Teacher Performance: Adaptability.

Adaptability was defined as the capacity to regulate one's cognitive, emotional, and behavioral responses in the face of new, changing, or uncertain situations (Collie et al., 2020). This construct encompassed three dimensions: cognitive adaptability (adjusting thought processes), emotional adaptability (managing emotional responses), and behavioral adaptability (modifying actions) (Martin et al., 2012; Collie & Martin, 2016).

Previous studies linked teacher adaptability to the use of adaptive instructional practices in classrooms. For instance, Collie et al. (2020) found a positive association between teacher adaptability and the implementation of adaptive teaching strategies. However, this study relied on student evaluations of teacher adaptability, which may not have accurately reflected teachers' self-perceptions or the assessments of their immediate supervisors. This highlighted a methodological gap in the measurement of teacher adaptability.

Adaptive teaching, often conflated with teacher adaptability, referred specifically to the ability to adjust instructional methods to meet individual student needs (Parsons et al., 2018). While adaptive teaching focused on student-centered adjustments, it did not encompass the broader spectrum of adaptability that included teachers' personal and professional adjustments to various challenges. Therefore, adaptive teaching was

considered a component of the broader construct of teacher adaptability (Pearson & Hoffman, 2011; Kena et al., 2014).

Furthermore, teacher adaptability was associated with improvisation, dialogic teaching, and responsive instruction, where teachers actively responded to the intellectual, social, and emotional needs of their students (Vaughn et al., 2016). This required a deep understanding of content, pedagogy, and student dynamics, allowing teachers to flexibly address diverse classroom situations.

Professional development was identified as a factor that enhanced teacher adaptability by increasing teachers' understanding and instructional purpose, thereby supporting their adjustment to the school environment (Parsons et al., 2016).

This study addressed several key gaps in the existing literature on teacher adaptability. First, a theoretical gap existed due to the absence of a comprehensive framework that integrated the cognitive, emotional, and behavioral dimensions of teacher adaptability. Second, a methodological gap was evident in the common reliance on student evaluations, which may not have accurately captured the multifaceted nature of teacher adaptability. Furthermore, an underexplored area involved the limited attention given to the role of teachers' personal needs and self-perceptions in shaping their adaptability. To address these gaps, this study developed a holistic framework that incorporated all dimensions of teacher adaptability. It employed self-assessment instruments alongside supervisor evaluations to ensure a more accurate and robust measurement of the construct. Additionally, the study investigated how teachers'

personal needs and self-perceptions influenced their capacity to adapt in professional contexts.

Importance of teacher adaptability.

Teaching is a profession characterized by high workloads and constant changes, necessitating a high level of adaptability for effective functioning. Adaptability enabled teachers to manage changes such as interactions with new colleagues, unexpected classroom environments, frequent timetable adjustments, and the continuous integration of new knowledge (Collie & Martin, 2016; Collie et al., 2020; Mallillin, 2021). Teacher adaptability was linked to resilience, allowing teachers to adjust to the social, economic, behavioral, and cognitive needs of students. It aligned with the tripartite model, where individuals regulated actions, emotions, or thoughts in response to new situations (Bass, 1990; Collie & Martin, 2017).

Loughland and Alonzo (2018) found that adaptability was positively associated with the use of adaptive instructional practices and negatively associated with teacher disengagement, indicating increased teacher commitment. However, this study also relied on student ratings, which may not have fully captured teachers' adaptability. Adaptability also played a role in enabling teachers to move beyond their pre-existing knowledge and cultural toolkits, allowing them to accommodate new work environments and demands (Golann, 2018).

Furthermore, teacher adaptability was linked to the alignment of curriculum, facility, and team autonomy. In irregular learning environments, adaptability helped teachers

incorporate changes and respond to prevailing systems and processes within schools (Alterator & Deed, 2016). Studies showed that teacher adaptability enhanced performance and effectiveness, improving outcomes for both teachers and students. It fostered creativity in teaching behaviors, which could extend to student creativity (Loughland & Alonzo, 2018). Adaptability empowered teachers to make relevant decisions that addressed student needs, making it a cornerstone of effective teaching (Vaughn & Parsons, 2013; Vagle, 2016).

A contradictory gap in the literature arose from the inconsistent findings regarding the positive outcomes of teacher adaptability, largely due to the overreliance on student evaluations. Additionally, an underexplored area concerned the influence of teacher adaptability on curriculum alignment and team autonomy—two critical aspects of effective instructional practice that remained insufficiently examined. To address these gaps, this study adopted a multi-method assessment approach, incorporating both self-assessments and supervisor evaluations. Furthermore, the study examined how teacher adaptability impacted curriculum alignment and enhanced team autonomy within educational settings.

2.5 Transformational leadership style and teacher adaptability.

Transformational leadership emerged as a pivotal construct in the discourse on educational effectiveness, especially in the context of rapid institutional changes and increased accountability. It was characterized by four key components: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass & Avolio, 1994). These dimensions fostered a school culture that

encouraged continuous professional growth and adaptability among teachers (Leithwood & Jantzi, 2005).

Several scholars explored adaptability in relation to employee performance, positioning transformational leadership as a moderating factor, particularly in higher education contexts (Nguni et al., 2006; Avolio & Bass, 2004). Adaptability in this context referred to the capacity of teachers to adjust to new pedagogical demands, student needs, and institutional reforms (Pulakos et al., 2000). However, despite the recognized importance of adaptability, a theoretical gap remained in the literature explicitly linking transformational leadership with teacher adaptability in secondary school settings. Most existing studies either marginally addressed this relationship or focused on broader organizational outcomes rather than on teacher-level behavioral change.

Furthermore, existing research predominantly relied on student evaluations to measure teacher adaptability (Collie & Martin, 2016). This presented a contradictory gap, as student perceptions may not have captured the nuanced, multidimensional nature of adaptability. This study addressed these shortcomings by employing a comprehensive assessment model that included teacher self-assessments and supervisor evaluations.

2.6 Teacher Innovation.

Innovation in educational settings was broadly defined as the implementation of new processes, ideas, or products that departed significantly from past practices and were adopted within institutional frameworks (OECD/Eurostat, 2018). Brown and McIntyre

(1982) categorized educational innovation into two principal forms: organizational innovation and pedagogical innovation.

Organizational innovation

Organizational innovation encompassed system-level changes such as restructuring departments, reallocating resources, or adopting new administrative processes. These changes were often driven by external mandates and implemented top-down with limited teacher input. Teachers acted largely as implementers, and the success of such innovations was contingent upon directive clarity and institutional authority (Brown & McIntyre, 1982; Hallinger, 2003).

In contrast, pedagogical innovation referred to classroom-level changes initiated by teachers themselves, including instructional strategies and content delivery. These reflected personal teaching philosophies and required greater autonomy, professional agency, and intrinsic motivation. This study focused on pedagogical innovation due to its direct link with teacher-led change and the enabling role of transformational leadership.

Additional factors influencing innovation included training, time constraints, learner diversity, and teacher confidence (OECD, 2018; Fullan, 2007). However, limited empirical research explored how transformational leadership mitigated these constraints or enhanced innovation—a clear underexplored area.

Dooley (1999) expanded the typology of educational innovation to include political, cultural, technological, and psychological forms. Innovations varied by intensity:

adjustments (minor), modifications (intermediate), and transformations (systemic). Yet, few studies examined how transformational leadership influenced these processes at all levels.

The reviewed literature offered valuable insights into the constructs of teacher adaptability and educational innovation; however, several critical gaps persisted. A theoretical gap was evident in the limited development of integrative frameworks that explicitly linked transformational leadership with both teacher adaptability and teacher-led innovation, particularly within secondary school contexts. Additionally, a contradictory gap arose from the widespread reliance on student evaluations as the primary means of measuring teacher adaptability. Such methods produced inconsistent findings and lacked the depth required to capture the multidimensional nature of adaptability.

To overcome this limitation, the current study proposed a more robust, multi-source evaluation approach that incorporated both teacher self-assessments and supervisor evaluations. Moreover, significant underexplored areas existed concerning the influence of transformational leadership on curriculum alignment and team autonomy factors that were central to the successful implementation of innovation in educational settings. To address these gaps, this study developed a comprehensive model that linked the four dimensions of transformational leadership to teacher adaptability and innovation capacity. It also employed multi-method assessment tools to enhance the validity and reliability of adaptability measures. Furthermore, the study examined the relationship between teacher adaptability, curriculum alignment, and team autonomy,

thereby contributing to both theoretical advancement and practical strategies for leadership in education.

Recent empirical studies underscored the significance of leadership styles in influencing employee creativity, innovation, and performance across various organizational contexts. For instance, Kurniadi, et al., (2024) conducted a study within a regional government administrative district and found that both transformational and transactional leadership styles had a significant impact on employees' creative self-efficacy and creativity, particularly when moderated by knowledge sharing. Although this research was not situated within an educational context and did not directly target innovation, it highlighted the critical role of leadership styles in fostering creative capacities and pointed to knowledge sharing as a key mediating variable.

In another study conducted during the COVID-19 pandemic, Purwanto et al. (2020) examined leadership practices within a public health center and concluded that both transformational and transactional leadership styles positively influenced employee performance. This contextually specific study illustrated how leadership could be a stabilizing and motivating force during crises, offering parallels to educational settings that faced their own unique challenges. However, the extrapolation of these findings to schools required careful contextual adaptation.

Expanding on leadership's role in innovation, Prasad and Junni (2016) observed that while both transactional and transformational leadership styles significantly fostered organizational innovation, transformational leadership offered more sustained benefits in terms of innovative outcomes. This conclusion supported the theoretical stance that

transformational leadership, through its emphasis on vision, intellectual stimulation, and individualized support, was better suited to environments requiring adaptive and innovative behaviors, such as secondary education.

In the academic domain, Sengendo and Musinguzi (2024) reported that transformational leadership was significantly associated with student academic performance in Ugandan secondary schools. Specifically, idealized influence positively correlated with performance at the ordinary level, while intellectual stimulation had a notable impact on advanced-level students. These findings supported the applicability of transformational leadership within educational contexts but stopped short of exploring how it may have affected teacher adaptability or innovation practices—revealing an underexplored area this study sought to address.

Moreover, Iqbal, et al., (2015) explored the influence of participative, authoritarian, and democratic leadership styles on employee performance, particularly in relation to time management and goal attainment. Although not directly focused on transformational leadership or innovation, this study underscored the relevance of matching leadership styles with employee engagement and performance outcomes.

Additional studies delved into the psychological mechanisms that mediated the influence of transformational leadership. Buil, et al., (2019), for example, found that employee identification and engagement mediated the relationship between transformational leadership and both citizenship behavior and job performance among frontline hotel staff. These insights pointed to the broader utility of transformational

leadership in enhancing performance, although the occupational context limited direct application to educational settings.

Rozi et al. (2020) examined the influence of general leadership attributes—such as clarity, communication, motivation, and openness to feedback—on employee performance, reporting a strong regression coefficient of 0.670. Although this study did not categorize specific leadership styles, it reinforced the broad consensus that leadership played a vital role in enhancing employee effectiveness. However, the lack of typological distinction between leadership styles presented a theoretical limitation that this study aimed to address by focusing specifically on transformational leadership. Setiawan et al. (2024) investigated how creativity, autonomy, and leadership influenced part-time workers' performance. While this research identified leadership as a critical factor, its conflated creativity and innovation, and its focus on part-time employees raised concerns regarding the generalizability of findings to full-time teachers in structured educational institutions.

2.6.1 Summary and Identified Gaps

The reviewed literature affirmed that leadership particularly transformational leadership played a pivotal role in shaping employee creativity, organizational innovation, and performance outcomes. Diverse sectors, including public administration, healthcare, and education, consistently demonstrated the influence of transformational leadership attributes such as intellectual stimulation, inspirational motivation, and individualized consideration on staff engagement and innovation.

However, despite this extensive body of work, significant gaps remained in the theoretical development, methodological approaches, and contextual focus of the existing research:

- Theoretical Gap: A fragmented examination of leadership, adaptability, and innovation persisted. Many studies explored these constructs in isolation, with minimal effort to develop integrated models that captured their interrelationships. A paucity of research existed that systematically linked transformational leadership to both teacher adaptability and teacher-driven innovation within primary school contexts.
- Contradictory Gap: Inconsistent findings emerged in the measurement of adaptability. Many studies evaluated leadership effectiveness using indirect outcomes such as student achievement, without robust tools for assessing adaptability itself. The overreliance on student evaluations undermined reliability and resulted in conflicting interpretations.
- Underexplored Gap: There was limited investigation into how transformational leadership facilitated curriculum alignment, enhanced team autonomy, or stimulated grassroots innovation—especially in structured, low-resource primary school settings.

2.7 Teacher Collaboration

Collaboration among teachers is widely recognized as a cornerstone of effective school functioning, enhancing both professional development and instructional quality. Transformational leadership, by emphasizing shared vision, intellectual stimulation,

and individualized consideration, has been consistently linked with fostering environments where collaboration can thrive. Keman, et al., (2025), for instance, demonstrated that headmasters' transformational leadership significantly strengthened teachers' commitment to collective values, suggesting that collaborative professional cultures are often the product of leaders who inspire beyond transactional goals. Similarly, Mansor, et al., (2021) found that teachers' trust in principals acted as a mediating factor between transformational leadership and teachers' working commitment, reinforcing the argument that collaboration requires not only structural opportunities but also relational trust cultivated by visionary leaders. These studies converge on the notion that leadership practices which prioritize shared values and trust tend to translate into stronger professional collaboration, particularly in school contexts.

The literature also underscores the role of transformational leadership in shaping collaborative teacher practices during crises and organizational shifts. Menon (2023), studying teachers' experiences in Cyprus during the COVID-19 pandemic, highlighted that transformational leadership facilitated sustained professional dialogue and peer support amidst disruption. This finding resonates with Esogon, et al., (2024), whose study of public elementary schools revealed that school heads practicing transformational leadership were able to promote collegial collaboration and align teacher performance with institutional goals. Taken together, these works point to the resilience of collaborative cultures when headteachers enact leadership practices that not only inspire but also mobilize teachers to collectively adapt during uncertainty. However, while such studies capture leadership in extraordinary times, they often

remain anchored in secondary or global contexts, leaving the everyday realities of collaboration in African primary schools insufficiently theorized.

Another dimension emphasized in recent scholarship is the relationship between transformational leadership and distributed or collective leadership frameworks. Gunter, et al., (2013) argued that distributed leadership enhances collaboration by decentralizing authority and allowing teachers to share decision-making responsibilities. Transformational leadership intersects with this framework by equipping leaders with the capacity to motivate and empower teachers to assume collaborative roles beyond formal mandates (Wilson Heenan et al., 2023). Yet, while these perspectives converge on the enabling role of headteachers, they diverge in emphasis—distributed leadership highlights structural decentralization, whereas transformational leadership privileges relational and motivational dynamics. This divergence reveals a theoretical gap: few studies systematically analyze how these leadership paradigms interact to sustain teacher collaboration, particularly in low-resource settings where rigid hierarchies may limit distributed practices.

Transformational leadership has also been associated with promoting collaboration indirectly through mechanisms such as engagement, knowledge sharing, and team cohesion. Grace et al. (2024) found that transformational leadership fostered tacit knowledge sharing among employees, thereby enhancing innovative behavior and collective problem-solving. Similarly, Pigola et al. (2024) illustrated that leadership responses to situational challenges determined the quality of team collaboration and performance in organizational contexts. Within education, Canterino et al. (2024)

demonstrated that when human resource practices were aligned with transformational leadership, collaborative attitudes were strengthened, particularly in complex organizational transitions. Although drawn largely from corporate or higher education settings, these findings affirm that transformational leadership nurtures collaboration not merely through structural authority but by creating climates where collective learning and mutual support are normalized. The transposition of these insights to primary education contexts, however, remains underexplored, especially in Sub-Saharan Africa.

At the same time, the literature reflects some contradictions and unresolved debates. Hasani and Xhomara (2024) noted that while transformational leadership positively influenced teacher performance, its effects on collaboration were sometimes overshadowed by instructional leadership, which offered more direct guidance for classroom practices. Likewise, Duren (2025) observed that in rural Texan schools, female principals relied on relational strategies to sustain teacher collaboration, but resource constraints limited the depth of such practices. These findings point to contextual contingencies, where the effectiveness of transformational leadership in shaping collaboration depends not only on leader behavior but also on cultural norms, institutional structures, and resource environments. This suggests a methodological gap, as much of the evidence derives from quantitative survey designs that inadequately capture the nuanced processes through which collaboration is built or constrained in everyday school life.

In summary, the reviewed literature demonstrates strong theoretical and empirical linkages between transformational leadership and teacher collaboration. Transformational leaders foster collaboration by building trust (Mansor et al., 2021), instilling shared values (Keman et al., 2025), facilitating dialogue during crises (Menon, 2023), and promoting knowledge sharing (Grace et al., 2024). Nonetheless, gaps persist. Methodologically, there is an overreliance on quantitative survey designs, with limited qualitative inquiry into how collaboration unfolds in practice. Theoretically, few studies have integrated transformational leadership with complementary frameworks such as distributed leadership, which could enrich explanations of collaborative dynamics. Contextually, empirical attention has been skewed toward secondary schools or non-African contexts, leaving primary schools in Sub-Saharan Africa underrepresented despite their foundational role in education systems. The present study addresses these gaps by adopting a qualitative approach, situating analysis within Uganda's primary school context, and drawing on transformational leadership, social cognitive, and adaptive performance theories to illuminate how headteachers' leadership practices shape teacher collaboration in low-resource educational environments.

2.8 How the Current Study Addressed the Gaps

This study addressed the identified gaps by developing and empirically testing a conceptual model that linked the four dimensions of transformational leadership—idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration—to teacher adaptability and innovation. The model served both explanatory and predictive purposes within the primary school context.

To mitigate methodological limitations observed in prior research, the study adopted a multi-method assessment approach. By incorporating both teacher self-assessments and supervisor evaluations, it produced a more valid and reliable measure of teacher adaptability, thereby mitigating the shortcomings of single-source data.

Furthermore, the study explored how transformational leadership influenced curriculum alignment and team autonomy—providing fresh insights into how leadership behaviors fostered or constrained innovation within schools. By bridging theoretical gaps, resolving contradictory methodologies, and illuminating underexplored dimensions of leadership in education, this study made a substantive contribution to both academic literature and practical leadership strategies.

The findings offered actionable insights for policymakers, school leaders, and teacher educators seeking to cultivate adaptive and innovative teaching practices in primary education systems.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

This chapter comprises a description of how the study was conducted. This description entails the research design, data sources, sampling procedure, measurement of variables, ethical considerations among other related tools for the study as expounded below.

3.1 Research Philosophy

The philosophical foundation of this study was grounded in the post-positivist paradigm, which guided the research design, methodological choices, and interpretation of findings. Post-positivist paradigm is a philosophical stance that critiques positivism by acknowledging that while reality exists, it can only be known imperfectly; knowledge is always provisional, influenced by human bias, and subject to revision (Smith, et al., 2024). The philosophy emphasizes that sound empirical research demands a coherent alignment between ontological, epistemological, and axiological assumptions, ensuring consistency across all stages of inquiry. These assumptions informed how reality was conceptualized, how knowledge was acquired, and how values influenced the research process.

Ontological Assumptions: Ontologically, the study adopted the stance of critical realism, a central underpinning of the post-positivist worldview. This position holds that while a reality independent of human perception exists, researchers can only partially access and interpret it due to the influence of theoretical perspectives and contextual constraints (Tripathi et al., 2024; Manik et al., 2024). Accordingly, the study assumed

that the constructs under investigation, namely transformational leadership practices and their influence on teacher adaptability, innovation and collaboration, exist as real measurable phenomena within the school environment. At the same time, these realities were recognized as socially embedded and context-sensitive, particularly in educational institutions within low-resource settings such as Uganda.

Epistemological Assumptions: The epistemological orientation of the study reflected a modified objectivist stance consistent with post-positivist philosophy. Knowledge was treated as fallible and theory-laden, yet capable of being objectively approximated through empirical investigation (Belharar et al., 2023; Pérez-Hämmerle et al., 2024). The study sought to generate valid and generalizable knowledge through systematic observation, hypothesis testing, and quantitative data analysis, while acknowledging the limitations and potential biases inherent in the process. As Tripathi et al. (2024) argue, post-positivism allows for scientific rigor without assuming absolute certainty—an approach that aligned well with the aims of this study.

Axiological Assumptions: Axiologically, the study maintained a value-conscious yet ethically neutral stance. While the researcher's background and positionality inevitably shaped aspects of the study design, such as the selection of variables and interpretation of context, steps were taken to minimize bias and ensure transparency. As Manik et al. (2024) contend, value-awareness in educational research does not negate objectivity but rather demands ethical rigor and reflexivity. The study upheld ethical research practices, including confidentiality, informed consent, and impartial analysis, while

recognizing that complete neutrality is neither feasible nor philosophically consistent with post-positivism (Smith et al., 2024).

Alignment with the Post-Positivist Paradigm: By integrating these ontological, epistemological, and axiological commitments, the study was coherently situated within the post-positivist paradigm. This paradigm supported the use of a deductive research approach, beginning with established theory and proceeding to empirical validation. Validated instruments and statistical techniques were employed to examine the relationships between headteachers' leadership styles and teacher outcomes, particularly adaptability, innovation and collaboration.

The philosophical stance of post-positivism further enabled the study to balance structure with sensitivity, pursuing generalizable insights while remaining critically aware of contextual variability. This approach was particularly suited to the Ugandan primary school context, where educational challenges are shaped by complex institutional and socio-cultural dynamics (Dhobi, 2023; Tripathi et al., 2024).

In summary, the study aligned its philosophical assumptions with its methodological approach by adopting critical realism (ontology), modified objectivism (epistemology), and ethical value-consciousness (axiology) within the post-positivist paradigm. This alignment enhanced methodological rigor, conceptual coherence, and ethical responsibility, ultimately contributing to a credible and context-sensitive investigation of leadership and teacher adaptability, innovation and collaboration in primary education.

3.2 Research approach

This study adopted a quantitative research approach. Quantitative research refers to a systematic approach that focuses on collecting and analysing numerical data to describe phenomena, test hypotheses, identify relationships, and generalize findings to larger populations (Lim, 2025). This approach is appropriate for examining the statistical relationships between variables, testing hypotheses, and generalizing findings from the sample to a broader population. The quantitative approach was aligned with the postpositivist philosophical worldview, which advocates for objective measurement, empirical observation, and hypothesis-driven inquiry (Creswell & Creswell, 2023). By employing numerical data and structured instruments, the study quantified the extent to which headteachers exhibited transformational leadership and assessed its predictive influence on teacher adaptability, innovation and collaboration. This approach was particularly suited for research that aimed to explain phenomena through measurable evidence and to apply inferential statistics to validate findings (Saunders et al., 2019; Bryman, 2021). Moreover, the quantitative approach supported the formulation of evidence-based recommendations for leadership development in primary schools.

3.3 Research design

The study employed a correlational survey design, which was suitable for investigating the strength and direction of relationships between variables without manipulation. Specifically, this design enabled the researcher to examine how headteachers' transformational leadership practices were related to teacher adaptability, innovation and collaboration in primary schools in Eastern Uganda. Correlational designs have

often been used in educational leadership research to explore associations between leadership behaviors and various school or teacher-related outcomes (Check & Schutt, 2021). This design aligned well with the study's objective of determining the extent to which transformational leadership predicted variability in teacher behaviors. Data were collected through validated questionnaires, and the analysis involved statistical techniques such as Pearson correlation and multiple regression to identify and interpret the relationships among the key variables (Creswell & Creswell, 2023; Hair et al., 2021). The design thus provided a robust framework for analyzing complex relationships in real-world educational contexts without requiring experimental control.

3.4 Area of study

The study was carried out in selected primary schools in eastern Uganda with a consideration of rural and urban schools to expound on the contextual factors in the model.

3.4.1 Population and sampling techniques

3.4.1.1 Target population

This study focused on primary school teachers and headteachers in Eastern Uganda. According to projections derived from the Education Management Information System (EMIS, 2024), the number of primary school teachers employed in the region was estimated at approximately 32,752. Due to inconsistencies in the inclusion of headteacher data in national records, an estimated 1,310 headteachers was calculated using a standard ratio of one headteacher for every 25 teachers. This benchmark was supported by the Ministry of Education and Sports (MoES, 2024), UNESCO (2022), and the Global Partnership for Education (GPE, 2023). This ratio has been widely recognized

in education sector research as a normative guideline for school-level staffing projections.

Based on this approach, the total projected population of educators in Eastern Uganda was 34,062, with teachers comprising 96.2% and headteachers accounting for 3.8% of the total. This projection informed the sampling frame and helped establish the scope of the study population.

3.4.1.2 Sample size determination and distribution

In order to determine the appropriate sample size for the teacher survey, Cochran's (1977) formula was employed to estimate the number of participants suitable for a large population. Since the teacher population in the Eastern region was known (32,752), this method was applied as it is considered conservative when the estimated proportion of the population is unknown. To enhance precision for a finite and known population, the Finite Population Correction (FPC) formula was subsequently applied to the initial sample size estimate (n_0). This approach yielded reliable and statistically valid results, as it was grounded in the actual number of individuals eligible to participate in the survey.

This is written as the following formula:

$$n_0 = \frac{Z^2.p.(1-p)}{e^2}$$

Where:

Z = 1.96 for a 95% confidence level,

P = 0.5 for maximum variability,

e = 0.0542 as the margin of error

In this study, a 95% confidence level was selected, corresponding to a Z-score of 1.96. The population proportion (p) was set at 0.5 to assume maximum variability, thereby ensuring the most conservative estimate. The margin of error (e) was adjusted to 0.0542 in order to align with available field capacity and logistical feasibility, while still maintaining statistical integrity in the sampling process. Substituting these values:

$$n_0 = \frac{1.96^2.(0.5).(1-0.5)}{0.0522^2} \approx 352.4611$$

Since the total population of primary school teachers in Eastern Uganda is finite (N = 32,752), the initial sample was corrected using the finite population correction formula:

$$n_0 = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}} = \frac{352.46}{1 + \frac{(352.46 - 1)}{32{,}752}} = 697.4$$

A preliminary estimate of the minimum required sample size was 349 teachers from each of the rural and urban setting, which was obtained from the statistical calculations above. To ensure that there is appropriate representation of teachers in various educational environments, the sample was stratified in terms of the school environment to include both rural and urban teachers evenly. To overcome the impact of possible non-response, additional questionnaires were also used in the data-collection phase, which resulted in the ultimate distribution of 704 instruments. The criteria used to analyse all questionnaires sent back were completeness and thus an analytical sample of 704 teachers was obtained. The given methodological approach increased the representativeness of the sample but also provided the protection against loss of data due to non-response in the study as seen in below.

Table 1: Final Sample Distribution in the study (n = 704)

Category	Setting	Sample Size (n)
Teachers	Rural	349
Teachers	Urban	349
Non-response		6
Total	—	704

The sample of 704 respondents was proportionally drawn to reflect the makeup of the teacher population in the region. This maintains representativeness and ensures fair representation of teachers from rural and urban settings.

The study only considered teachers as respondents because of the following reasons:

Teachers as the primary beneficiaries of leadership influence: While headteachers enact this leadership style on their followers (the teachers), the influence of this leadership style is most directly manifested through the teachers' performance outcomes.

Avoiding bias and ensuring objectivity: Involving headteachers would easily lead to self-reporting bias, as they might overstate or understate their own leadership influence. On the other hand, teachers would provide a more objective account of how the transformational leadership practices translate into teacher performance outcomes.

Teachers' performance grounded in Teachers' daily practices: Transformational leadership attributes are not self-reported by headteachers alone, but they can be validated through the lived experiences of the teachers.

The study's dependent variable – Teacher performance was tied to teachers' daily work observed through the lenses of adaptability, innovation and collaboration. It was therefore methodologically sound to collect data from teachers rather than

headteachers whose perspective would reflect leadership intent rather than its influence.

Clarification on findings: This study did not investigate headteachers' perspectives directly. It rather analysed how teachers perceived and responded to the leadership. Headteachers were the source of influence but not the unit of analysis for this study.

3.5 Measurement levels

Transformational leadership style was measured using the Multifactor Leadership Questionnaire (MLQ), which was developed and validated by Bass & Avolio (1995) as a standardized instrument for assessing transformational, transactional, and laissez-faire leadership styles. The questionnaire assessed the four core traits of transformational leadership—idealized influence, intellectual stimulation, individualized consideration, and inspirational motivation—using a five-point Likert scale, where 1 = Not at all, 2 = Once in a while, 3 = Sometimes, 4 = Fairly often, and 5 = Frequently, if not always (Emerson, 2017). Teachers rated their headteachers in relation to these transformational leadership traits.

Adaptability was assessed using the Adaptability Scale – Domain Specific Questionnaire developed by Van Dam and Meulders (2020). The original instrument comprised nine items, which were customized to suit the contextual needs of this study. An additional tenth item was designed by the researcher to evaluate teacher adaptability to contemporary educational changes and trends, such as technological integration, curriculum reforms, and policy shifts. This tenth item was further subdivided into eleven subsections to ensure that the measurement tool addressed the specific educational context rather than remaining limited to generic adaptability constructs.

These subsections were derived from relevant literature on educational reforms as well as the researcher's prior knowledge of national education policy frameworks. All questions were rated on a five-point Likert scale, where 1 represented "Strongly Disagree" and 5 represented "Strongly Agree" (Emerson, 2017).

Innovation was assessed using the Innovation Survey for Teaching Staff as proposed by the Organization for Economic Cooperation and Development (OECD) (Stéphan, 2023). Although the instrument was originally developed for global use—particularly in high-income countries—most of its constructs were found to be universally applicable across diverse educational contexts, including the African setting. For the purpose of this study, the questionnaire was summarized and adapted to focus on aspects most relevant to the Ugandan primary education context.

Collaboration was measured using the Teacher Collaboration Assessment Survey as validated by Woodland et. al (2013), which provided a structured evaluation of teachers' practices related to peer interaction, co-teaching, knowledge sharing, and joint lesson planning. Four domains of teacher collaboration were measured. These were; dialogue, decision making, action and evaluation. These aspects were aligned with international benchmarks and contextualized to reflect the collaborative practices prevalent in Ugandan primary schools.

The study also sought to develop and test a structural model that explained how transformational leadership traits—including idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, could predict critical performance outcomes such as adaptability, innovation and collaborative

behaviour. This model was operationalized through the correlation and quantile regression procedures described in section 3.9.4, with transformational leadership treated as the independent construct, and teacher adaptability, innovation, and collaboration treated as dependent latent constructs. For each dimension, validated and contextually adapted measurement instruments were employed to ensure construct validity. Through path analysis, the study evaluated the strength and significance of hypothesized relationships among variables. This analytical approach provided empirical evidence regarding the usefulness of the model in explaining teacher performance outcomes in Ugandan primary schools, and informed recommendations for leadership development strategies.

3.5.1 Composite Construction

To make domain level analysis, the individual collaboration items were arranged into six conceptually important domains, an arrangement which was based on the available literature on Professional Learning Communities (PLCs) which indicates the importance of shared vision, organized collaboration, reflective dialogue, meaning group-based decision making, action orientation and evidence-based practice. The subsequent domains included a common purpose and team make up, meeting design, dialogue quality, decision making processes, action and follow up and use of data.

Each of the domains had composite scores achieved through calculation of the arithmetic mean of the responses of the items in each domain. To achieve the ambition of enhanced interpretability, this approach was used in hopes of reducing item-level fragmentation to be consistent with the conceptual framework of the study since it is theoretically driven and not based on exploratory data reduction.

The estimated domain-level standard deviations came out as the average of the item-level standard deviations hence providing a summary statistic of the variability of responses in each of the domains. Selective reporting of item level findings was done to represent patterns that can be seen at the domain level.

3.6 Procedure for data collection

Before commencing data collection, the researcher obtained ethical clearance from the Uganda Christian University Research Ethics Committee (REC), followed by a formal approval from the Uganda National Council for Science and Technology (UNCST). The researcher also obtained license to administer the multi-factor leadership questionnaire from Mind Garden, Inc. Upon receiving national-level approval, the researcher subsequently sought permission from school headteachers to facilitate access and conduct data collection activities within their respective schools.

The researcher distributed structured questionnaires to teachers across the selected rural and urban primary schools in Eastern Uganda. A nominal scale was employed to categorize respondents' demographic data, including gender, length of service, and school location. This information provided descriptive insights into the study sample and supported subgroup analysis.

All collected data were tabulated, coded, and analysed using Python version 3.13.3. The statistical analysis enabled the researcher to examine relationships between variables and interpret findings in line with the study objectives. Based on the results, the researcher drew conclusions and formulated evidence-based recommendations. The final findings were compiled and submitted to the University Board, the Research Ethics

Committee, and the Uganda National Council for Science and Technology in accordance with ethical reporting and dissemination requirements.

3.7 Data collection methods

The researcher used structured questionnaires to collect data on the various study variables. The instruments used to collect data from teachers included the following: The Multifactor Leadership Questionnaire (Bass & Avolio, 1995), which measured transformational leadership traits; The Adaptability Scale – Domain-Specific Questionnaire (Van Dam & Meulders, 2020), customized to assess teacher adaptability in the Ugandan primary education context; The Innovation Survey for Teaching Staff developed by the OECD (2014), adapted to capture relevant dimensions of teacher innovation; and The Teacher Collaboration Assessment Survey (Woodland et. al 2013), which evaluated collaborative practices among teaching staff. These instruments were selected for their established validity and reliability, and were appropriately modified to ensure contextual relevance for primary school teachers in Eastern Uganda.

3.8 Data Quality/Error control

Data quality control is classified into data validity and data reliability (Tusiime, 2014).

3.8.1 Validity.

In this study, validity referred to the degree to which the research findings accurately represented the phenomenon under investigation, ensuring the soundness and trustworthiness of the conclusions drawn (Ghauri, Gronhaug & Strange, 2020). Establishing validity was essential for enhancing the credibility of the results and supporting their generalizability to the wider population. To ensure both content and

construct validity, the researcher, in close collaboration with academic supervisors, conducted a thorough review of the study objectives and ensured their full alignment with the questionnaire items. All research instruments were carefully scrutinized for clarity, relevance, and appropriateness of the questions in capturing the intended constructs. This systematic approach helped uphold the integrity of the research process and contributed to dependable and meaningful interpretations of the findings.

3.8.2 Reliability

In this study, reliability referred to the consistency of the data collection instruments in producing accurate and stable results when administered across different samples. It implied that if the study were repeated under similar conditions, the outcomes would likely remain consistent (Tusiime, 2014).

To ensure high reliability, the researcher adopted three standardized instruments: The Multifactor Leadership Questionnaire (MLQ) with a licence to administer for assessing headteachers' leadership styles (Bass & Avolio, 1995), the Domain-Specific Adaptability Scale for measuring teacher adaptability (Van Dam & Meulders, 2020), the Innovation Survey for Teachers and school leaders developed by the OECD (2014), and the Teacher Collaboration Assessment Survey by Woodland et. al (2013). Previous studies had demonstrated acceptable levels of internal consistency for these instruments, with Cronbach's alpha values exceeding the recommended threshold of 0.70. Specifically, the MLQ had reported alpha values above 0.70 across various studies (Avolio, 2004; Muenjohn & Armstrong, 2008). Similarly, the Domain-Specific Adaptability Scale showed reliability coefficients greater than 0.70 (Van Dam & Meulders, 2020), while the

Innovation Survey reported a Cronbach's alpha of 0.89, indicating excellent internal consistency (Halász, 2018; OECD, 2014). The Teacher Collaboration Assessment Survey (TCAS) reported Cronbach's alpha between 0.70 to 0.94 (Woodland et al., 2013). These psychometric properties justified the instruments' suitability for reliable data collection in this study.

3.9 Strategy for Data process analysis and interpretation

3.9.1 Data Processing and Analysis

Data analysis in this study was conducted using Python version 3.13.3 as the primary analytical tool. Python was selected due to its versatility, reproducibility, and strong integration with comprehensive libraries that support data management, statistical modelling, and visualization (Rahman, Abdulla, & Hossain, 2024; Sanderson & Kun, 2024; Ali, Breik, Aly, Raslan, & Gheith, 2024; VanderPlas, 2016). The analytical process followed three main stages: pre-analysis, descriptive analysis, and inferential analysis. These phases enabled the systematic transformation of raw survey responses into meaningful insights aligned with the study's research objectives. The data processing workflow utilized essential libraries such as pandas, numpy, matplotlib, seaborn, scipy, and stats models (McKinney, 2012), ensuring both throughout the data analysis pipeline.

3.9.2 Procedure for Pre-analysis

During the pre-analysis phase, raw data were imported into Python using the pandas library. This phase involved data cleaning, verification, and transformation to ensure consistency and analytical accuracy. Missing values were assessed and addressed using

appropriate techniques such as mean substitution or listwise deletion, depending on the nature and pattern of the missing data. Data types were validated, and categorical variables were encoded using LabelEncoder and OneHotEncoder to ensure compatibility with statistical models. To assess the internal consistency of the measurement instruments, Cronbach's alpha was computed using the pingouin or researchpy packages. Values above α = 0.70 were considered acceptable indicators of reliability (Mohsen & Reg, 2011). Additionally, normality tests were conducted to determine the suitability of parametric versus non-parametric procedures. These included the Shapiro-Wilk test, as well as assessments of skewness and kurtosis, using the scipy.stats module. This rigorous pre-processing phase ensured that the dataset was statistically robust and well-prepared for advanced analysis.

3.9.3 Descriptive Analysis

No separate descriptive research questions were set and descriptive statistics were used to summarize and characterize the data but also as the basis for the subsequent inferential analysis. Continuous variables were summarized by measures of central tendency (mean and median) and dispersion (standard deviation and interquartile range) and categorical variables were summarized by frequency distributions and proportions. All item and construct means derived from the five-point Likert scales were interpreted using the following scale: 1.00–1.80 = very low, 1.81–2.60 = low, 2.61–3.40 = moderate, 3.41–4.20 = high, and 4.21–5.00 = very high. The following statements apply to all mentions of low, moderate and high levels in the descriptive tables in Chapter Four.

3.9.4 Inferential Analysis

To analyze the relationships between the main study variables inferential statistical methods were used. Test selection was based on the level of measurement and on the characteristics of the distribution. Shapiro-Wilk normality test results indicated that all the main constructs were not normally distributed ($p<0.01$), therefore non-parametric procedures were used. To determine if there was a positive or negative relationship between transformational leadership and each teacher performance dimension, Spearman's rank correlation coefficient was used. To estimate how much the transformational leadership dimension predicted the teacher performance dimensions controlling for school, leadership, and professional characteristics, the median quantile regression procedure was used. The results of the regression are presented as beta coefficients and standard errors, t values, 95% confidence intervals and pseudo-R^2 values. Statistically significant at $p < 0.05$ and all tests were conducted with a 95% confidence level following acceptable practice for postgraduate research (Ghauri, Grønhaug, & Strange, 2020).

3.9.5 Model Specification

There were no separate descriptive research questions set but the descriptive statistics are reported here to aid in summarizing and characterizing the data set and as a basis for the inferential analysis to follow. The meaning of all item and construct means are interpreted with reference to the scale provided.

3.10 Ethical considerations

This study was guided by core ethical principles aimed at safeguarding participants from any form of harm arising from their involvement. The researcher upheld the ethical standards of privacy, confidentiality, voluntary participation, and informed consent, in accordance with the guidelines proposed by Tusiime (2014) and Cohen, Manion, and Morrison (2002). No personal identifiers were collected or recorded at any stage of the research, and anonymity was strictly maintained throughout the data collection, analysis, and reporting processes.

Prior to the commencement of data collection, the researcher obtained ethical clearance from the Uganda Christian University Ethics Committee, followed by formal approval from the Uganda National Council for Science and Technology (UNCST). The researcher also obtained license to administer the multi-factor leadership questionnaire from Mind Garden, Inc. Full compliance with the Uganda Christian University's ethical code was observed to ensure the integrity and quality of the research process. Participants were provided with a clear explanation of the study's objectives, thereby reducing any apprehension associated with sharing personal or professional views. They were informed of their rights, including the freedom to withdraw from the study at any point without penalty or consequence. All data collected were used exclusively for academic purposes and securely stored to prevent unauthorized access.

Additionally, the researcher respected all scheduled appointments with respondents, accommodated their queries, and provided clarification when needed. This

commitment promoted transparency, trust, and mutual respect throughout the research process, thereby fostering a conducive environment for ethical and effective data collection.

CHAPTER FOUR:

DATA ANALYSIS, PRESENTATION AND INTERPRETATION OF RESULTS

4.0 Introduction

This chapter reveals the results of the study on the basis of data obtained by the researchers among primary school teachers in Eastern Uganda. The chapter commences by offering the demographic findings of the respondents in the study to have a contextual meaning of the sample. This is succeeded by reliability analysis of the instruments applied in order to achieve internal consistency of the measure scales. This is followed by presentation of descriptive statistics which provides summary of responses to the key constructs and inferential statistical tests are subsequently conducted to determine relationships and testing of the research hypotheses based on each of the research objectives. The logic of analyses is determined by the research goals and questions and the findings are discussed considering the conceptual framework of research and with the help of related empirical literature. The findings are presented and analyzed with the help of tables and figures.

4.1 Demographics of the respondents

This section gives the demographic picture of the teachers that made part in the study. The number of respondents who participated in the survey amounted to 704. The research was based on major variables namely gender, age, teaching experience, geographical location of the school, school foundation and the professional qualification. Table 1 summarizes the results.

Table 1:Demographic information of the respondents (N=704)

Variable	Category	Frequency	Percentage
Gender	Female	375	53.3
	Male	329	46.7
Age	25-34	291	41.3
	35-44	170	24.1
	45-54	134	19
	18-24	71	10.1
	55-64	38	5.4
Work experience	2-5years	202	28.7
	6-10years	198	28.1
	11-20years	131	18.6
	21-30years	102	14.5
	1 month - 1 year	47	6.7
	Above 30years	24	3.4
School location by: Setting	Rural	401	57
	Urban	146	20.7
	City	114	16.2
	Semi-urban	43	6.1
School foundation	Church founded	412	58.5
	Private	208	29.5
	Public school	38	5.4
	NGO founded	23	3.3
	Islamic founded	23	3.3
Which of the following best describes your current professional level of education?	Grade III certificate	318	45.2
	Diploma	149	21.2
	Grade V certificate	94	13.4
	Bachelor	93	13.2
	None of the above	38	5.4
	Master	12	1.7

Source: Primary data

4.1.1 Respondents gender

Most of the responses were females (n =375), which constituted 53.3 percent of the study sample with men making up the remaining sample (n = 329) that constituted 46.7

percent of the sample. This allocation showed that there was a relatively balanced representation of gender and there was a small majority of the women teachers.

4.1.2 Age of respondents

The greatest age bracket was teachers between the ages of 25 and 34 years (41.3%, n = 291). This was preceded by similar percentage of people who are 35-44 years (24.1, n = 170) and 45-54 years (19.0, n = 134). The age category of 18 24 years had 10.1 percent (n = 71) of the respondents, and the category that was least represented was 55 64-year-olds 5.4 percent (n = 38).

4.1.3 Experience of teaching

The result revealed that 28.7 percent (n = 202) of respondents had 2-5 years, and 28.1 percent (n = 198) had 6-10 years of teaching work experience. The 11-20 years of experience group represented 18.6 percent (n = 131), whereas the group of those who have gained 21-30 years of experience represented 14.5 percent (n = 102). The proportion of respondents working 1 month to 1 year and 1 year to 5 years are 6.7% (n = 47) and 27.9% (n = 202) respectively and only a few had more than 30 years of teaching experience i.e. 3.4% (n = 24) of them.

4.1.4 Location setting of schools

Regarding the type of school location, most of the respondents (57.0%, n = 401) had schools in the rural areas. There were 20.7 per cent (n=146) urban schools, 16.2per cent (n=114) city-based schools and 6.1per cent (n=43) semi-urban. The results indicated that there was a high number of teachers in the study who are located in rural settings.

4.1.5 School foundation

Table 1 showed that the majority of the respondents (58.5%, n = 412) performed in church-founded schools. The percentage of the respondents who worked in a private school was 29.5 (n = 208) and in the public school 5.4 (n = 38). The proportion of schools established by both NGOs and Islams were equal 3.3 percent (n = 23) respectively.

4.1.6 Respondents Professional Qualification

Among professional qualifications, the majority of the respondents were the bearers of the Grade III certificate (45.2%, n = 318), and the second one is the bearers of the diploma (21.2%, n = 149). The percentage of grade V holders and the holder of the bachelor degree was 13.4 (n = 94) and 13.2 (n = 93) respectively. Few of them reported lacking any professional qualification (5.4 per cent never had this type or n = 38) and only 1.7per cent held a Master's degree (n = 12).

4.2 Analysis of research instrument's reliability

To concede internal consistency of the measurement scales that were used in the current investigation, the reliability analysis was carried out. Cronbach alpha coefficient was used to determine the reliability of each construct. A coefficient of 0.70 and above is considered to be acceptable on the research instruments.

Table 2: Reliability statistics of study constructs (N = 704)

Scale	Cronbach's Alpha	Number of Items
Transformational Leadership	0.943	20
Adaptability	0.902	9
Innovation	0.781	6
Drivers of Innovation	0.797	13
Collaboration	0.972	41
School Culture and Staff Dynamics	0.873	7
Teacher-Group Attitude	0.82	4
Teacher Professional Identity	0.758	2
Professional Development Opportunities	0.866	3
Policy and Institutional Support	0.887	5
Availability of Resources	0.895	4

Source: Primary data

As shown in Table 2, the levels of internal consistency were satisfactory. Transformational Leadership scale provided an excellent level of reliability coefficient (α=0.943), which is followed by a strong level of internal consistency between the items evaluating leadership practices of headteachers. The adaptability scale also yielded a high reliability coefficient (α=0.902), which indicates that the items all reliably measured the variability of the teachers to deal with new teaching and organizational situations.

The innovation scale provided the result of a Cronbach's alpha of 0.781 and the drivers of innovation scale provided a 0.797 coefficient which is within the acceptable range of reliability and thus the provide evidence of sufficient internal consistency of the measures applied in relation to innovation.

The collaboration scale had very positive reliability (α = 0.972) and this indicated that there was a high level of consistency in the items that measured collaborative practices of teachers. Similarly, the organizational and contextual constructs, which the conceptual framework comprises, demonstrated a good degree of acceptability in their respective levels of reliability such as school culture and staff dynamics (α=0.873), teacher-group attitude (α= 0.820), teacher professional identity (α=0.758), professional development opportunities (α= 0.866), policy and institutional support (α= 0.887), and resources availability $(\alpha = 0.895)$.

All in all, these reliability coefficients indicate that the measurement scales that have been used in this study were reliable enough and could be subjected to future statistical analyses.

4.3 Descriptive statistics of important Constructs

The descriptive statistics are reported here as an aid in summarizing and characterizing the data set, and as a basis for the inferential analysis to follow; there were no separate descriptive research questions set. The meaning of all item and construct means are interpreted with reference to the scale provided in section 3.9.3 (1.00–1.80 = very low, 1.81–2.60 = low, 2.61–3.40 = moderate, 3.41–4.20 = high, 4.21–5.00 = very high). This is where the descriptive statistics of the primary constructs of the current research are

provided. In particular, it is a summary of the item level responses to transformational leadership, adaptability, innovation and collaboration issues as perceived by teachers in primary schools in Eastern Uganda.

The analysis also gives the clue on how teachers rated the leadership activities of their headteachers and how such leadership behaviors affected their own adaptability, innovation and collaboration abilities. Mean and standard deviation of all the items was calculated on every construct. The higher the mean score, the greater the agreement to the item statements and it means that the behavior or the outcome in question is present more often.

4.3.1 Descriptive statistics of Transformational leadership

Table 3: Descriptive statistics of transformational leadership

(1 = Not at all, 2 = Once in a while, 3 = Sometimes, 4 = Fairly often, and 5 = Frequently)

Item	Mean	Standard Deviation
I trust my headteacher and I am proud of him/her	4.09	1.16
My headteacher is concerned about the interests of all workers above his/her personal interests.	3.93	1.18
The headteacher inspires me to take up leadership responsibility in the school	3.99	1.17
The headteacher is my role model	3.94	1.24
He/she acts with integrity and with highly valued behaviors	4.11	1.09
He/she is self-controlled, with a high moral judgement	3.97	1.16
The headteacher talks about his/her most important values and beliefs	3.77	1.19
He/she always considers the moral and ethical consequences of his/her actions	3.97	1.12
He/she talks optimistically about the future	3.95	1.11
The headteacher provides a vision of what is possible and important for the school	4.16	1.09
He/she provides a vision and tasks that are possible and how to attain them	3.97	1.13
He/she enhances meaning and provides positive expectations about what needs to be done	4.13	1.03
The headteacher encourages innovative thinking	4.08	1.1
He/she helps me think about old problems in new ways	3.63	1.22
I am aware about problems in the school and I am aware of the headteacher's thoughts to help deal with these problems	3.74	1.22
The headteacher has helped me work effectively in his/her absence with his/her limited involvement	3.94	1.15
The headteacher is concerned about my personal developmental needs	3.63	1.34
He/she helped expand and maximize my full potential at work	3.84	1.21
The headteacher delegates tasks to me so that I can learn to do his/her work	3.79	1.3
The headteacher provides opportunities for individual growth	3.88	1.24

Source: Primary data

Teachers indicated that their headteachers tended to exhibit transformational leadership behaviors. They suggested that their headteachers regularly outlined what could be done and was needed in the school (ranked highest M = 4.16, SD = 1.09).

It was also reported by the respondents that their headteachers made a positive contribution to meaning at work and provided positive expectations of the activities that needed to be undertaken (M = 4.13) and many of the respondents stated that their headteachers were of integrity and exemplified desired behaviors of great value (M = 4.11). Moreover, the teachers indicated that their headteachers promoted the creativity (M = 4.08), motivated to lead, and talked in positive manner about the future (M = 3.95). These answers indicated that ethically conscience and motivational heads were regarded as leaders with such a feature as seen in the headteachers.

Nonetheless, there were a few teachers who reported that they relatively disagreed with questions concerning individualized consideration. To give an example, they stated that their headteachers were not consistently concerned by their personal developmental needs (M = 3.63, SD = 1.34) and not inclined to make them think of old problems in new ways (M = 3.63, SD = 1.22). The answers of the teachers to the question whether their headteachers engaged them in problem -solving or promoted their development by delegation and mentoring were also of moderate level of agreement.

In general, educators have managed to communicate that transformational leadership can be found in their schools, especially in vision-setting, ethical behavior and intellectual stimulation. However, they also expressed the fact that headteachers could have done more to provide more individual support and professional development activities.

4.3.2 Descriptive statistics of Teacher Adaptability

Table 4: Descriptive statistics of Teacher Adaptability

(1=Strongly disagree, 2=Disagree, 3=Neither disagree nor agree, 4=agree, 5=strongly agree**)**

Item	Mean	Standard Deviation
With the headteacher at school, I am able to think about a number of possible options to help me in new situations.	3.9	1.16
With the headteacher at school, I am able to revise the way I think about a new situation to help me through it.	3.97	1.02
The headteacher supports me to adjust my thinking and expectation in a new situation at the school.	4	1.06
The headteacher encourages me to seek out new information, helpful advice and useful resources to effectively deal with new situations at school.	4.07	1.04
In uncertain situations at school, the headteacher supports me to develop new ways of going about things (for example, different ways of doing something) to help me through.	4	1.09
When a new situation arises at school, I am able to change the way I do things if necessary.	4.13	0.97
My headteacher helps me to reduce negative emotions (for example, fear) so that I can deal with uncertain situations.	4.06	1.09
In case of uncertain situations in the school, I am able to minimize frustration so that I can deal with them.	3.94	1.02
The headteacher has helped me to draw positive feelings and emotions (for example, enjoyment, satisfaction and motivation) when new situations arise.	4.01	1.1

Source: Primary data

Overall, the reported adaptability against new or uncertain circumstances was high, and teachers credited it partly to assistance of their headteachers. They mentioned that they could transform how they used to do things when new circumstances appeared, which was the most rated question (M = 4.13, SD = 0.97). It was also conceded to by many teachers that their headteachers motivated them to pursue new information and resources in order to effectively give response to new challenges at school (M = 4.07, SD = 1.04).

Respondents reported that their headteachers aided them to cope with their emotions in times of uncertainty, which included minimizing fear (M = 4.06) and attracting positive effects like motivation and satisfaction (M = 4.01). They also reported that they were helped in allaying their way of thinking and expectations in relation to trying to cope with new situations (M = 4.00), and that their headteachers helped them to come up with novel ways of approaching the problems (M = 4.00).

Even though the greater majority of the item mean was within the area of 3.9 and 4.1, teachers expressed a low level of agreement with the statement that they could reduce frustration in the situations in which they were not so sure about what to do (M = 3.94, SD = 1.02), and with the notion that they could think of various possible options that would assist them in getting through new experiences (M = 3.90, SD = 1.16).

Generally, the responses showed that the teachers perceived themselves as flexible professionals in which the headteachers provided flexibility, reflection, and emotional reskilling in the context of change. This indicates that transformational leadership and especially the use of individual support and encouragement made a lot of difference in the process of developing teacher adaptability within the school setting.

4.3.2.1 Adaptation of teachers to school-based innovations

Table 5: Responsive Instructional practices of teachers to School Level

(1=Strongly disagree, 2=Disagree, 3=Neither disagree nor agree, 4=agree, 5=strongly agree)

Item	Mean	Standard deviation
Interaction with colleagues	4.13	1.03
Integrating new technology at school	4.02	1.07
New school policies and rules	4.13	1.01
School working environment	4.18	0.96
New national education policies (e.g. the degree requirement for all primary school teachers, change in curriculum.)	4.03	1.11
Changes in the mode of instruction and new teaching styles	4.12	1.03
New responsibilities for me at school	4.18	0.97
School timetable	4.26	0.94
Integrating new knowledge in my class	4.23	0.97

Source: Primary data

The teachers indicated that they had done a lot of changes in their practices due to different adaptability needs in their school situations. They found that school timetable was the factor which triggered the most adjustment with mean score of 4.26 and the standard deviation of 0.94. The teachers also rated highly by stating that they had incorporated new knowledge in their classes (M = 4.23, SD = 0.97) and coped with new roles that had been mapped for them at school (M = 4.18, SD = 0.97). Respondents also indicated that they had made adjustments to school working environment (M = 4.18) as well as on modes of instructions or teaching styles (M = 4.12). In the same manner,

communication with colleagues (M = 4.13) and adjustment to new school policies and regulations (M = 4.13) had also been part and parcel of their experiences with regards to adaptability.

However, even though, mean values were lower in terms of adjusting to new national education policies (M = 4.03, SD = 1.11) and integration of new technology at school (M = 4.02, SD = 1.07), they were still showing high rates of agreement. This indicates that although the changes in technologies and policies were recognized, they could have been more problematic or would have taken longer to complete without leadership support.

In general, the results indicate that the teachers had already actively adapted to a variety of changes at school level. Their reactions indicate a great level of professional versatility and adherence to reforms at the institution, and this could have been possible due to the enabling school leadership and a favorable organizational culture.

4.3.3 Innovation of teachers

This section outlines the results regarding the character and the level of innovation amongst teachers, and more specifically the extent of the involvement in innovative activities, the nature of the categories of the innovation activity concern, the level of institution at which the innovation occurred, and the relationship between the intensity of innovation and the adaptability of the teachers.

4.3.3.1 Innovation interaction between teachers

Table 6: Level of Innovation activities of teachers

Extent of innovation	***n (%)***
Up to 25%	*90 (13.5%)*
26%-50%	*114 (17.1%)*
51%-75%	*208 (31.2%)*
Over 75%	*195 (29.2%)*
Don't know	*60 (9.0%)*

Source: Primary data

The teachers were first surveyed to establish the levels at which the aspect of innovation has been part of their professional practice. Findings suggest that, the concept of innovation was widely incorporated in the work of teachers with a significant percentage of participants stating that they engaged in innovative work on moderate to high levels. In particular, almost one third of teachers reported that innovation had an impact on between 51-75% of their professional activities, with an equal percentage noticing that it had an impact on over 75 percent of their work. On the other hand, the number of teachers who claimed to engage less was lower: a small percentage admitted that innovation has affected their practice to up to 25 percent. Some respondents were also not sure of the level of innovation involvement. By and large, these results indicate that innovation was not peripheral but held an important part in the professional activities of teachers in the study context.

4.3.3.2 Categories of innovation activity practiced by teachers

Table 7: Type of innovation activities undertaken by teachers

Type of innovation activity	n (%)
New materials / teaching methods	153 (21.7%)
Practices adopted from other schools	151 (21.4%)
New assessment methods	143 (20.3%)
New practices within the school	93 (13.2%)
New technology	68 (9.7%)
New extracurricular activities	50 (7.1%)
Experimental innovations	45 (6.4%)
Other	1 (0.1%)

Source: Primary data

These results show that the most common types of innovation activity in schools were related to instructional practices. Introduction of new teaching materials and models of teaching proved to be the most widely reported activity (21.7%), which was closely followed by the introduction of instructional practices used elsewhere (21.4%). These findings may indicate that schools focused their effort in their innovation primarily on improving classroom instruction and classroom learning, often using outside models of effective practice to guide their activities.

The emergence of new assessment techniques also came to the fore with 20.3% of the responses thus highlighting a more specific focus in assessing the outcomes of learning using less predictable or more effective assessment techniques. The percentage of internally developed innovations in schools was 13.2% of the reported activities which means that the level of school-sponsored initiative and creativity was moderate. On the

other hand, the implementation of new technology (9.7%) and the introduction of new extracurricular activities (7.1%) were less prevalent, which suggests the presence of either resource restraint or infrastructural limitations on these types of innovations.

Only 6.47 percent of respondents reported the use of experimental innovations that they planned to implement in the future, which demonstrates a smaller but still significant interest in experimentation on a trial basis.

Comprehensively, the trend of findings indicates that school level innovations were highly concentrated on pedagogical and assessment-oriented changes as opposed to technological and extracurricular innovations thus supporting a pragmatic-based approach into innovations by placing more emphasis on urgent teaching and learning needs.

4.3.3.3 Educational innovations that have taken place at various levels.

Table 8: Educational innovations rate at which they happened

Level of innovation	Yes n (%)	No n (%)	Don't know n (%)
One department	118 (16.8)	157 (22.3)	429 (60.9)
Multiple departments	143 (20.3)	193 (27.4)	368 (52.3)
Whole school	185 (26.3)	206 (29.3)	313 (44.5)
National level	240 (34.1)	173 (24.6)	291 (41.3)

Source: Primary data

The educators were also requested to identify the levels where the educational innovations had occurred. The results of the surveys show that innovations were defined at several levels of the institutions, where the most common was the level of national reforms. Also, but to a lesser extent, innovations on the whole-school and inter-departmental level were reported.

Notably, a large percentage of the respondents selected the option of don't know particularly when it came to department level and school-level innovations. This trend indicates that although, teachers were aware of systemic changes, there was little clarity or communication with regard to source and scope of innovation at the lower levels of institutions. Their results emphasize the importance of establishing a positive dialogue and leadership within the school in this case to ensure that teachers understand clearly the innovation programs and what their goals would be.

4.3.3.4 Intensity of innovation by teachers

Table 9: Intensity of innovation by teachers

Innovation intensity	n (%)
No innovation	43 (6.1%)
Low innovation	249 (35.4%)
Moderate innovation	220 (31.2%)
High innovation	192 (27.3%)

Source: Primary data

The results show that most teachers were working in environments that had a certain amount of innovation. The group that was characterized by low levels of innovation constituted the majority of the sample, amounting to 35.4%, which indicated that incremental or modest innovation was not the norm in the schools analyzed by the researcher. The next cohort was strongly proceeded with the first cohort of those that had moderate innovation with the account of 31.2 percentage implying that close to a third of the teachers were involved in more organized and sustained innovative practices.

Teachers that were in highly innovative schools became a significant proportion of the sample, 27.3 percent, and this was representative of the number of schools in which innovation was entrenched in the teaching and learning processes. On the contrary, the lack of innovation in their schools was reported by a significantly small minority of teachers (6.1%). Generally, the distribution implies that the phenomenon of innovation was common in majority of the schools; nevertheless, the degree of innovation was less intense, as the proportion of low and moderate levels of the same was greater than the proportion of high levels of innovation. This difference provides a valuable background on the nature of the difference between the teachers in their ability to adapt to innovations in schools.

4.3.3.5 Teacher adaptability and innovation intensity

Table 10: Teacher adaptability and innovation intensity
(1=Strongly disagree, 2=Disagree, 3=Neither disagree nor agree, 4=agree, 5=strongly agree)

Innovation intensity	N	Mean (M)	SD
No innovation	43	3.95	0.76
Low innovation	249	3.89	0.85
Moderate innovation	220	4.02	0.75
High innovation	192	4.16	0.77

Source: Primary data

The findings indicate that there is high correlation between the strength of innovation and the adjusting levels of teachers. The mean score (M=4.16, SD=0.77) amongst teachers working in highly innovative settings was the largest which implies that the more teachers were exposed to innovative practices, the more they adjusted, became more flexible and more upbeat about the change. The same tendency can be observed in other teachers with the level of innovation of moderate character, who rated the

relatively high mean score (M = 4.02, SD = 0.75), indicating relatively positive adaptation to the needs related to innovation.

Conversely, the mean score of teachers in low innovation settings was marginally reduced (M = 3.89, SD = 0.85) whereas the teachers who had no innovation had a close mean score (M = 3.95, SD = 0.76). These mean scores are still above the middle; however, their meaning is a relatively poor adaptation in the case of limited or no innovation.

In conclusion, the trend of findings suggests that the higher the degree of the innovation intensity, the better the teacher modification, and consequently, the need to foster innovation and maintain its significance in the schools to promote the sense of responsiveness and professional adaptability amongst the teachers.

Table 11: 1-way ANOVA of adaptability: Incorporating Innovation Intensity

Source	df	F	p	η^2
Innovation intensity	3	4.58	0.003	0.019
Error	N–4			

Source: Primary data

The analysis of the ANOVA findings suggests that the intensity of innovation statistically significantly influences the adjustment of teachers since the value of the F-value is 4.58 with a p-value value of 0.003. This observation implies that the variation in how teachers are adjusted differs significantly depending on the various levels of intensity of the innovation and that these variations did not occur as a byproduct of accident.

Eta squared (η^2 = 0.019) shows that the effect is small by traditional standards. Though the size of the impact is small, it still proves that the degree of innovation is one of the

factors of the differences caused by adjustments of teachers. This means that although other variables can also affect the adjustment of teachers, the degree of innovation in schools has a statistically significant effect on the response and adaptability of teachers to the innovative practices.

4.3.4 Drivers of innovation

Table 12: Drivers of Teacher Innovation in primary schools
(1=Strongly disagree, 2=Disagree, 3=Neither disagree nor agree, 4=agree, 5=strongly agree)

Item	Mean	Standard deviation
The headteachers leadership style	2.76	0.5
Introduction of new digital or new technical services	2.61	0.62
National policy for primary schools	2.61	0.62
New priorities by the school leadership	2.65	0.55
Pressure from the pupils	2.19	0.78
Pressure from parents and the local community	2.31	0.76
The headteacher encourages innovation and creativity	2.8	0.45
The headteacher allows me to decide on the innovations in my class.	2.7	0.51
Restructuring within the school	2.51	0.63
A problem or crisis requiring an urgent response	2.53	0.65
Need to improve your school's image, reputation and performance	2.82	0.43
Budget allocation for your new innovations	2.67	0.55
New responsibilities at school	2.72	0.55

Source: Primary data

Teachers responded to the question of the importance of different factors that possibly acted as stimulators of innovations in their schools during the last two years of their activity using their own rating scale. The factor that they expressed was the need to change the image of the school and enhance the reputation and performance of the school, with a mean score of 2.82 (SD = 0.43), accompanied by encouragement of

innovation and creativity by the headteacher; a mean score of 2.80 (SD = 0.45). These results indicate that reputational facts as well as direct leadership support within schools were regarded as the specific issues that impacted teachers to adopt innovative practices.

There was also high agreement among the teachers that leadership style of the headteacher (M = 2.76) and delegation of new responsibilities (M = 2.72) had significant contributions towards innovation. Additionally, it is true to say that, respondents also recognized other relevant enabling factors such as to be granted autonomy to make decisions about classroom innovations (M = 2.70) along with the assigning of a special innovation budget (M = 2.67).

On the contrary, the external pressure by pupils (M = 2.19, SD = 0.78) and parents or the local community (M = 2.31, SD = 0.76) was rated as lower-priority. At the same level, influences, particularly policy changes and introduction of new digital or technical services at the national level, were slightly rated (M = 2.61) showing that they were considered important but not the drivers of innovation at the school.

Generally, it was proposed that the teachers viewed internal structures of leadership and strategic priorities within the school as being greater motivators of innovation compared to external or systemic pressures. This means that the school-level governance, vision, and support systems are perhaps more prominent towards promoting innovative behaviors among the teachers in the Ugandan primary schools.

4.3.5 Teacher Collaboration

To facilitate the analysis, the collaborative variables were restructured and grouped to conceptual domain that represent the important dimensions of collaborative practice

as defined in the literature on Professional Learning Communities (PLC). This grouping of variables was done to reflect a collective purpose and team make-up, the structure of the dialogue, processes of decision-making, action and follow-up and data use - thus constituting the continuum of purpose (collection of intent) to action (informed instruction). This organization reflects some fundamental thoughts of PLC such as a common vision, mutual inquiry, reflective conversation, shared responsibility, and unrelenting enhancement. The categorization of the variables this way gave a consistent analytical concept on how the collaborative processes contribute to instructional change.

4.3.5.1 Teacher Collaboration and Academic Domains Reliability

To operationalize the domains of collaboration according to the measurement purposes, different domains were represented as subscales with several items. Therefore, the terms domain and subscale are used interchangeably in this section with the domain conceptualization meaning the conceptual construct, and the subscale measurement meaning the measurement of the conceptual construct.

Table 13: Reliability Coefficients for Teachers' Collaboration Subscales

Collaboration subscale	**Cronbach's α**
Shared purpose and team structure	0.74
Meeting structure and facilitation	0.84
Dialogue quality	0.82
Decision-making processes	0.89
Action and follow-up	0.94
Data use and accountability	0.95

Source: Primary data

Cronbach alpha was used to assess the internal consistency reliability of every collaboration subscale. Results in *Table 13* reveal that the six subscales had reliability scores of between acceptable and excellent and alpha coefficients of 0.74 through to 0.95. The shared purpose and team structure subscale achieved an acceptable threshold (α = 0.74), and the meeting structure and facilitation, the quality of dialogue, and decision-making processes subscales were found to have good internal consistency. The most significant reliability coefficients were calculated in terms of action and follow-up subscale (α = 0.94) and data use and accountability subscale (α = 0.95), so the level of internal coherence within these domains was high.

Table 14: Descriptive Statistics for Teachers' Collaboration Subscales

(1=Strongly disagree, 2=Disagree, 3=Neither disagree nor agree, 4=agree, 5=strongly agree**)**

Collaboration dimension	**Mean (M)**	**SD**
Shared purpose and team structure	4.1	0.84
Meeting structure and facilitation	3.97	0.91
Dialogue quality	3.86	0.91
Decision-making processes	3.87	0.94
Action and follow-up	3.94	0.86
Data use and accountability	3.93	0.88

Source: Primary data

Table *14* shows the descriptive statistics of the subscales of collaboration. In general, teachers indicated rather high collaborative practice levels in all six dimensions with the mean scores of between 3.86 and 4.10. Shared purpose and team structure had the highest mean (M = 4.10, SD = 0.84), and the disagreement level is low. Meeting structure and facilitation, action and follow-up and data use and accountability also had moderately high mean scores, and indicates that collaboration was facilitated and converted to instructional action based on evidence.

The quality of dialogue and decision-making processes were slightly lower in mean scores, but both of them were well above the middle of the scale, which means that although professional dialogue and collective decision-making were in place, they were not strongly supported in the process, unlike in the case with foundational and action-oriented components of collaboration.

Table 15: Teachers' Collaboration and Teacher Adaptability correlation

Collaboration subscale	r	p-value
Dialogue quality	0.48	< 0.001
Data use and accountability	0.48	< 0.001
Meeting structure	0.48	< 0.001
Decision-making processes	0.46	< 0.001
Shared purpose	0.44	< 0.001
Action and follow-up	0.44	< 0.001

Source: Primary data

Pearson correlation analysis was done to find out interrelations between collaborative sub scales of teachers and teacher adaptability. All the dimensions of collaboration showed significant and positive correlations with teacher adaptability ($p < 0.001$), as shown in Table *15*. The best correlations were found between quality of dialogues, data use and accountability and choice of meeting structure ($r = 0.48$) that were followed by decision making processes ($r = 0.46$). Distinctive action and follow-up as well as shared purpose also showed medium positive relationships ($r = 0.44$).

Such findings suggest a positive relationship between high levels of collaborative practice on a variety of dimensions and teacher adaptability; hence they are a preliminary finding supporting the contributory role of structured, dialogic, and data-informed collaboration in supporting adaptive instructional practice.

Table 16: Multiple Regression Analysis Predicting Teacher Adaptability

Predictor	ß (Std.)	t	p-value
Innovation intensity	0.05	1.65	0.099
Shared purpose	0.1	2.28	0.023
Meeting structure	0.16	3.2	0.001
Dialogue quality	0.16	3.27	0.001
Decision-making	0.1	1.62	0.106
Action and follow-up	-0.09	-1.44	0.15
Data use and accountability	**0.27**	**4.96**	**< 0.001**

Source: Primary data

A multiple regression analysis was run to test the level at which collaboration subscale predetermined teacher adaptability, holding other factors of innovation intense. According to the results in Table *16*, data use and accountability were the most powerful predictors of teacher adaptability (ß = 0.27, p < 0.001). Other significant positive contributions to the model were meeting structure (ß = 0.16, p = 0.001), and dialogue quality (ß = 0.16, p = 0.001). Shared purpose showed a less but statistically significant impact (ß = 0.10, p = 0.023).

However, as compared to other variables, decision-making processes and action and follow-up did not play a significant role as predictors of teacher adaptability and the intensity of innovation did not become a strong predictor in the complete model. These findings imply, that certain characteristics of collaboration, especially the utilization of evidence, systematic interaction, and professional discourse are more closely interconnected with teacher adaptability than the magnitude of the innovativeness.

4.4 Testing of normality of critical study variables

In order to determine whether the key study variables were normally distributed, the Shapiro Wilk was used. Table 17 is a summary of the results.

Table 17: Shapiro-Wilk test of the normality of the scores

Variable	Shapiro-Wilk Statistic	p-value
Transformational Leadership Score	0.933	$p < 0.01$
Adaptability Score	0.901	$p < 0.01$
Innovation Score	0.957	$p < 0.01$
Drivers of Innovation Score	0.963	$p < 0.01$
Collaboration Score	0.923	$p < 0.01$
School Culture and Staff Dynamics	0.904	$p < 0.01$
Teacher-Group Attitude	0.915	$p < 0.01$
Teacher Professional Identity	0.872	$p < 0.01$
Professional Development Opportunities	0.853	$p < 0.01$
Policy and Institutional Support	0.886	$p < 0.01$
Availability of Resources	0.865	$p < 0.01$

Source: Primary data

Due to the outcome of the test of Shapiro and Wilk, all the variables presented statistically significant non-conformance to normality (p = less than 0.01) evidence that the normality assumption was violated in the primary constructs being studied. Subsequently, inferential strength was maintained by applying non-parametric statistical tests in further study. In particular, the rank correlation of Spearman was used to be combined with median quantile regression to question the correlation between transformational leadership and the teacher outcomes variables.

4.5 Validity of the regression analysis with the conceptual framework

The theoretical paradigm the study is based on is that transformational leadership practice influences such important teacher outcomes as adaptability, innovation, and collaboration. In addition, it is also expected that there will be a set of organizational and contextual moderators or interveners to these associations. To maintain

consistency between the conceptual model and the empirical research, the regression models included three different groups of variables.

The main independent variable of interest was the transformational leadership, which was operationalized through a composite score of transformational leadership. In the analysis a set of intervening organizational variables was taken into consideration, such as culture in the school, staff relationships, teacher-group attitudes, teacher professional identity, professional development opportunities, policy and institutional support and availability of resources. These variables represent organizational conditions that may affect translation of leadership practices into teacher outcomes.

The regression equations had been controlled by a series of contextual or extraneous variables, including school foundation, location of the school, educational levels and tenure of teachers in the institution. The inclusion of these variables into the regression framework allowed the analysis to look at the direct influence of transformational leadership and the additive effect of the influence of organizations and contextual variables, hence continuing to align with the conceptual framework of the study.

4.6 Transformational Leadership and teacher outcomes correlation

Since the Shapiro-Wilk tests showed that the important study variables were not normally distributed, the non-parametric tests were obtained: Spearman correlation and quantile regression, so as to uphold the sanctity of inference.

RESEARCH QUESTION ONE:

How did headteachers' transformational leadership influence teachers' adaptability in primary schools in Eastern Uganda?

4.6.1 Transformational Leadership and teacher Adaptability Correlation

This section contains the findings of the non-parametric analysis that will consider the first objective of the study aiming to investigate the effect of transformational leadership on the adaptability of teachers in primary schools. Seeing that both scores of transformational leadership and adaptability were not normally distributed, non-parametric tests were used to provide sound and valid analysis. In particular, the rank correlation coefficient by Spearman was employed to determine the level and direction of the relationship between the 2 variables whereas the quantile regression at the median was performed with the purpose to estimate the predictive power of transformational leadership in facilitating teacher adaptability.

These methods assisted in generating a trustworthy perception of the association between the transformational leadership practices of headteachers and the flexibility of the teachers in various school settings. The following sections provide a presentation and interpretation of the results.

Table 18: Transformational Leadership on the Teacher Adaptability Correlation

Predictor	ß	SE	t	p	95% CI
Transformational Leadership (TL Score)	**0.586**	**0.029**	**20.5**	**p < 0.001**	**[0.530, 0.642]**
Islamic founded (vs Church Founded)	-0.22	0.106	-2.15	0.031	[-0.450, -0.020]
School Culture and Staff Dynamics	0.231	0.052	4.41	p < 0.001	[0.128, 0.334]
Teacher-Group Attitude	0.149	0.036	4.12	p < 0.001	[0.078, 0.220]
Professional Development Opportunities	0.074	0.046	1.61	0.109	[-0.016, 0.163]
Policy and Institutional Support	0.022	0.053	0.42	0.677	[-0.083, 0.127]
Availability of Resources	0.086	0.044	1.94	0.053	[-0.001, 0.173]

Note.
ß = standardized regression coefficient
SE = standard error of the coefficient
t = t-statistic (tests whether ß differs significantly from zero);
p = probability value (significance level; $p < 0.05$ indicates a statistically significant effect);
95% CI = 95% confidence interval for **ß**

Model summary:
Spearman's Rank Correlation Coefficient
(ρ): 0.699
p-value<0.001

Pseudo $R^2 = 0.586$; $N = 694$; $\tau = 0.50$ (Median regression)

Source: Primary data

Table 18 shows the outputs of the Spearman correlation and median quantile regression analysis that investigated the influence of the transformational leadership on teacher adaptability when other specific organizational variables and characteristics of schools were put in cheque.

The Spearman rank -correlation test found that there was a high positive relationship between transformational leadership and teacher adaptivity ($\rho = 0.699$, $p < 0.001$). This result means that increased transformational leadership practices displayed by headteachers are closely linked to increased teacher adaptability.

The findings of the median quantile regression also prove that transformational leadership is a significant predictor of teacher adaptability (β = 0.586, SE = 0.029, t = 20.5, $p < 0.001$). This is a beneficial and statistically significant coefficient that suggests that the growth in transformational leadership practices correlates with a significant improvement in teachers adapting to new conditions and changes in instructions in schools. The stability and strength of this positive effect is confirmed by the confidence interval [0.530, 0.642].

It is also revealed that the school culture and staff processes have a considerable impact on the adaptability of the teachers (β = 0.231, SE = 0.052, t = 4.41, $p < 0.001$). This implies that the level of effectiveness that teachers exhibit in adapting to the alteration in teaching method and school policies is better with a supportive and collaborative school environment.

On the same note, a teacher attitude of teachers towards the groups was identified as the significant predictor of teacher adaptability (β = 0.149, SE = 0.036, t = 4.12, $p < 0.001$). This discovery implies that employing positive attitudes of teacher groups towards collaboration and teamwork result in enhancing adaptability among teachers.

In relation to school foundation, it has been found that significantly lower adaptability is possessed by the teachers in the Islamic-funded schools relative to schools in church-funded schools (β = −0.22, SE = 0.106, t = −2.15, p = 0.031). The negative coefficient indicates the possibility of the institutional context influencing how teachers could be able to adapt to organizational changes.

Professional development opportunities, on the other hand, were not statistically significantly related to teacher adaptability ß = 0.074, SE = 0.046, t = 1.61, p = 0.109). The coefficient is positive, but its impact is not significant at a level of 5 percent indicating that professional development could not have a direct effect on adaptability in the presence of other organizational variables.

On the same note institutional and policy support did not play a significant role in teacher adaptability (ß = 0.022, SE = 0.053, t = 0.42, p = 0.677) suggesting that a broader policy structure might restrict the direct way in which teacher adaptive behavior can be affected by stronger organizational and leadership factors.

The findings also show that the availability of resources exhibits a low positive influence on teacher adaptability (ß = 0.086, SE = 0.044, t = 1.94, p = 0.053). Though this effect barely meets the conventional significance level of 0.05, the positive coefficient implies that, a better access to the teaching resources can potentially improve the capacity of the teachers in accommodating new demands of teaching.

Altogether, the regression model is associated with a significant percentage of variance explicability in terms of teacher adaptability (Pseudo R^2 = 0.653) using a sample of 694 respondents, which means that the model is powerful in explanatory power. Median quantile regression (τ= 0.50) was used to analyse the first to consider the possibility of deviation of normality in data.

Overall, the results suggest that the influence of transformational leadership, school culture, and teacher -group attitudes are the strongest predictors of teacher adaptability, which implies the significance of supportive leadership and collaborative organizational climate in facilitating a process of quicker and more effective teacher response to educational change.

RESEARCH QUESTION TWO:

What was the influence of headteachers' transformational leadership on teachers' innovation in primary schools in Eastern Uganda?

4.6.2 Transformational leadership impact on Teacher innovation

Table 19 : Transformational Leadership on Teacher innovation Correlation

Predictor	**ß**	**SE**	**t**	**p**	**95% CI**
Transformational Leadership (TL Score)	**0.076**	**0.028**	**2.68**	**0.008**	**[0.020, 0.132]**
Rural (vs Urban)	0.111	0.058	1.93	0.054	[-0.002, 0.225]
Islamic Founded (vs Church Founded)	-0.241	0.124	-1.94	0.052	[-0.484, 0.002]
School Culture and Staff Dynamics	0.104	0.038	2.72	0.007	[0.029, 0.179]
Teacher-Group Attitude	0.014	0.034	0.42	0.675	[-0.052, 0.081]
Teacher Professional Identity	−0.063	0.032	−1.99	0.047	[-0.125, −0.001]
Professional Development Opportunities	−0.015	0.037	−0.41	0.682	[-0.088, 0.058]
Policy and Institutional Support	−0.006	0.036	−0.17	0.866	[-0.076, 0.064]
Availability of Resources	−0.019	0.039	−0.48	0.635	[-0.095, 0.058]

Model summary
Spearman's $\rho = 0.586$, $p < 0.001$
Pseudo $R^2 = 0.030$; N = 694; $\tau = 0.50$ (Median Regression)

Note.
ß = standardized regression coefficient
SE = standard error of the coefficient
t = t-statistic (tests whether ß differs significantly from zero);
p = probability value (significance level; $p < 0.05$ indicates a statistically significant effect);
95% CI = 95% confidence interval for **ß**

Source: Primary data

Table 19 offers the results of median regression analysis which examined the impact of school attributes, school leadership and professional aspects on the adaptability of the teachers in primary schools. The model used nine predictors and quantile (median) regression estimates were used to provide robust parameter estimates to outliers and non-normality. Generally, the model was statistically significant, as the Spearman method resulted in the determination of a correlation coefficient between the predictors and teacher adaptability, $\rho = 0.586$ ($p < 0.001$), which is moderate-strong. Nevertheless, this model explained a very small amount of variance in the outcome (Pseudo $R^2 = 0.030$), which suggests that a number of predictors played a significant role, but there might be other unobserved predictors that played a role in teacher innovation.

Transformational leadership was found as a statistically significant predictor of teacher adaptability. The findings show that transformational leadership ($\beta = 0.076$, SE = 0.028, $t = 2.68$, $p = 0.008$, 95% CI [0.020, 0.132]) had a positive effect on teacher innovation. This result implied that, with other covariates constant, augmented ratings of transformational leadership practice among headteachers are related to rise in adaptability among educators; in this instance, an upsurge in the transformational leadership rating, one unit, is anticipated to boost the mean adaptability score by some 0.076, on average. This finding is consistent with theoretical hypotheses stating that transformational leaders inspire their teachers, encourages innovation, and provide supportive conditions that can ensure successful adaptation of educators to the changes in education.

In the same way, the school culture and staff dynamics (β = 0.104, SE = 0.038, t = 2.72, p = 0.007, 95% CI [0.029, 0.179]) showed a positive and statistically significant impact on teacher innovation. The coefficient shows that the school with interdependence of cultures and favourable relationships amongst staff members and positive relationships among professionals are more liable to display higher innovation of teachers.

Conversely, teacher professional identity (β = −0.063, SE = 0.032, t = −1.99, p = 0.047, 95% CI [−0.125, −0.001]) showed a statistically significant, albeit, negative relationship with teacher innovation. This implies that a robust sense of attachments to established professional defined positions and practices might, on occasion, diminish flexibility or adaptability to new ways of doing things or reforms. Strongly supported by traditional professionalism standards, teachers can thus be less willing to change instructional practices or implement new ones when change becomes an issue.

Contextual aspects of school were also analysed. Rural location of a school (β = 0.111, SE = 0.058, t = 1.93, p = 0.054, 95% CI [−0.002, 0.225]) showed positive but similar to insignificant relationship with teacher innovation. Although the coefficient indicates that educators in schools located in rural areas might exhibit a little bit more innovation compared to those in urban schools, the effect did not come out as statistically significant ($p < 0.05$). Similarly, the schools established by Islamic establishments (β = −0.241, SE = 0.124, t = −1.94, p = 0.052, 95% CI [−0.484, 0.002]) were also showing a statistically insignificant marginally negative connection as compared to the church-founded schools, and again, did not show statistical significance at the 5 percent level.

There were other predictors that were not found to significantly relate with teacher innovation. The teacher-group attitude (β = 0.014, p = 0.675) did not have any significant effect on the innovation. Similarly, the adaptability was not significantly linked with any of professional development opportunities (β = −0.015, p = 0.682) which means that the simple access to training might not be directly converted into innovative teaching. On the same note, policy and institutional support (β = −0.006, p = 0.866) as well as availability of resources (β = −0.019, p = 0.635) did not result in any significant impact in this model. These results indicate that structural supports are significant, but one of the questions that can be addressed is that their effect on teacher innovation may be more related to leadership practices and school culture as compared to the role of the presence of resources only.

In general, the findings reveal that the impact of the teacher innovation and the influence of leadership practices and the internal social environment of schools are more severe than structural or policy-related variables. It seems that transformational leadership and healthy staff relationship are likely to contribute to the creation of the environment where constructive response towards the change is provided, but these strict professional identities can be seen as limiting flexibility. These results empirically subscribe the argument that leadership and organizational culture is a prime determinant of innovation teaching behaviors in primary schools.

RESEARCH QUESTION THREE:

In what ways did headteachers' transformational leadership shape teachers' collaboration in primary schools in Eastern Uganda?

4.6.3 Transformational Leadership and Teacher Collaboration

Table 20: Transformational Leadership on teacher collaboration correlation

Predictor	β	SE	t	p	95% CI
Transformational Leadership (TL Score)	**0.007**	**0.006**	**1.06**	**0.291**	**[-0.006, 0.020]**
None of the Above (vs Bachelor)	−0.239	0.11	−2.19	0.039	[−0.468, −0.0789
Private (vs Church Founded)	0.169	0.063	2.74	0.059	[0.050, 0.300]
School Culture and Staff Dynamics	0.214	0.009	24.9	p < 0.001	[0.197, 0.231]
Teacher-Group Attitude	0.074	0.008	9.62	p < 0.001	[0.059, 0.089]
Teacher Professional Identity	0.148	0.007	21.04	p < 0.001	[0.135, 0.162]
Professional Development Opportunities	0.163	0.008	19.17	p < 0.001	[0.146, 0.179]
Policy and Institutional Support	0.242	0.008	29.85	p < 0.001	[0.226, 0.258]
Availability of Resources	0.13	0.009	14.63	p < 0.001	[0.113, 0.148]

Note.
β = standardized regression coefficient
SE = standard error of the coefficient
t = t-statistic (tests whether β differs significantly from zero);
p = probability value (significance level; $p < 0.05$ indicates a statistically significant effect);
95% CI = 95% confidence interval for **β**

Model summary
Spearman's $\rho = 0.184$, $p < 0.001$
Pseudo $R^2 = 0.975$; $N = 704$; $\tau = 0.50$ (Median Regression)

Source: Primary data

Table 20 indicates the outcomes of the Spearman correlation and the median quantile regression analysis investigating how transformational leadership and organizational variables apply in the school setting in relation to teacher collaboration practice.

The Spearman fate rank correlation is a weak but statistically significant positive correlation between transformational leadership and teachers' collaboration ($\rho = 0.184$, $p < 0.001$). This implies that despite the fact that transformational leadership practices are related to teacher collaboration, this connection is not as strong.

As can be seen, the quantile regression output indicates that teacher collaboration is not significantly correlated with transformational leadership β = 0.007, SE = 0.006, t = 1.06, p = 0.291). It means that there is no statistically significant direct impact of transformational leadership on collaborative practices of teachers in schools when it is controlled by organizational and contextual factors.

There are however a number of organizational variables that demonstrate strong and statistically significant variables with teacher collaboration. Specifically, the culture of collaboration within schools and staff dynamics show that they have a significant positive impact (β = 0.214, SE = 0.009, t = 24.9, p < 0.001). This observation indicates that conducive organizational conditions and good employees' relationship have significant contributions in fostering collaborative practices among educators.

Likewise, teacher group attitude is a strong predictor of teacher collaboration β = 0.074, SE = 0.008, t = 9.62, p < 0.001) which means that positive attitudes towards team work and mutual professional involvement will foster collaborative behaviors in the school.

It can be also seen that collaboration is strongly positively affected by teacher professional identity (β = 0.148, SE = 0.007, t = 21.04, p < 0.001). This implies that the higher the sense of professional identity held by a teacher is, the higher the likelihood of an enthusiastic teacher to want to be involved in a collaborative activity.

In addition, teacher collaboration is also greatly affected by professional development opportunities (β = 0.163, SE = 0.008, t = 19.17, p < 0.001), which means that occasions

of professional learning and development could be valuable to teachers to communicate and undertake collective instructions.

On the same note, policy and institutional support proves to be the best predictor of teacher collaboration (β = 0.163, SE = 0.008, t = 19.17, p < 0.001). This observation underscores the significance of school policies and institutional arrangements that promote team work amongst teachers.

Moreover, resource accessibility is also a major facilitator of collaboration (β = 0.130, SE = 0.009, t = 14.63, p < 0.001), implying that sufficient resources in terms of teaching materials and institutional facilities to support principles of collaborative teaching were determinants of collaboration.

Regarding contextual variables, the findings are that teachers who do not have a bachelor's degree show much lower collaborability as compared to those who have a bachelor degree (β = −0.239, SE = 0.11, t = −2.19, p = 0.039). This indicates that the education-based qualifications can affect the members of teaching activities in terms of collaboration.

Likewise, the teachers of privately established schools are likely to display more collaboration than the ones of the church-established schools (β = 0.169, SE = 0.063, t = 2.74, p = 0.059) which is a poorly significant relationship.

In general, the regression model has a very high percentage of explanation (Pseudo R^2 = 0.975) on the dependence of a sample of 704 respondents with an extremely high

explanatory power. To explain the possibility of deviation in normality in the data, the analysis was performed through a median quantile regression, ($\tau = 0.50$).

Overall, the findings indicate that the most significant influence in teacher collaboration is the organizational conditions, in particular, the school culture, the institutional support, the opportunities to develop professionally, and teacher professional identity, whereas transformational leadership does not produce any significant direct impact when the organizational factors are considered.

Table 21 : Incremental Contribution of Collaboration Subscales

Model	**Predictors**	**Adjusted R^2**
Model 1	Transformational leadership	0.518
Model 2	Transformational leadership + innovation + collaboration	0.55
Δ Adjusted R^2	—	0.032
Model 3	Transformational leadership + innovation + collaboration + organizational variables	0.586
Δ Adjusted R^2	—	0.036

Source: Primary data

A hierarchical regression analysis was performed in order to determine whether the extra contribution to the model elucidation of the terms covered in the conceptual framework.

Model 1 investigated the effect of transformational leadership on teacher adaptive management alone. The findings indicated transformational leadership explained a significant percentage of the variance in teacher adaptability (Adjusted $R^2 = 0.518$), which means that the gap between teacher adaptation to changing instructional and organizational situations relies on the leadership practices of headteachers.

In Model 2, the variables that are related to innovation and collaboration were added to the model. The introduction of these variables increased the Adjusted R^2 to 0.550, which means incremental explanatory value of 0.032. This finding indicates that innovation practices and collaboration process in schools have an extra explanation power over transformational leadership itself.

Model 3 again incorporated organizational and contextual variables as had been determined under the conceptual framework, such as the school culture, staff dynamics, teacher-group attitude, teacher professional identity, professional development opportunities, policy and institutional support, and resource availability. The included information of these variables increased Adjusted R^2 by 0.586 which further increased the percentage of the explained variation by 0.036.

In general, the results of hierarchical regression suggest that whilst transformational leadership is the most powerful predictor of teacher adaptability, organizational conditions and collaborative processes are quite important to increase the explanatory power of the model. Such results support the conceptual framework that has proposed that leadership has direct and indirect impacts on teacher outcomes via the organizational and collaborative processes.

Though in the analyses above the transformational leadership was considered a composite measure, the section below breaks down the four attributes that make up the construct to establish the individual predictive weight of each of the teacher performance outcomes.

RESEARCH QUESTION ONE:

How did headteachers' transformational leadership influence teachers' adaptability in primary schools in Eastern Uganda?

4.7 Performance Outcomes relative to Transformational Leadership Attributes

4.7.1 Multiple Linear Regression of Leadership dimensions to Adaptability

Table 22: Multiple Linear Regression of Leadership Dimensions to Adaptability

Predictor	**ß**	**SE**	**t**	**p**	**95% CI**
Constant	1.36	0.105	12.9	< .001	[1.151, 1.563]
Idealized Influence (Attributes)	0.27	0.038	7.21	< .001	[0.197, 0.345]
Inspirational Motivation	0.04	0.04	0.91	0.36	[-0.042, 0.115]
Intellectual Stimulation	0.12	0.037	3.15	0	[0.044, 0.189]
Individualized Consideration	0.26	0.033	7.81	< .001	[0.194, 0.324]

Note. N = 704. R^2 = 0.530, Adjusted R^2 = .528, F (4, 699) = 197.40, p < 0.001. VIF values ranged from 2.63 to 2.86, indicating no multicollinearity concerns

Source: Primary data

The regression model of the predictor of teacher adaptability was statistically significant with F (4, 699) = 197.40, p < 0.001 that accommodates 53.0% of the variance (Adjusted R^2 = 0.528) meaning that it is statistically significant with a rich explanatory power. The emergence of idealized influence (attributes), intellectual stimulation, and individualized consideration was noted to be a good predictor of teacher adaptability, indicating that leadership practice design focused on role modelling, cognitive inquiry, and individualized support increases the adaptive capacity in teachers. Inspirational motivation was not significant, which means that visionary and inspirational communication do not have a direct impact on adaptability. Altogether, the results

indicate that the key aspect that contributes to teacher adaptability development is relational and cognitively engaging leadership behaviors.

RESEARCH QUESTION TWO:

What was the influence of headteachers' transformational leadership on teachers' innovation in primary schools in Eastern Uganda?

4.7.2 Multiple Linear Regression of leadership dimensions to innovation

Table 23: Multiple Linear Regression of Leadership dimensions to innovation

Predictor	**ß**	**SE**	**t**	**p**	**95% CI**
Constant	1.96	0.1	19.6	< .001	[1.766, 2.159]
Idealized Influence (Attributes)	0.03	0.036	0.8	0.43	[-0.042, 0.099]
Inspirational Motivation	0.03	0.038	0.8	0.43	[-0.045, 0.105]
Intellectual Stimulation	0.01	0.035	0.41	0.68	[-0.055, 0.084]
Individualized Consideration	-0	0.032	-0.07	0.95	[-0.064, 0.060]

Note. N = 694. R^2 = 0.012, Adjusted R^2 = .006, F (4, 689) = 2.09, p = 0.080. VIF values ranged from 2.62 to 2.85, indicating no multicollinearity concerns.

Source: Primary data

The regression model predicting teacher innovation was not statistically significant, F (4, 689) = 2.09, p = 0.080, explaining only 1.2% of the variance (Adjusted R^2 = 0.006). None of the transformational leadership dimensions significantly predicted teacher innovation. This indicates that transformational leadership, in isolation, does not directly influence innovative practices among teachers in this context. The findings suggest that teacher innovation is likely shaped by additional factors beyond leadership, such as institutional support, resource availability, or individual motivation.

The presence of multicollinearity was checked by the diagnostics (VIF < 3), which means that the insignificance is not due to the redundancy of predictors. On the whole, the results indicate that transformational leadership alone cannot be used to ascribe differences in the teacher innovation in this scenario.

RESEARCH QUESTION THREE:

In what ways did headteachers' transformational leadership shape teachers' collaboration in primary schools in Eastern Uganda?

4.7.3 Leadership Dimensions that predict Teacher Collaboration

Table 24: Multiple Linear Regression of Leadership Dimensions to Collaboration

Predictor	**B**	**SE**	**t**	**p**	**95% CI**
Constant	2.006	0.122	16.49	< .001	[1.767, 2.245]
Idealized Influence (Attributes)	0.132	0.044	3.02	0.003	[0.046, 0.217]
Inspirational Motivation	0.181	0.046	3.9	< .001	[0.090, 0.273]
Intellectual Stimulation	0.037	0.043	0.85	0.394	[-0.048, 0.121]
Individualized Consideration	0.14	0.038	3.64	< .001	[0.064, 0.215]

Note. N = 704. R^2 = .289, Adjusted R^2 = .285, F (4, 699) = 71.12, p < .001. VIF values <3 indicate no multicollinearity.

Source: Primary data

The significant statistical significance of the regression model to predict teacher collaboration (F (4, 699) = 71.12, p < 0.001) was found, which explained 28.9% of the explanatory power (Adjusted R^2 = 0.285) and showed moderate predictive power. Attributes Idealized influence was also found to be a strong positive predictor of collaboration with inspirational motivation and individualized consideration showing that characteristics of leadership that strengthen trust, shared vision, and

individualized support were linked with collaborative behaviors among teachers. The stimulation to intellect was also not significant showing that cognition stimulation does not directly translate to collaboration. These results emphasize the significance of

Transformational Leadership Dimension	Teacher Adaptability (β)	Teacher Innovation (β)	Teacher Collaboration (β)
Idealized Influence (Attributes)	0.303***	0.049	0.156**
Inspirational Motivation	0.04	0.051	0.210***
Intellectual Stimulation	0.134**	0.025	0.045
Individualized Consideration	0.336***	-0.004	0.192***

relational and motivational leadership scales in facilitating team and collective activities in teachers.

4.7.4 Comparative summary of standardized beta coefficients

Table 25: Comparative summary of standardized beta coefficients

Model Fit Summary

Outcome	N	R^2	Adj. R^2	F	p
Teacher Adaptability	704	0.53	0.528	197.4	< .001
Teacher Innovation	694	0.012	0.006	2.09	0.08
Teacher Collaboration	704	0.289	0.285	71.12	< .001

Note. β = standardized coefficients. p < .05, *p < .01, **p < .001.*

Source: Primary data

Transformational leadership dimensions have disparate effects on the three teacher outcomes based on the standardized regression results. To teacher adaptability, the model had shown high explanation power (R^2 = 0.530, p = 0.001) where individualized consideration (β = -0.336, p = 0.001) and idealized influence (β = -0.303, p = 0.001) have shown to be the greatest predictors with intellectual stimulation (β = -0.134, p =

0.002) coming in the next. Inspirational motivation did not play a critical role, which showed that adaptive capacity is basically motivated by the supportive, individualistic, and cognitively based practices of a leader as opposed to motivational vision alone.

Conversely, the teacher innovation model was not significant (R^2 = 0.012, p = 0.080), and the effects of each of the leadership dimensions were not significant. This implies that transformational leadership does not have a direct effect on innovative behavior amongst teachers in this case, hence there must be other mediating or contextual determinants.

On teacher collaboration, the model was found to be statistically significant with moderate explanatory power (R^2 = 0.289, p < 0.001). Inspirational motivation (ß = 0.210, p = 0.001), individualized consideration (ß = 0.192, p = 0.001) and idealized influence (ß = 0.156, p = 0.003) were strong and positive predictors, which means that dissemination of the practice of collaborating is facilitated by shared vision, relational trust, and individualized support. There was no statistical significance on intellectual stimulation, which implied that collaboration is not so much reliant on cognitive challenge as it is on relation and motivational dynamics.

In summary, the results also contribute to the significance of outcome-specific effects of transformational leadership, which has a more significant impact on adaptability and collaboration as compared to innovation, hence the necessity of contextual and structural considerations when analyzing teacher innovation.

CHAPTER FIVE: DISCUSSION OF RESULTS

5.0 Transitional Introduction

This chapter is a continuation of the statistical and descriptive data of Chapter Four; that is, the data of this chapter is interpreted and placed in context with regard to the study objectives, theoretical framework, and reviewed literature. The discussion relates empirical findings on transformational leadership, teacher adaptability, innovation and collaboration to the Adaptive Performance Theory (Pulakos et al., 2000) and Transformational Leadership Theory (Bass and Avolio 1994). The paper discusses the evidence that the leadership practices by the headteachers in the primary schools in Uganda influence the adaptability of teachers, their innovation, and collaborative cultures. Contextual complexities, including school ownership and availability of resources and institutional climate, that mediate the efficacy of transformational leadership practices are also highlighted by the chapter.

5.1 Effect of Transformational Leadership on Teacher Adaptability

As the regression analyses that were provided in Chapter Four reveal, there is a considerable strong, statistically significant impact of transformational leadership on teacher adaptability ($\beta = 0.586$, $p < 0.001$; Spearman 0.699). The model explains approximately 58.6 percent of the variance of teacher adaptability (Adjusted $R^2 = 0.586$), hence indicating that transformational leadership together with the critical organizational conditions have significant explanatory power in relation to the adaptive behavior of teachers.

Alongside transformational leadership, the analysis revealed a number of the intervening organizational variables which should be stated according to the conceptual framework and play the major role of being instrumental determiners of the teacher adaptability. In particular, the ability of teachers to accommodate instructional and organizational change was found to be demonstrably linked with school culture and staff dynamics ($\beta = 0.231$, $p < 0.001$) and teacher -group attitude ($\beta = 0.149$, $p < 0.001$). An aggregate of these findings reiterates the fact that adaptability depends not only on the leadership behavior, but also on the larger organizational environment within which teachers operate.

These findings correspond with the assumptions of the Transformational Leadership Theory that states that leaders, who inspire, challenge the intelligence of their subordinates, and even support them by person, provide the environment that encourages them to perform adaptively (Bass, 1985; Avolio, 2004). The empirical findings align with those of Bonini et al. (2024), who found out the positive connection between transformational leadership and adaptive performance in organizational settings, and with Nguni, Sleegers, and Denessen (2006), whose experimental study in Tanzanian schools proved that transformational leadership encourages flexibility and dedication to work amongst teachers.

In Ugandan primary schools, where educators have to face curriculum changes on regular basis, the high number of students in classes, and scarce resources, the ability to make appropriate decisions becomes a necessity. The data show that the teachers who work with transformational headteachers stated higher levels of psychological safety levels, emotional stability, and new practice openness. Specifically, a one-on-

one attention, that is, the ability of the leaders to work with teachers and help them evolve as professionals was needed to ensure teacher flexibility. Empathetic headteachers were able to provide environments that led to emotional resilience, reflective learning and self-efficacy among their staff (Roesminingsih and Windasari, 2025).

These findings further indicate that intellectual stimulation, which prompts teachers to have creative thinking and resist the conventional teaching practice, improves their ability to handle uncertainty and educational change. This supports previous findings by Pelgrim et al. (2022) that adaptive leaders support reflective conversation and experimentation and thus learning agility among teachers. In addition, participatory cultures were observed to have a stronger adaptability score in schools that mostly belonged to private or semi-autonomous schools, meaning that the meaning of leadership influence is mediated by institutional autonomy and collaborative school climates.

Theoretically, the results support Adaptive Performance Theory according to which leadership is one of the environmental enablers of adaptability (Pulakos et al., 2000). Instead of considering adaptability as an individual attribute, which can be chosen or not, the evidence situates it as a socially constructed, leadership-constrained ability. The implication of the findings in practical terms is that leadership training amongst Ugandan teachers needs to focus on the transformational behaviors (vision sharing, empowerment, mentoring, and reflective practice) in order to produce teacher flexibility in the dynamic educational environment.

5.1.1 Teacher Adaptability by Organizational Conditions.

The regression results were also highly supportive in their evidence of the organizational conditions as being necessary enabling mechanisms that connect transformational leadership to adaptability of teachers. Alongside other examined antecedents, school culture and staff dynamics proved the most salient predictors, which suggests that institutional climates that are created by means of trust, shared vision, and colleagueship interaction substantially enhance the ability of teachers to engage constructively with change.

Moreover, it was also found out that adaptability is enhanced by positive teacher-group attitudes that help to create cooperation, group problem-solving, and mutual professional support. These findings highlight that transformational leadership has its bearing at least partially via the development of participatory and psychologically safe organizational climates that enable teachers to experiment, reflect and adjust the way of teaching them.

These results are in line with the supposition of Leithwood and Jantzi (2005) that leadership effects on teacher results are often moderated by organizational school environments. The organizational support systems are especially essential to maintain adaptive teaching practices in the primary-school setting in Uganda, where teachers have huge classes, minimal teaching resources of instructional aids, and new curricula are periodically introduced.

Dividing the analysis of the four transformational leadership attributes ahead of time shows that Individualized Consideration becomes the strongest univariate predictor of

teacher adaptability (β* = 0.336, p < 0.001), then Idealized Influence (β* = 0.303, p < 0.001), and only Intellectual Stimulation has a small but statistically significant effect (β* = 0.134, p = 0.002). Inspirational Motivation was not significant (β* = 0.040, p = 0.362) (see Table 22). This trend is remarkably compatible with the Adaptive Performance Theory in the formulated by Pulakos et al. (2000), who see the ability to master new tasks, cope with the situation of uncertainty, and adapt to emerging interpersonal demand as the key dimensions of adaptive performance. Individualized Acceptance - whereby school leaders consider individual professional development needs, personal situation and emotional conditions of individual teachers is a direct development of the psychological preparedness and the self-efficacy that Pulakos et al. (2000) establish as antecedent factors to adaptive behavior. In the same vein, Idealized Influence, by offering a plausible role model, who exposes himself to institutional change in a manner that is demonstrative, resourceful and ethical, provides the observational learning messages that teachers can use to re-tune their own professional behavior in accordance with changing school requirements (Bass & Avolio, 1994). The aforementioned two attributes combined explain the very large proportion of the amount of variance explained by transformational leadership in the Eastern Ugandan primary school context, posing as strongly mediating and driving adaptive performance, which is the relational and role-modelling dimensions rather than the motivational or cognitive-challenge dimensions of transformational leadership.

5.2 The Effect of Transformational Leadership on Teacher Innovation

Chapter four regression analysis showed that transformational leadership had a statistically significant positive influence on teacher innovation (β = 0.076, p = 0.008). The explanatory power of the model is quite small (Adjusted R^2 = 0.030) but, the results showed that transformational leadership is a driver encouraging experimentation in new pedagogical strategies and instructional practices among the teachers.

Disaggregating the composite transformational leadership score into its four constituent attributes yields a theoretically instructive, if counterintuitive, result. As shown in Table 23, none of the four attributes emerged as a statistically significant predictor of teacher innovation Inspirational Motivation produced the highest standardized beta (β* = 0.051, p = 0.427), followed by Idealized Influence (β* = 0.049, p = 0.426), Intellectual Stimulation (β* = 0.025, p = 0.683), and Individualized Consideration (β* = −0.004, p = 0.947) — with the overall model falling short of conventional significance thresholds (F = 2.094, p = 0.080, Adj. R^2 = 0.006). This finding is noteworthy given that Bass (1985) explicitly positioned Intellectual Stimulation — the degree to which leaders challenge assumptions, encourage creative thinking, and reframe problems — as the attribute most directly linked to follower innovation and creative output. The absence of a significant relationship in the present study does not necessarily contradict Bass's framework, but rather suggests that in the resource-constrained, examination-pressured environment of Eastern Ugandan primary schools, the translation of intellectual stimulation into tangible innovative behavior may be mediated or suppressed by structural barriers — including limited access to professional development resources, rigid curriculum mandates, and low institutional tolerance for

pedagogical risk — that attenuate the direct leadership-to-innovation pathway (Pulakos et al., 2000; Leithwood & Jantzi, 2005). The composite TL score retained significance for innovation (β = 0.076, p = 0.008) because the aggregated signal across attributes captures a broader motivational climate that individual dimensions alone cannot sustain, pointing to innovation as a product of the cumulative transformational environment rather than any single leadership behavior.

Along with leadership behavior, the school culture and staff dynamics (β = 0.104, p = 0.007) had also been observed to have a significant impact on the teacher innovation. This outcome implies that positive organizational cultures promote experimentations and innovation among the educators.

Teacher professional identity, on the other hand, had a negative correlation with innovation (β = −0.063, p = 0.047). This might mean that educators who are more attached to the traditional professional practices may be reluctant to adopt new practices of teaching.

Transformational leadership cultivates innovation through four elements in which idealized influence promotes the modelling of innovative problem-solving, inspirational motivation promotes enthusiasm to innovative ideas, intellectual stimulation promotes the attempt to experiment, and individualized consideration promotes personalized professional growth. Taken together, those elements will foster the culture of creativity, collaboration, and introspection.

The current results can be related to the efforts of Leithwood and Jantzi (2005) who argued that transformational leadership breeds the moral purpose and encourages experimentation in pedagogy, and Fullan (2007) who described it as the basis of a learning-focused school culture. Similarly, Prasad and Junni (2016) established that transformational leadership reduces a temporary nature of innovative behavior within organizations as compared to transactional leadership.

However, the findings also imply that the driver of innovation is more heavily influenced by the internal school factors, including the development of institutions reputation, the need for improvement of performance, and the encouragement through the leadership, rather than being impacted by external factors, including the changes in the national policy or the technological requirements. This fact is in line with what Dooley (1999) states, that innovation is not exogenous but is locally created and cultural in the location.

The explanatory power (Pseudo $R^2 = 0.22$) of just the leadership is not enough to define that leadership itself serves as the only factor in dealing with the innovation, but the direction and the strength of the correlation show that transformational leadership is more of a catalyst than the determinant itself. Sufficient resources, favorable policies and professional freedom can remain to be critical structural facilitators of maintaining innovation in Ugandan primary schools.

Transformational headteachers therefore encourage innovation amongst teachers through the stimulation of creativity, reflective risk-taking, and emotional and professional assistance. Sustainable innovation, however, requires supplementary

systemic enablers in this regard that serve to complement the leadership-based impetus towards experimentation and enhancement.

5.3 Transformational Leadership and Teacher Collaboration Relationship

Transformational leadership has no statistically significant direct effect on teacher collaboration ($\beta = 0.007$, $p = 0.291$) as per the findings in chapter four above. Instead, organizational conditions in schools have a significant influence on teacher collaboration.

Importantly, school culture and staff dynamics ($\beta = 0.214$, $p < 0.001$), teacher professional identity ($\beta = 0.148$, $p < 0.001$), professional development opportunities ($\beta = 0.163$, $p < 0.001$), policy and institutional support ($\beta = 0.242$, $p < 0.001$), and resource availability ($\beta = 0.130$, $p < 0.001$) are the factors which predicted collaboration.

These findings indicate that although the transformational leadership has a role in influencing organizational settings, it is structural and institutional factors that form the basis of collaborative practices between educators in the school setting.

5.3.1 Mechanisms Linking Leadership to Collaborative Practice

Transformational leadership encourages teamwork by adjoining bonding partners in mental and social ways. The concept of inspirational motivation would help headteachers to express a common vision that must involve enhancement of teaching and learning which will motivate teachers to go beyond their single classroom practice and to participate in collaborative lesson planning, sharing of instructional materials and informal peer mentorship. Such sense of commonality is especially applicable in

those settings where innovation is more of a pedagogical approach because instructors use collective work to align the teaching approaches and the evaluation procedures. Intellectual stimulation also enhances collaborative practice through dialogue, critical reflection and sharing of problems between teachers. These kinds of interactions are necessary to control the curricular changes and to address emerging instructional needs, in particular, in the schools with moderate rates of innovation. Individualized consideration adds to these processes by encouraging inclusion and acknowledging individual contribution and help teachers to establish psychologically safe environments where they can experiment and learn together.

The results indicate that primary schools in Uganda are experiencing these leadership processes, despite the work load limitations that are accompanied by large student groups and minimal resources. Educators who reported being under the supervision of headteachers who stated focus on open communication, ethical behavior and stimulation of creativity reported higher attendance at collaborative meetings, instructional dialogue and common decision-making. This is in tandem with the findings of recent research by Grace et al. (2024) and Hasani and Xhomara (2024) that transformational leadership promotes knowledge sharing and mutual learning by building trust and empowerment. Equally, Pigola et al. (2024) and Canterino et al. (2024) revealed that successful leadership reactions to institutional pressures have the potential of re-structuring hierarchies of relationships into professional and working networks. In the Ugandan setting, school leaders who conceptualised policy requests and school issues as a learning experience were more apt to develop collaborative work among educators.

5.3.2 Teacher innovation trends, determinants and situational constraints

The results suggest that innovation amongst teachers in Ugandan primary schools is rather widespread and uneven, with the vast majority of its manifestations being associated with low or moderate levels of intensity. Despite the fact that a small percentage of teachers claimed that they did not see any innovation in their respective schools, most of them were placed in a setting where innovation was more incremental as opposed to being more intensive. This distribution gives a significant context in identifying the role of transformational leadership implying that the leadership influence can be found operating within the environment that has innovations but has not become established as a part of all instructional activities.

The descriptive findings also indicate that the innovative activities undertaken by the teachers were pedagogical in character and the most common forms of activities entailed new teaching materials, teaching activities and assessment. These types of innovation are somehow related to the major instructional focus that is encouraged by transformational leadership which suggests intellectual stimulation, reflective practice, and unending enhancement in teaching and learning. The relatively low usage of technological, extracurricular and experimental innovations means that teachers are not indifferent to innovating, but the outcome of innovations is influenced by the demands of contexts like the available resources, infrastructure and policy priorities which limit innovations and not indifference or inability to be creative.

Notably, the correlation between the level of innovation and the flexibility of teachers supports the catalytic effect of transformational leadership empirically. Teachers that

operated in very innovative conditions were found to exhibit greater degrees of adaptability, confidence, and openness to change, as opposed to the teachers that were located in low or non-innovative conditions having weaker adaptive responses. Even though the effect size of the innovation intensity on teacher adaptability was not large, statistically significant differences among the levels of innovation point to the fact that long-term exposure to innovation elicits professional flexibility and positive views on change. This observation fortifies the view that transformational leadership does not just simply trigger innovation but plays a role in the circumstances surrounding the ability of the teachers to be responsive to the altering educational needs, slowly.

The analysis of the perceived drivers of innovation also supports this interpretation further. Internal, school-based motivators, particularly the need to improve the image, reputation and performance of the school, alongside the influence of the headteacher, were deemed by the respondents as the most salient motivators of the innovative practice. Variables that were related to leadership-style, classroom decision-making autonomy, responsibility delegation, and budget target specifications were evaluated to be stronger than extrinsic factors including policy reforms and parental expectations or pupil demands. Thus, it has been shown that innovation is mainly influenced by regional practices of leadership as opposed to external reforms.

The current findings are in agreement with previous research that conceptualizes transformational leadership as an agent of school-based innovation cultures. Transformational leaders have the ability to foster a moral cause, support professional experimentation; Leithwood and Jantzi (2005) emphasized the key role of leadership in

maintaining learning-oriented school conditions, but Fullan (2007) stressed the importance of the key leadership role in that process. Similarly to this view, the current research supports the claim made by Dooley (1999) that innovation is contextual, culturally oriented and organizational forces within institutions that cause it to emerge.

Despite these results, the findings also warn against putting an overemphasis on leadership as the only explanatory factor. Even though it is apparent that transformational leadership is an innovation driver due to its promotion of creativity, professional freedom, and reflective risk-taking, this does not mean that it operates independently. The low to moderate intensity of innovation with limited involvement in experimental and technology-based programs depicts the need to have complementary systemic enablers. Adequate resources, favorable policy environments, functional communication systems, and sustained professional growth are the requirements that cannot be overlooked to convert leadership-based motivation into high intensity and long-term innovation.

In summary, transformational headteachers play a central role in influencing innovative behavior of teachers by fostering positive, encouraging, and most participatory school cultures. However, teacher innovation can only be maintained and enhanced based on the congruence between leadership activity and a larger structural and institutional resource. In the framework of the Ugandan primary schools, transformational leadership will thus not only have to be considered as a single factor determining innovation, but as a powerful facilitator that has to be supported by systemic conditions to allow promoting change in the educational process in a lasting manner.

5.3.3 Adaptive Capacity and Collaborative Culture

Transformational leadership also helps in the establishment of collaborative cultures that are favourable to adaptive capacity by espousing Adaptive Performance Theory (Pulakos et al., 2000). The results of the study that investigate innovation intensity and teacher adaptability show that collaboration is a mediating space whereby teachers come together to collectively make sense of change, exchange strategies and reduce cognitive and emotional strain on an individual level. The practices involve teams of teachers so that they can share workload, harmonize instructional strategies, and better address curricular and assessment restructuring.

At the primary schools in Uganda where innovation is prevalent, modest in scale, collaboration is a coping mechanism and a source of development. Transformational headteachers paint this dynamic by establishing an environment where co-designing of lessons, peer mentoring and mutual support (more especially among the less experienced teachers) are encouraged. Such practices are manifesting features of diffused professionalism whereby teachers do not view themselves as solitary practitioners but as shared collaborators of enhancing schools together (Fullan, 2007). The results also show that schools under transformational headteachers have higher chances of exhibiting a sustained collegial support, common instructional aims, and reflective discourse. Even though such collaborative practices are not always of high intensity, they still lead to a better adaptability and a platform into which gradual innovation in schools can be positioned.

5.3.4 Challenges and Implications for Practice

However, the current research paper shows that, in as much as transformational leadership has a positive effect, collaboration is a multi-moderated phenomenon. The considerably and not so high explanatory power of the leadership (R^2 = 0.048) demonstrates that, despite the consequentiality of leadership, other structural, interpersonal, and contextual factors have significant impacts on the quality and the depth of collaborative interaction. There is some evidence in multiple schools that collaboration was largely formalized, in the form of regular participation in meetings, without a necessary result of effective professional discourse, reflection, and productive conflict resolution.

This finding comes in line with the general trend in innovation as observed in the research where the extent was low to moderate in innovation. Without a deliberate facilitation, collaboration will be in danger of becoming merely procedural as opposed to transformative (Alterator & Deed, 2016). Teachers can adhere to collaborative organizations without completely taking part in collective learning or creativity, especially in situations that do not have sufficient communication of the intent and the concentration of innovation.

In order to ensure the visibility of such collaboration, the culture of psychological safety, inclusive participation and open communication need to be cultivated by the headteacher in a deliberate manner. These types of cultivation may be done via distributed leadership, peer mentoring, and formalization of professional learning communities (PLCs). Based on this, acquisition of emotional intelligence, conflict management, and participatory decision-making should be core competencies of the

leadership development programs because they are part of transformational leadership. Indeed, as results suggest, the schools (especially those that are private and semi-autonomous) that continuously incorporated these practices stated greater rates of collegial trust, interaction, and collaborative resilience.

5.3.5 Determinants of Teacher Collaboration at Organizational Level.

The empirical evidence has shown that organizational structures and institutional support mechanisms are mostly the drivers of teacher collaboration, as opposed to the leadership behavior. School culture, professional development opportunities, and policy support have a significant impact which implies that collaborative practices are entrenched into institutional structures whereby communication, mutual learning, and communication based on collective decisions can be practiced.

The possibility of professional development became especially important in strengthening teamwork, as these represent the organized environments with the help of which educators can communicate with each other and discuss their teaching experience. Similarly, the policy and institutional supporting systems (e.g. school management practices, leadership systems and administrative supportive systems) seem to be central in maintaining collaborative interaction of teachers.

These results are consistent with the available literature on collaborative professionalism that substantive collaboration between teachers relies on the favourable institutional frameworks as opposed to informal interaction only (Fullan, 2007).

5.3.6 Overall Implications

One of the implications of the current research is that transformational leadership is a salient facilitator concerning the shaping of collaborative teacher cultures in Ugandan primary schools. Leaders that clearly define an inspirational vision, facilitate deeper discussion, and offer personalized opportunities in the education process are at a better position to change the schools that primarily embrace hierarchical to more participatory and relational mode of learning. In these scenarios, cooperation facilitates the exchange of didactic knowledge, group problem-solving and the slow creation of pedagogical innovations.

The findings however also suggest that collaborative cultures that result under transformational leadership are likely to be incremental but not entirely institutionalized. Considering the fact that the majority of schools involved in the research fall within the range of low to moderate innovation intensity, collaboration rather seems to be a stabilizing system and an adaptation system than a radical change mechanism. In that respect, teamwork supported by transformational leadership enhances the ability of teachers to adapt to change, unify the instructional practice, and maintain the relative innovation in the resource-constrained environment.

Notably, the concept of collaboration cannot be perceived as a result of leadership practice, but rather as another process that leads to teacher flexibility and innovation due to leadership. Leverage through supportive systems: Collaboration can also develop to include more meaningful professional learning, when embedded in the supportive structures like professional learning community, distributed leadership systems and

continuous progression of professional learning. Under these circumstances, collaborative practice leads to the long run resilience and responsiveness of schools.

On the whole, transformational leadership creates the necessary conditions of relationships and thought to allow collaboration to appear and persist. However, to make collaboration a systemic school-improvement mechanism, organizational clarity, sufficient resources, and strategic investment in the professional growth of teachers have to be strengthened. In the primary school setting of the Ugandan context, leadership-based collaboration with the wider institutional support is relevant in fostering adaptive, innovative and resilient schools.

5.3.7 The integration of intervening variables.

The empirical results support the conceptual framework hypothesis that transformational leadership has an impact on teacher outcomes which are through the involvement of both direct and indirect mechanisms mediated by organizational factors.

Transformational leadership also had a strong direct influence on adaptability of teachers and a relatively weak one on teacher innovation; analysis also revealed that the several organizational variables such as school culture, teacher group attitude, opportunities of professional development, policy encouragement, and availability of resources are also important determinants of teacher innovation and collaboration.

Transformational leadership is therefore not supposed to be presented on its own as a solitary factor that dictates teacher performance. Rather, the practices of leadership are synergistic with organizational conditions in instilling adaptive, innovative and

collaborative behaviors among teachers. With the condition of resource constraints in educational settings as evidenced in the case of Uganda primary school sector, the organizational aspects become more crucial in the realisation of the leadership vision into viable working practices.

5.3.8 Disaggregated TL Attributes and Collaborative Practice Analysis.

Even though the composite transformational leadership score was not statistically significant when used as a predictive variable of teacher collaboration (β* = 0.007, p = 0.291), a disaggregation of the construct into four separate attributes indicates that there is a substantively significant finding embedded in the composite model. Three of the four attributes of transformational leadership were found to be statistically significant predictors of teacher collaboration as shown in Table 25, namely Inspirational Motivation (β* = 0.210, p =< 0.001), Individualized Consideration (β* = 0.192, p = 0.001) and Idealized Influence (β* = 0.156, p =.003) but Intellectual Stimulation did not (β* = 0.045, p = 0.394). The four-attribute model as a whole blooded 28.5 percent of variation in teacher collaboration (Adj. R^2 = 0.285, F = 71.12, p = 0.001) a sizable enhancement compared to the insignificant result of the composite model.

This trend has got a lot of theoretical implications. The strong prevalence of Inspirational Motivation implies that the ability of the leader to communicate a strong mutual vision to create a sense of purpose, towards which the teachers willingly gravitate - is what best triggers collaborative behavior, which aligns with the suggestion by Bass and Avolio (1994) that a common vision creates a sense of purpose and promotes dependence. Individualized Consideration is another reason why the idea of

Individualized consideration confirms the fact that when teachers feel that their leaders are interested in their own individualistic professional needs, they are more inclined to engage in the relational vulnerability that protracted collaboration requires (Leithwood and Jantzi, 2005).

Importantly, the lack of significance of the composite TL score in the initial model can be attributed to the suppression effect of the Intellectual Stimulation ($\beta^* = 0.045$, $p = 0.394$), whose average inclusion into the composite waters out the actual signal that the other three attributes carry. This result is relevant to the methodological significance of testing the individual sub-dimensions of transformational leadership and not as an undifferentiated composite, and implies that future instrumentation of TL in collaboration schools should emphasize vision-articulation and relational support behaviors to a greater degree.

5.4 Theoretical and Practical Integration

5.4.1 Theoretical Integration

The current study supports the relevance of the Transformational Leadership Theory in education systems facing a situation of limited resources. The teachers who rated their headteachers as visionary, ethical, intellectually stimulating and to be empathetic also exhibited increased adaptability, innovation, as well as collaborative abilities. The findings are the extension of the Full Range Leadership Model introduced by Bass and Avolio (1994) which proves that it is applicable in the primary school setting of African countries.

Moreover, the results of the conducted empirical study support the Adaptive Performance Theory by showing that behavioral Leadership acts as an environmental stimulus of adaptability and innovativeness. Transformational headteachers also facilitate agile learning and reflective thinking, which, consequently, can be converted into professional resilience (Pelgrim et al., 2022).

The analysis goes on to state that the mediating role of intellectual stimulation between leadership and innovation is that the inquiry is legitimized where individualized consideration becomes a vehicle towards teacher adaptability and emotional well-being. Taken together, these insights support the theoretical merging of leadership, adaptability and innovation in the provision of a consistent basis to be applied to school settings where resources are scarce.

5.4.2 Practical Integration

In practice, the findings indicate that the competencies of transformational leadership, i.e. idealized influence, inspirational motivation, intellectual stimulation and individualized stimulation, should be included in the preparation of the headteacher, as well as in the principles of professional development. Relational and reflective facets of management should be emphasized in leadership training in Uganda, where special attention should be paid to mentoring, collaboration, and decision-making that is based on learning.

Another aspect of the empirical evidence is the context and situation specific reforms that exemplify schools by means of decentralized decision-making process, prudent allocation of resources, and involvement of the community. Professional learning

community (PLCs) promotion is one way of institutionalizing the collaborative cultures that are generated by transformational leadership.

Finally, although transformational leadership is crucial, the results are a warning that its functions have systemic limits. Effective educational reform entails systemic associative collaboration between transformative leadership, receptive policy methods, and long-term professional learning prospects. Transformational leadership, therefore, is an enabling element in a larger input framework of institute and systemic capacity building.

The disaggregated beta coefficients that are given in Table 22, Table 23 and Table 24 offer the differentiated empirical foundation on which the emphasis on particular transformational leadership behaviors in headteacher training programs should be based in place of the generic plea of transformational leadership development with outcome-specific skill-building.

To maximize teacher adaptability in schools that need to reconfigure their practice due to continuous curriculum reforms and rebuilding their classroom practices after the pandemic, it is possible to focus training on Individualized Consideration (β* = 0.336) and Idealized Influence (β* = 0.303) behaviors. In practice, this should entail providing headteachers with coaching and mentoring skills to enable them to provide professional support in the specific situations of individual teachers, and with the character and integrity to be seen to exemplify adaptive professional behavior itself.

Inspirational Motivation (β* = 0.210) and Individualized Consideration (β* = 0.192) competencies should be part of headteacher training with regard to schools that are

predominantly interested in teacher collaboration. Headteachers must receive the training to develop and convey a common institutional vision with enough clarity and emotional appeal that it breaks the sense of departmental insularity and encourages concerted action - as well as relational practices which makes individual teachers feel visible and appreciated to extent that the real collaboration can be achieved with.

To the attribute level analysis, there is no significant predictor, indicating that no transformational leadership behavior in isolation predicts innovation in Eastern Ugandan primary schools. The organizational preconditions of innovation, which must be encountered by training programs, must thus be school culture, resource allocation and risk tolerance instead, allowing headteachers to implement a particular leadership attribute. Intellectual Stimulation, which is conceptually the closest TL attribute to innovation (Bass, 1985), gave in this case a non-significant value ($\beta^* = 0.025$, $p = 0.683$), indicating the limitation of its potential in the given situation by the structural barriers that are impossible to break with training only but a policy and resources change.

5.5 Summary of Major Findings

The analysis of the findings of the empirical study also shows that organizational and contextual influences are very important when it comes to teacher performances in the Ugandan primary school system. The school culture, opportunities of professional development, policy support, and resource provision are the variables that have huge impacts on teacher collaboration and adaptability.

The above findings indicate that transformational leadership can best be implemented in the presence of facilitating institutional settings that lead to professional learning, teamwork, and the availability of resources.

Teacher Adaptability: The findings are highly empirical and theoretical and enhance the understanding that enabling environments are created by headteachers who exhibit transformational behaviors, namely, vision sharing, mentoring, intellectual stimulation, ethical integrity, and so on, in which the teachers are able to perform professionally in spite of the limitation of available resources. All these characteristics of leadership combine to make schools become adaptive learning communities that can effectively address the current curriculum reforms and systemic pressures. The results therefore place transformational leadership as one of the drivers of change in education and an important aspect of leadership development models in the primary education system in Uganda.

Individualized consideration and intellectual stimulation were also found to have a crucial role in transformational leadership that leads to teacher adaptability. The support provided by headteachers in terms of emotional support, acknowledging the needs of different individuals, and stimulating reflective thinking enables teachers to cope with uncertainty and adapt to change with ease. The individualized consideration leads to the creation of psychological safety making the teachers not afraid to experiment with different teaching methods. Similarly, intellectual stimulation challenges teachers to either think critically and creatively about their practice and this calls them towards seeking new ways of solving problems and delivering the

curriculum. This can be in line with Adaptive Performance Theory which does not consider adaptability as a fixed individual trait but rather a moving result of responsive and reflective leadership.

Through such leadership in the Ugandan primary schools, teaching in the institutions has been supported in coping with changes in curriculum, extensive classes, and a lack of classroom materials.

When a breakdown of transformational leadership construct was performed, it was found that the two attribute-level drivers of teacher adaptability were Individualized Consideration ($\beta^* = 0.336$, $p < 0.001$) and Idealized Influence ($\beta^* = 0.303$, $p = .001$), with a secondary but significant role going to Intellectual Stimulation ($\beta^* = 0.134$, $p = 0.002$). Inspirational incentive did not reach significance ($\beta^* = 0.040$, $p = 0.362$). The relational and role-modelling aspects of transformational leadership thus contribute to the preponderation of explained variance in adaptive performance, validating that the adaptation capacity in teachers is due to be developed by means of personalised assistance and credible role model instead of goal-setting and cognitive challenge, per se.

Teacher Innovation: In the study, Transformational leadership was also found to be closely intertwined with teacher innovation. Reflective and visionary leaders challenge teachers to explore and test new pedagogies, use technology and customize teaching to the needs of different learners. Transformational headteachers encourage teachers not to see reform as a liability but as a chance to advance their professionalism. Yet, the analysis revealed that innovation in schools in Uganda is more influenced by internal

culture/motivational aspect like pride in promoting school performance and improving of institutions image rather than by external policy requirements or national reforms. This provides a rationale why cultures that appreciate creativity, experimentation and collective responsibility need to be fostered at school levels as well. Transformational leadership also triggers the environment that invites innovation, though its maintenance relies on the existence of local autonomy, trust, and collaborative learning structures of professional learning to augment teacher-led change.

At the level of attributes, no single dimension of four transformational leadership variables turned out to be a statistically significant predictor of teacher innovation Inspirational Motivation (β* = 0.051, p = 0.427), Idealized Influence (β* = 0.049, p = 0.426), Intellectual Stimulation (β* = 0.025, p = 0.683), and Individualized Consideration (β* = 0.004, p = 0.947) at the attribute level and overall became weak at significance (F = This implies that, innovation, compared to adaptability or collaboration, cannot be directly associated to a particular transformational leaders behavior in this scenario, but it is rather prone to the influence of organizational and structural moderators, including school culture, available resources, and institutional patterns of incentives.

Teacher Collaboration: The results showed that transformational leadership has a significant positive effect on the level of teacher collaboration through the establishment of trust, joint vision, and collegial commitment. The headteachers promote professional communication, ethical practices and inclusive leadership through which teachers are motivated to work in teams going beyond formal assembly sessions to meaningful professional dialogue. The inspirational motivation will assist in

uniting the teachers towards shared objectives in instruction, while the individualized consideration will enhance mutual respect and empathy among the employees. In these situations, teachers indicated that professional meetings were more frequent, dialogue was fairer and collective problem-solving was good. These actions fit the principle of collaborative professionalism in which the development of a professional is provided through the process of mutual accountability and shared inquiry. In the Ugandan case, where there is a lack of resources, teamwork is not only a method of curriculum but also a strategy of coping with providing morale and creativity. Transformational headteachers can therefore act as agents of social solidarity where cooperation drives a long-term school improvement.

Disaggregated analysis reveals that the two most powerful attributes-level predictors of teacher collaboration are Inspirational Motivation ($\beta^* = 0.210$, $p < 0.001$), and Individualized Consideration ($\beta^* = 0.192$, $p < 0.001$), but Idealized Influence is a significant predictor at a smaller magnitude ($p = 0.003$). This result solves the seemingly paradoxical situation of the insignificant composite TL score ($\beta^* = 0.007$, $p = 0.291$): the most pertinent leadership behaviors to collaboration are vision articulation, relational responsiveness, which are certain sub-elements of a larger unit and it is concealed when TL is measured as a single undifferentiated variable.

Contextual Moderators: Notwithstanding the optimistic impact of transformational leadership on the whole sample, there were some differences in the results in different geographical locations, school types, and other institutional settings. The teachers in the private and semi-autonomous schools claimed to have greater innovation and

collaboration as compared to the church-based and government-funded schools. This could be explained by the increased organizational flexibility, decentralized management and performance-oriented cultures that promote professional experimentation. In contrast, schools in rural areas were under structural constraints; access to training was lower, infrastructures were poor, and the policy was too rigid to respond to the transformational leadership. These results confirm a contextual specificity of leadership efficacy: they are productive in the surrounding of autonomy, supportive culture, and trust, but unproductive in strict bureaucratic settings. The best way to solve these contextual differences is by implementing specific interventions that will help to build capacity of institutions, decentralize decision-making processes and increase training of headteachers in the various school contexts.

Systemic Implications: Lastly, it was also found that transformational leadership is a system with broader systemic implications that dictate its overall effectiveness at the school level. Sustainable flexibility, creativity and teamwork demand institutional and policy coordination that empowers leadership-based initiatives. This means that leadership development should be supported through relevant policies, resources and professional learning programs with a coordinated role played by the ministries of education and district education offices. Absence of systemic support of leadership can make it either isolated and temporary. As such, education reforms in Uganda must be geared towards incorporating transformational leadership teachings into the leadership systems of the country, the policy of school management and as well as teacher training programs. With such entrenched adaptability, innovation, and collaboration as a system

priority, the education system can begin to transition to being self-sustaining, responsive, and resilient.

To sum it up, transformational leadership is a multidimensional and situational responsive leadership strategy that will help the Ugandan primary schools to adapt, innovate and engage in effective teamwork despite the educational reforms and systemic issues in the post. It is, however, realized to its full potential when it lies within conducive institutional and policy contexts that perpetuate steady teacher learning and development.

5.6 Operationalization of the Conceptual Framework in an Empirical Way.

The study conceptual framework holds that the practices of transformational leadership have an influence on the teacher adaptability, innovation, and collaboration through various organization and context-based mechanisms. Although the framework provided these relationships as conceptual, the empirical analysis provided in Chapter four converts these constructs into variables and incident statistics.

In particular, transformational leadership will be considered as the independent variable, and the adaptability of teachers, teacher innovation, and teacher collaboration will be analyzed as the dependent outcomes. Also, a number of intervening organizational variables were included in the study to examine the process of how leadership practices influence teacher behavior.

Such intervening variables include school culture and staff organise, teacher group attitude, teacher professional identity, professional development opportunities, policy and institutional support and availability of resources. By including these factors, the

study was in a position to establish whether organizational conditions mediate or enhance the effect of leadership on the outcomes of teachers.

The regression analysis also allows control of a range of contextual characteristics to the extent that they are the right type of school, of geographical location and teacher characteristics. Such an analytical approach will ensure that the statistical models will be consistent with the theoretical assumptions presented in the conceptual framework.

The dependency between the conceptual structure and the empirical model used in the analysis is summarised in table 22.

Table 26: The Empirical Models variables of the Conceptual Framework

Conceptual Category	**Variable in Conceptual Framework**	**Empirical Measure Used in Analysis**	**Role in Regression Models**
Independent Variable	Transformational Leadership	TL Score	Main predictor
Outcome Variable	Teacher Adaptability	Adaptability Score	Dependent variable
	Teacher Innovation	Innovation Score	
	Teacher Collaboration	Collaboration Score	
Intervening Variable	School Culture and Staff Dynamics	School Culture Score	Organizational predictor
	Teacher Group Attitude	Teacher-Group Attitude Score	
	Teacher Professional Identity	Teacher Professional Identity Score	
	Professional Development Opportunities	Professional Development Score	
	Policy and Institutional Support	Policy Support Score	
	Availability of Resources	Resources Score	
Contextual Variables	School ownership / foundation	School foundation categories	Control variables
	School location	Urban / Rural / Semi-urban	
	Teacher characteristics	Tenure / education level	

Source: Primary Data

Combining the conceptual framework with the empirical research yields a comprehensive view of the role played by transformational leadership regarding

teacher outcomes in the Ugandan primary schools. It turned out that the leadership behavior can be regarded as the independent factor contributing to teacher adaptability and innovativeness; at the same time, it was found out that organizational factors, such as school culture, professional development opportunities, policy support, and access to resources, play a substantial role in collaborating and innovative teacher behaviors.

The next chapter outlines the conclusions and recommendations based on these findings and shows the conceptual synthesis of the study Transformational Leadership-Teacher Adaptability, Innovation and Collaboration (TTAIC) model of school leadership.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.0 Transitional Introduction

This chapter includes the conclusion and recommendations based on the research article entitled as Transformational Leadership Influence on Teacher Adaptability, Innovation, and Collaboration in Primary Schools in Eastern Uganda. It generalizes the main conclusions presented in Chapter Five and transforms them into practical implications to the policymakers, school leaders, teacher training institutions, and researchers. The conclusions underline the main significance of transformational leadership as the driver of teachers' adaptiveness, innovation and collaboration, especially in the school setting with limited resources. The chapter also defines and explains the Transformational leadership-Teacher Adaptability, Innovation and Collaboration (TTAIC) Model that consists of empirical and theoretical results that are combined in a holistic approach to school leadership and professional development.

6.1 Conclusion

It is concluded in the study that transformational leadership (TL) has a strong and multiplex impact on teacher performance outcomes, which are adaptability, innovation and collaboration. Headteachers nurture professional development and enjoyment within the institutions by encouraging a sense of moral vision, intellectual chagrin, personalized care and participatory motivation. The results support the applicability of Bass and Avolio (1994) Full Range Leadership Model and the theory of Adaptive Performance (Pulakos et al., 2000) to the framework of Ugandan primary education and reveal that transformational leadership can help teachers to operate in conditions of uncertainty, embrace change, and build new pedagogical solutions collaboratively.

Still, the research shows that transformational leadership depends on systemic and contextual factors in order to be effective. The components that enhance the influence of transformational leadership are institutional autonomy, sufficient resources, and an enabling policy framework, whereas the components that reduce it are; bureaucratic inflexibility and unfair resource distribution. Therefore, a sustainable school improvement must have its leaders who are competent and structural conditions that enable it to be improved. Transformational leadership is therefore relational rather than systemic in nature, a phenomenon that can flourish effectively when it is associated to collaborative cultures, reflective practice and equitable policy support.

6.1.1 Transformational Leadership and Teacher Adaptability

The study finds that, transformational leadership has a significant albeit not exclusive effect over outcomes of teacher performance- namely adaptability, innovation and collaboration. The teachers develop the aspect of professional growth, strength, and community involvement due to the moral vision, intellectual stimulation, individual consideration, and participatory motivation of the headteachers. The results confirm the applicability of Full Range Leadership Model and Adaptive Performance Theory of Bass and Avolio (1994) to the Ugandan primary school setting and demonstrate that a transformational leader can be helpful in empowering the capacity of teachers to react positively to change, uncertainty, and the changing instructional needs.

Simultaneously, the research indicates that the transformational leadership success depends on the larger systemic and contextual circumstances. Leadership can be increased by institutional autonomy, access to resources and friendly policy environment whereas it can be held back by bureaucratic inflexibility, immature infrastructure and unequal distribution of resources. As a result, school improvement is not only sustainable based on competent leadership but also on empowering

structural conditions. Transformational leadership comes out inherently as relational and cultural, but not strictly structural, and best exists within collaborative cultures, through reflective practice, and supportive governance structures.

Empirical findings prove that the transformational leadership has a significant impact on teacher adaptability fortification. Teachers who perceived their principals as encouraging, future-oriented and cognitively challenging exuded greater dynamics in adapting to curriculum changes, diverse student populations and teacher ambiguities. Individualized consideration was found to improve emotional security and self-confidence, whereas critical reasoning and adaptive problem-solving were fostered through the provision of intellectual stimulation.

These conclusions suggest that adaptability is not an individual characteristic that has been set in stone but a social work or occupational ability that is developed in enabling ecosystems of leadership. Through mentoring, motivating, and empowering, transformational principals create adaptive dispositions which enable the teachers to work effectively under any unstable educational setting. However, it is also shown that the reinforcement of adaptability takes place due to the constant exposure to the innovative process and to the collaborative practice, and the connections between leadership, organizational culture, and professional learning are interdependent.

6.1.2 Transformational Leadership and Teacher Innovation

Transformational leadership was found to be a statistically significant predictor of teacher innovation, notwithstanding that innovation that traversed schools was largely low to moderate intensity. Headteachers who made a clear mental image and promoted intellectual exploration created climates that were supportive of imagination, research and development of their practice. In that regard, teachers were more willing to

introduce new instructional methods, revise assessment practice, and revise teaching methods based on the new needs.

However, the results show that innovation is more motivated by the within school factors or, more precisely, by the pride in institutions, reputation issues, and conformity to norms, than it is influenced by policy requirements or systemic forces. This highlights the fact that innovation is cultural and situational with transformational leadership acting as an agent of initiating and sustaining innovative behavior as opposed to being a pure determinant. Sustainable innovation is thus reliant on the alignment of the leadership practice with internal motivation, organizational structure and sufficient material support.

6.1.3 Transformational Leadership and Teacher Collaboration

The empirical study shows that there is statistically significant positive correlation between transformational leadership and teacher collaboration. However, such association was relatively weak compared to the interrelations with adaptability and innovation. Transformational headteachers created trust, common cause, transparent tiers of communication and hence created an atmosphere, which encouraged teacher cooperation towards collective teaching goals.

The inspirational motivation was used to drive the teachers towards an equal vision, but intellectual stimulation was used to create dialogue, team problem-solving, and introspection. Individualized consideration also promoted inclusivity and respecting each other. These findings, however, revealed unequal levels of collaboration: structural collaboration, as defined by frequent attendance at meetings, was most prevalent and commonly developed in schools, whereas relational collaboration, i.e., equal engagement, trust and reflective conversation were not as commonly fostered.

The outcomes of these findings demonstrate the cardinal importance of purposeful facilitation, shared leadership and effective conflict management in transforming procedural collaboration into the substantive professional interaction. Without these factors, team-based practices can still be superficial and thus they cannot lead to long term professional learning and innovation.

6.1.4 Contextual Moderators

Transformational leaders had different influences in schools. Adaptability, innovation, and collaboration were more common in teachers in the private and semi-autonomous schools than the government funded and church found schools. These variations were linked to a higher level of institutional independence, flexibility of leadership and availability of resources.

On the other hand, schools with rural backgrounds and resource-limited environments also had structural constraints, which diminished the effectiveness of leadership practices. These results stress the significance of contextual sensitivity that shows that transformational leadership cannot work outside material conditions and environments of policies. The effectiveness of leadership has to be reinforced by equity-based policy, decentralization and professional development models (in response to various institutional realities).

6.1.5 Systemic Implications

Under the systemic paradigm, the current research confirms that transformational leadership has the best effectiveness when it is provided in harmonious and affirmative institutional environment. Teacher adaptability, controlled innovation and collaboration have the outcomes of mutually enhanced effect, which are supported by continuous school based sustained professional learning and empowerment programs. In turn, educational leadership program should be aligned with the systemic changes,

which can stimulate equity of the resources, professional freedom and development of collaborative cultures.

A symbiotic nexus in terms of visionary leadership and meaningful governance is required in order to promote sustainable educational change. Only through such alignment, schools can cultivate into responsive, innovative and collaborative learning communities and thus respond to the complex demands of primary education in Uganda in adequate ways.

6.2 The TTAIC Model of School Leadership

TTAIC stands for Transformational-leadership Teacher Adaptability Innovation and Collaboration. The TTAIC model of school leadership is a model that summarizes a holistic approach that incorporates the transformational leadership behaviors with those teacher-level achievements on adaptability, innovation, and collaboration. The model is based on the current empirical results, exhibiting how the visionary, ethical, and participatory leadership practices generate teacher empowerment and professional learning that will result in sustainable changes in school performance.

In Chapter Four, it was reported that the transformational leadership had a direct effect of the adaptability and innovativeness in the teachers although the collaboration between teachers is largely dependent on organizational factors that include school culture, access to professional development, policy support, and access to resources. These organizational conditions are therefore the mediating mechanisms that are involved in the TTAIC model whereby leadership practices provide teacher outcomes.

6.2.1 Narrative of the TTAIC Model of School Leadership

Its foundation is that the core leadership of the model is transformational leadership, which includes idealized influence, inspirational motivation, intellectual stimulation,

and individualized consideration, and that transformational leadership is the main phenomenon that brings about the adaptive, innovative, and collaborative behaviors amongst the teachers.

School leaders create an ideal image of influence and inspirational motivation, which works to form an attractive vision that directs the effort of the teachers in relation to the goals of the institution. Such a sense of purpose strengthens morale and commitment and helps educators realize that their work is a part of some larger effort. Intellectual stimulation challenges the teachers mentally and the teachers will question the practice that is already in place and come up with innovative pedagogical options. At the same time, the aspect of individualized consideration fosters trust and emotional health where the teachers acknowledge their worth and they are encouraged during their career life.

These leadership practices foster the essential intermediate processes- such as those of psychological safety, reflective dialogue and professional empowerment. Taken together, these processes extend the adaptability (i.e. flexibility and resilience), innovativeness (i.e. creative pedagogy and problem-solving) and the collaboration (i.e. collective inquiry and teamwork) of teachers. These results support each other: in a flexible environment, innovation is easier; in an interdependent environment, innovation thrives; and in an interdependent environment, learning stimulates flexibility. The summation of these results eventually leads to institutional improvement, resilience and sustainability.

However, the TTAIC model of school leadership recognizes that contextual moderators, including the type of school, regional differences, policy, and availability of resources mediate the effectiveness of a transformational leadership. When the enabling

conditions embrace participatory governance, professional autonomy and constant learning, the full potential of transformational leadership will be achieved.

6.2.2 Schematic Summary of the TTAIC Model

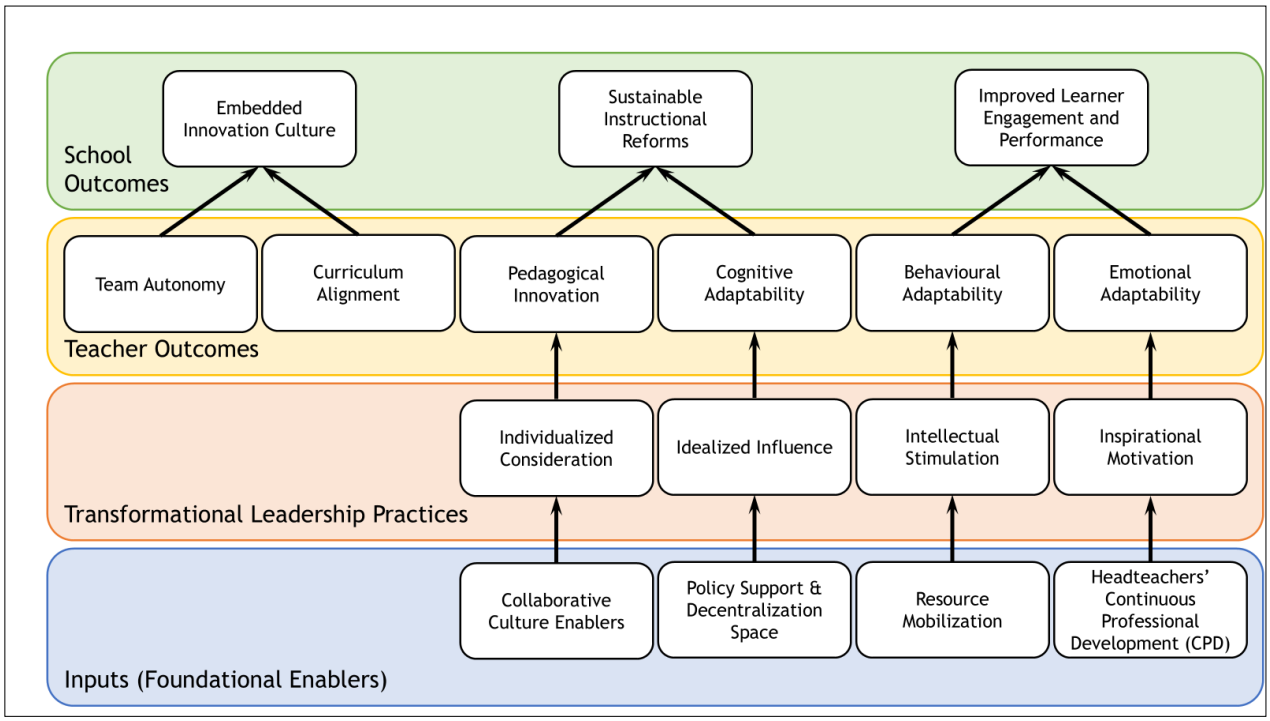


Figure 2: The TTAIC Model of School Leadership

6.2.3 Summarized TTAIC Model of School Leadership

Hereunder is the summarized version of the TTAIC Model

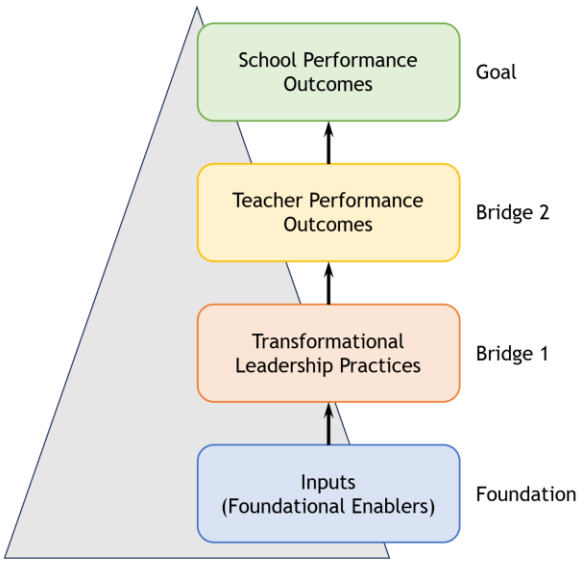


Figure 3: TTAIC Model of School Leadership (Summarized)

6.2.4 Conceptualized TTAIC Model of School leadership

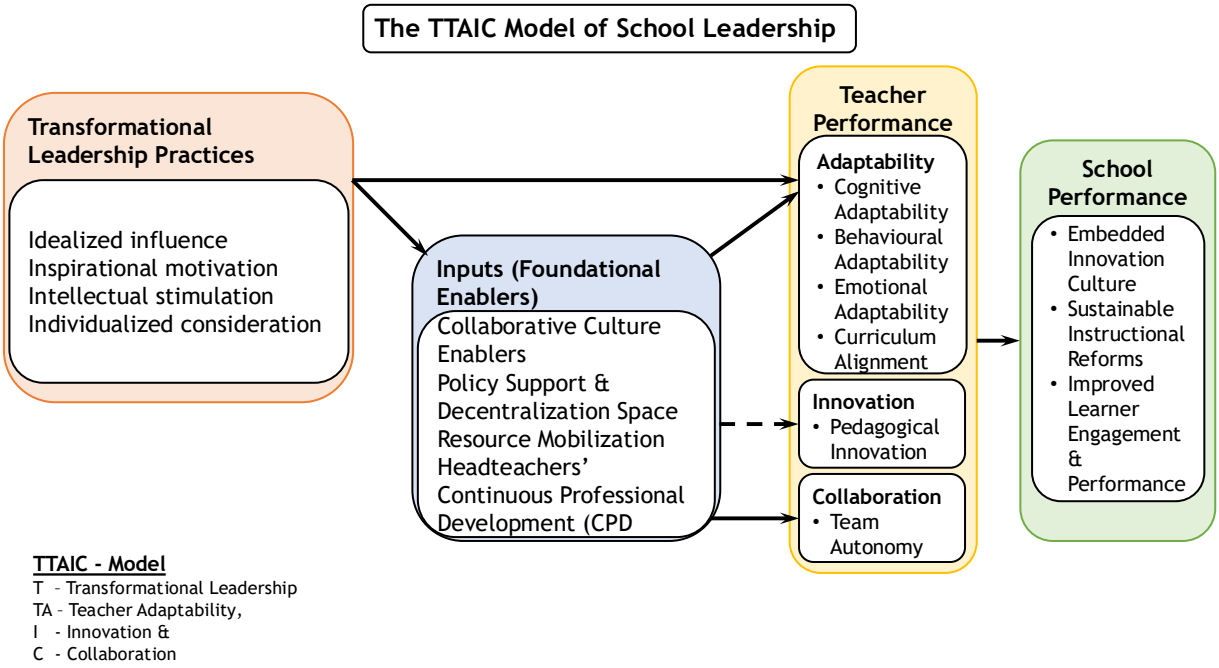


Figure 4: Conceptualized TTAIC Model of School Leadership

6.3 Recommendations

6.3.1 For Policymakers

The Ministry of Education and Sports should include transformational concepts of leadership to the national education policy so as to enable vision-based, participative, and ethics-sensitive leadership practice in all schools - significantly, placing these principles as the part of the national system. School heads can be placed in the role of being change agents, who will be able to spark professional growth and innovation among teachers. Additionally, rigorous Continuous Professional Development (CPD) programs must be introduced, which would include the modules on transformational leadership competencies, such as vision building, intellectual stimulation, and personal-mentoring. These programs should foster reflective leadership and relationship competencies that will enable principals to maneuver through the complicated education issues.

Computer-based policy reforms ought also to increase the level of school autonomy and decentralization by giving principals the freedom to implement context-sensitive decisions and innovate depending on the local need. This independence enhances effective management and receptive teaching behaviors. At the same time, policies should promote resource equity in the schools by focusing on specific needs and infrastructural facilities to the rural and faith-based institutions. A fair distribution of the resources will help in cementing the effectiveness of leadership and develop an enabling climate where the transformational leadership will be able to flourish countrywide.

6.3.2 For Headteachers and School Leaders

Transformational behaviors should be exemplified by the headteachers in their integrity, empathy, and visionary leadership that causes the teachers to be motivated towards achieving a common goal. With these values, the headteachers will be able to attain a favorable environment in the school where teachers feel empowered, trusted, and professionally competent. In order to have such environments sustained, headteachers ought to specifically promote collaborative cultures using professional learning communities (PLCs), peer mentoring programs and/or reflective dialogue sessions. These tactics strengthen collegial trust, encourage unremitting professional learning and institutionalize collective accountability.

Empowerment is also important in encouraging innovation. The teachers need to be given freedom of experimentation in teaching practices and their creative input should be rewarded. Meanwhile, it is essential that headteachers focus on personalized support, namely, specific guidance and emotional support, which will help the teacher excel in his/her work and gain psychological safety. By so doing, headteachers can make their schools adaptive learning communities that can manage to sustain innovations and development.

6.3.3 For Teacher Training Institutions

Institutions of higher learning charged with the responsibility of training teachers ought to take a proactive role in integrating transformational leadership in the entire system of teacher training. Leadership and reflective practice as part of teacher preparation processes should be included in pre-service and in-service programs in a systematic way. This kind of integration will ensure that the potential teachers who would take these learning programs will have the skills needed to spearhead learning programs and respond to emerging challenges. Besides, mentorship networks linking experienced leaders of schools on one hand with novice headteachers and teachers on the other hand must be established to bring continuity in leadership as well as to offer continuous professional teamwork advice.

Universities should also set up research and innovation centers that would develop partnerships between higher education and schooling, thus, commencing shared exploration based on new leadership and pedagogical paradigms. These collaborations will support the practices which are based on evidence and are likely to enhance faster spreading of new methods in the field of primary education.

6.3.4 For Future Research

Future research must conduct longitudinal evaluations of the TTAIC Model of School Leadership to determine its long-term effects on the flexibility of teachers, teacher innovation, teacher praxis, and student achievement; such studies would provide less simplified insights of the model applicability and scalability. The analogy of analysis between settings of East Africa is also justified to question the cross-cultural transference and variability based on setting. Researchers ought to also explore the interplay between transformational and digital leadership in the administration of the technology-based learning spaces, particularly in the post-pandemic education space.

Last but not least, in future studies, the metrics should go beyond teacher-based measures to question the student-based outcome, questioning how increased flexibility, innovativeness, and teamwork among teachers affect student involvement, innovativeness, and overall well-being.

6.4 Final Reflection

The research contributes significantly to the body of theoretical and empirical research on the topic of educational leadership in low-resource environments. It demonstrates the fact that transformational leadership goes beyond a purely conceptual framework by being rather a practical approach towards promoting adaptive, creative, and cooperative cultures in teaching in Ugandan primary schools. The proposed TTAIC Model of School Leadership provides a logical framework through which the operationalization of leadership principles can be planned to achieve measurable results and long-term school change.

Finally, the evidence complements the need to align the system with the leadership change. Isolated transformational leadership will not be sufficient to support teacher performance without institutional autonomy, equal distribution of resources and sustained professional growth. Once such conditions merge, transformational leadership becomes a strong instrument of education rebuilding, which enables schools to become sustainable, creative, and learner-focused communities that can face the challenges of education in the modern context.

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APPENDIX A: QUESTIONNAIRE FOR PARTICIPANTS

Multifactor Leadership Questionnaire (MLQ)

For use by ROBERT BUGWATA only. Received from Mind Garden, Inc. on July 9, 2025
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This section has statements describing the transformational leadership style of your headteacher.

Key: 1=Not at all, 2=Once in a while, 3=Sometimes,4=Fairly often, and 5=Frequently, if not always (Please TICK ONCE for each statement, and kindly ANSWER ALL questions)

	Please rate your headteacher on the following statements:	1	2	3	4	5
1.	I trust my headteacher and I am proud of him/her					
2.	My headteacher is concerned about the interests of all workers above his/her personal interests.					
3.	The headteacher inspires me to take up leadership responsibility in the school					
4.	The headteacher is my role model					
5.	He/she acts with integrity and with highly valued behaviors					
6.	He/she is self-controlled, with a high moral judgement					
7.	The headteacher talks about his/her most important values and beliefs					
8.	He/she always considers the moral and ethical consequences of his/her actions					
9.	He/she talks optimistically about the future					
10	The headteacher provides a vision of what is possible and important for the school					
11	He/she provides a vision and tasks that are possible and how to attain them					
12	He/she enhances meaning and provides positive expectations about what needs to be done					
13	The headteacher encourages innovative thinking					
14	He/she helps me think about old problems in new ways					
15	I am aware about problems in the school and I am aware of the headteacher's thoughts to help deal with these problems					
16	The headteacher has helped me work effectively in his/her absence with his/her limited involvement					
17	The headteacher is concerned about my personal developmental needs					
18	He/she helped expand and maximize my full potential at work					
19	The headteacher delegates tasks to me so that I can learn to do his/her work					
20	The headteacher provides opportunities for individual growth					

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Adaptability Scale – Domain-Specific questionnaire

1=Strongly disagree, 2=Disagree, 3=Neither disagree nor agree, 4=agree, 5=strongly agree. (Please TICK ONCE for each statement, and kindly ANSWER ALL questions)

	Please rate your headteacher on the following statements	**1**	**2**	**3**	**4**	**5**
1	With the headteacher at school, I am able to think about a number of possible options to help me in new situations.					
2	With the headteacher at school, I am able to revise the way I think about a new situation to help me through it.					
3	The headteacher supports me to adjust my thinking and expectation in a new situation at the school.					
4	The headteacher encourages me to seek out new information, helpful advice and useful resources to effectively deal with new situations at school.					
5	In uncertain situations at school, the headteacher supports me to develop new ways of going about things (for example, different ways of doing something) to help me through.					
6	When a new situation arises at school, I am able to change the way I do things if necessary.					
7	My headteacher helps me to reduce negative emotions (for example, fear) so that I can deal with uncertain situations.					
8	In case of uncertain situations in the school, I am able to minimise frustration so that I can deal with them.					
9	The headteacher has helped me to draw positive feelings and emotions (for example, enjoyment, satisfaction and motivation) when new situations arise.					
10	My headteacher has enabled me to adjust well to the following:					
11	Interaction with colleagues					
12	Integrating new technology at school					
13	New school policies and rules					
14	School working environment					
15	New national education policies (e.g the degree requirement for all primary school teachers, change in curriculum.)					
16	Changes in the mode of instruction and new teaching styles					
17	New responsibilities for me at school					
18	School timetable					
19	Integrating new knowledge in my class					

Innovation survey for teachers

1. CONTEXT ON REFORM AND INNOVATION

1.1 Please indicate if there have been major re-organizations or education reforms at the following levels in the last two years:	Yes	No	Don't know
a. One department of your school			
b. Multiple departments of the school			
c. Your whole school			
d. National level (all primary school)			

1.2. If your answer **Yes** to any item in 1.1, **Please tick**✓which of the following areas have been affected by education reforms?

a. Curriculum ☐	b. Teaching methods ☐	c. Content of the subjects ☐	d. Design and purchase of ☐ learning materials	e. Assessment methods ☐	f. Technology ☐	g. Extracurricular activities ☐

1.3. How much room does your school have to innovate in the following areas?	None	Small amount	Moderate amount	Large amount	Don't know
a. Curriculum					
b. Teaching methods					
c. Content of the subjects					
d. Design and purchase of learning materials					
e. Assessment methods					
f. Technology					
g. Extracurricular activities					

2. TYPES OF INNOVATION

2.1 In the last two years, I helped to introduce one or more innovations in the following areas: *Please select(tick) all that apply.*

a. Academic programs ☐	b. Teaching methods ☐	c. Learning environment ☐	d. Student support programs ☐	e. Assessment methods ☐	f. Technology ☐	g. Extracurricular activities ☐
Other please describe	…….....					
No new or substantially changed activities took place ☐						

2.2. I participated in the following types of innovative activities in the past two years: *Please select all that apply*	TICK
a. Introduced new practices developed by other schools	
b. Provided/purchased new materials, activities or new teaching methods	
c. New practices in the school	
d. Conducted experiments for future use in the school	
e. New assessment methods	
f. New Technology	
g. New extracurricular activities	

h. Other specify	

Innovation activities are actions taken with the intention to develop innovations.

2.3 Which of the above was your most important innovation activity in terms of changing your practices, materials, activities or teaching methods at school? _____ (insert letter)

2.4 What percentage of your innovations, implemented over the last two years, relied on the introduction of digital technology?

a. None ☐	b. Up to 25% ☐	c. 26% - 50% ☐	51% -75% ☐	Over 75% ☐	Don't know ☐

3. DRIVERS OF INNOVATION

3.1 How important were the following factors as drivers of your innovations over the last two years?	**Not important**	**Somewhat important**	**Very important**	**Don't know/not applicable**
a. The headteacher's leadership style				
b. Introduction of new digital or new technical services				
c. National policy for primary schools				
d. New priorities by the school leadership				
e. Pressure from the pupils				
f. Pressure from parents and the local community				
g. The headteacher encourages innovation and creativity				
h. The headteacher allows me to decide on the innovations in my class.				
i. Restructuring within the school				
j. A problem or crisis requiring an urgent response				
k. Need to improve your school's image, reputation and performance				
l. Budget allocation for your new innovations				
m. New responsibilities at school				
n. Other (please describe)				

1=Strongly disagree, 2=Disagree, 3=Neither disagree nor agree, 4=agree, 5=strongly agree

3.2 State your response about the following aspects in your school	1	2	3	4	5
a. The headteacher has a clear objective and action when innovations are implemented					
b. The headteacher has shared his/her vision with the staff around implementing innovations					
c. The headteacher rewards new innovations					
d. The headteacher monitors innovations at school					
e. Other leaders of the school support innovations in the school					
f. The teamwork at school has made innovations successful					

4. INFORMATION/KNOWLEDGE NETWORKS: 1=Strongly disagree, 2=Disagree, 3=Neither disagree nor agree, 4=agree, 5=strongly agree

4.1 The following sources of information have been important in innovations at your school	1	2	3	4	5
a. The headteacher					
b. Fellow teachers and colleagues					
c. Myself					
d. Pupils					
e. Parents					
f. Staff in other schools					
g. Advocacy groups and non-profit organizations					
h. Government agencies					
i. Internet					
j. Continuous professional learning					
k. Teachers' association					
Other (specify)					

5. HINDERANCES: 1=Strongly disagree, 2=Disagree, 3=Neither disagree nor agree, 4=agree, 5=strongly agree

5.1 The following have discouraged me from being innovative in my current school	1	2	3	4	5
a. The headteacher's leadership style					
b. Fellow teachers and colleagues					
c. My personal attitude					
d. Pupils					
e. Parents					
f. Staff in other schools					
g. Advocacy groups and non-profit organizations					
h. Education policies					
i. Inadequate funding					
j. Lack of exposure					
k. Limited access to technology					
l. Other leaders in the school					
m. Lack of rewards for innovations					
n. Limited opportunity for professional development					
o. The local authority					
Other (specify)					

Teacher Collaboration Assessment Survey

Please answer the following questions considering collaboration of teachers in your current school.

1=Strongly disagree, 2=Disagree, 3=Neither disagree nor agree, 4=agree, 5=strongly agree (Please TICK ONCE for each statement, and kindly ANSWER ALL questions)

	Please rate your headteacher on the following statements	1	2	3	4	5
1.	**Dialogue**					
a.	The purpose of our collaboration as teachers is to systematically improve instruction to increase student learning.					
b.	The membership of my primary teacher's team at school has the right people.					
c.	Teachers' meetings are consistently attended by ALL members.					
d.	Agenda for teacher dialogue is pre-planned, written, and accessible to all in advance of meeting.					
e.	Teachers' meetings are purposefully facilitated and there is use of protocols to structure and guide dialogue.					
f.	A thoughtful, thorough and accurate account of teachers' dialogue, decisions and intended actions is recorded.					
g.	Every member has access to current records of teachers' team dialogue, decisions and subsequent actions to be taken.					
h.	Inter-professional disagreements occur regularly – these disagreements are welcomed, openly addressed and they lead to new shared understandings.					
i.	Team members participate equally in group dialogue; there are no "dominators" in the group.					
j.	Our dialogue is consistently focused on examination of evidence related to performance and the attainment of goals.					
k.	The topic of the dialogue is focused on our instructional practices and not standard issues (e.g., school schedules, textbook purchases, fund raising, discipline, and students' family issues).					
2.	**Decision making**					
a.	My teachers' team regularly makes decisions about what instructional practices to initiate, maintain, develop, or discontinue.					
b.	All of our decisions are informed by group dialogue.					
c.	The process for making any decision is transparent and adhered to – everyone knows what the decisions are/were and how and why they were made.					

d.	The decisions we make are clearly and directly related to the improvement of instructional practice and the improvement of student learning.					
e.	The team uses a specific process for every decision it makes (e.g., consensus, majority vote or some standard decision-making structure).					
f.	Teachers as a team regularly identify specific instructional practices that they will initiate or maintain to increase student learning.					
g.	As a teacher's team, we regularly identify strategies that will change or be discontinued.					
h.	Our group regularly determines what information about instructional practice and student learning needs to be obtained.					
i.	My teachers' team regularly makes decisions about what instructional practices to initiate, maintain, develop, or discontinue.					
3.	**Action**					
a.	Each group member takes actions related to individual/team learning as a result of team decision making.					
b.	As a result of group decision making, each one of us makes meaningful (pedagogically complex) adjustments to our instructional practice.					
c.	Actions are directly related to student learning.					
d.	Each member knows what actions (related to learning) to take next at the end of the meeting.					
e.	Team member actions are coordinated and interdependent.					
f.	Each individual teacher employs specific instructional strategies that will increase student learning.					
g.	Each individual teacher discontinues less-effective strategies.					
h.	Actions that are taken after or between meetings are distributed equitably among team members (i.e., every member takes steps to improve individual or team learning).					
i.	Each member can name some aspect of instruction that we have stopped/started or changed as a result of the group decision making.					
j.	Each member of the team commits to carrying out team actions.					
4.	**Evaluation**					
a.	As a group we regularly collect and analyze quantitative data (e.g., numbers, statistics, scores) about member teaching practices.					
b.	As a group we regularly collect and analyze qualitative data (e.g., open-ended responses,					

	interviews, comments) about member teaching practices.					
c.	As a group we regularly collect and analyze quantitative data (e.g., numbers, statistics, scores) about student learning.					
d.	As a group we regularly collect and analyze qualitative data (e.g., numbers, statistics, scores) about student learning.					
e.	We observe the classroom instruction of our colleagues.					
f.	We collect information on the quality of the instruction during our observation.					
g.	We analyze data collected through peer observation of classroom instruction.					
h.	We use student performance data to evaluate the merit of our instructional practices.					
i.	We regularly share evaluation data on the effect of our instruction in our primary team.					
j.	The accomplishments of our team are publicly recognized.					
k.	Our team can accurately and thoroughly articulate and substantiate its accomplishment related to student learning over time					

6. General information

6.1 Gender

a. Male ☐
b. Female ☐

6.2 Age

a. 18-24 ☐
b. 25-34 ☐
c. 35-44 ☐
d. 45-54 ☐
e. 55-64 ☐

6.3 Work experience

a. 1month -1 year ☐
b. 2-5years ☐
c. 6-10years ☐
d. 11-20years ☐
e. 21-30years ☐
f. Above 30years ☐

6.4 School location by:

6.4.1 Region:

a. Central ☐
b. Eastern ☐
c. West Nile ☐
d. Western ☐
e. Northern ☐

6.4.2 Setting:

a. Rural ☐
b. Urban ☐
c. City ☐
d. Semi-urban ☐

6.5 School foundation

a. Church founded ☐
b. NGO founded ☐
c. Private ☐
d. Public school ☐
e. Islamic founded ☐
f. Other ☐

6.6 Which of the following best describes your current professional level of education?

a. Grade III certificate ☐
b. Grade V certificate ☐
c. Diploma ☐
d. Bachelor ☐
e. Master ☐
f. None of the above ☐

6.7 For how long have you worked as teacher in this school?.....

Thank you so much for participating in this research. All your responses will be confidentially reserved for only academic purpose.

APPENDIX B: LICENSE TO ADMINISTER THE MLQ

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Multifactor Leadership Questionnaire™

Form 5X-Short Instrument

Leader Form, Rater Form, & Scoring Guide

License to Administer

by Bruce Avolio and Bernard Bass

Published by Mind Garden, Inc.
www.mindgarden.com

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Permission Letter

mind garden

www.mindgarden.com

To Whom It May Concern,

The above-named person has made a license purchase from Mind Garden, Inc. and has permission to administer the following copyrighted instrument up to that quantity purchased:

Multifactor Leadership Questionnaire

The license holder has permission to administer the complete instrument in their research, however, only three sample items from this instrument as specified below may be included in the research write-up, thesis, or dissertation. Any other use must receive prior written permission from Mind Garden. The entire instrument form may not be included or reproduced at any time in any other published material. Please understand that disclosing more than we have authorized will compromise the integrity and value of the test.

Citation of the instrument must include the applicable copyright statement listed below.

Sample Items:
As a leader ….

I talk optimistically about the future.
I spend time teaching and coaching.
I avoid making decisions.

The person I am rating….

Talks optimistically about the future.
Spends time teaching and coaching.
Avoids making decisions

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Sincerely,

Robert Most
Mind Garden, Inc.
www.mindgarden.com

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APPENDIX C: COMMUNITY ENGAGEMENT PLAN

Research study entitled:

No.	Name of Investigator	Designation	Address/Telephone/Email	Institution of Affiliation
1.	Bugwata Robert	Principal Investigator	0774092902 / bugwatro@yahoo.com	UCU
2.	Dr. Masagazi Joel Yawe Dr Wilson Eduan	Co-investigator/ Academic supervisor	0772834748 0776661613	UCU

1. Goal and objectives

The primary goal of this community engagement plan is to ensure ethical, inclusive, and reciprocal collaboration with stakeholders in Uganda's primary education sector. The objectives are to:

- Facilitate awareness of the study among key educational stakeholders.
- Promote mutual understanding and ownership of the research process.
- Enable access to rich, context-specific data through stakeholder support and participation.
- Translate research insights into actionable strategies for leadership development within schools.

2. Community Consultation

Initial consultation will be undertaken with district education officers, headteachers, teacher association representatives, and selected parent groups to introduce the study's aims, scope, and potential benefits. These dialogues will inform the methodological approach, promote transparency, and foster trust. Feedback gathered will be used to refine data collection tools to suit the local context and stakeholder expectations.

3. Sensitization and Education

Sensitization and education activities will be conducted prior to data collection to inform participants about the study's purpose, significance, ethical considerations, and expected outcomes. These activities will target headteachers, teachers, district education officers, and school management committees. Emphasis will be placed on building an understanding of transformational leadership and its relevance to adaptability and innovation in educational settings. Interactive sessions, including presentations and printed briefs in local languages where necessary, will be used to ensure informed and voluntary participation. These efforts aim to dispel misconceptions, promote trust, and foster a shared commitment to the research goals.

4. Capacity strengthening

The research process will include opportunities for capacity enhancement, particularly for participating school administrators and teachers. Workshops and briefing sessions will focus on concepts such as transformational leadership, adaptability, and innovation in education. These engagements will not only inform participants but also equip them with knowledge that may be applied to improve pedagogical leadership and school management practices.

5. Community participation and involvement

The study will adopt a participatory approach by involving headteachers, teachers, and education officers in the co-creation of knowledge. Their roles will extend beyond respondents to include guiding contextual interpretation of data, validating emerging findings, and contributing to discussions on educational leadership policy implications. This participatory involvement will enhance the relevance and application of the study's outcomes.

6. Community empowerment

Empowerment will be promoted by sharing research findings with stakeholders in accessible formats and through interactive dissemination forums. These sessions will highlight practical implications of transformational leadership for enhancing teacher adaptability and innovation. By involving stakeholders in the interpretation of findings, the study will strengthen local capacities to implement informed, sustainable leadership practices.

7. Research evaluation

Ongoing evaluation of community engagement strategies will be integrated into the study through periodic feedback mechanisms. This includes feedback forms after consultation sessions and focus group debriefs. The evaluation will assess the extent of stakeholder inclusion, relevance of information shared, and responsiveness to local contexts. Adjustments will be made to enhance participation and ethical rigor throughout the research process.

8. Ethical approval

This research will be reviewed and approved by the Uganda Christian University Research Ethics Committee (UCUREC) which is overseen by the Uganda National Council for Science and Technology (UNCST), if there are any ethical or your rights related concerns, please contact UCUREC Chairperson, Prof. Peter Waiswa, 0772405357, pwaiswa@ucu.ac.ug, or UCU-REC Manager, Mr. Osborn Ahimbisibwe, 0775737627, oahimbisibwe@ucu.ac.ug. Or
UNCST: Tel; +256
414 705500/info@uncst.go.ug

APPENDIX D: RISK MANAGEMENT PLAN

Title of Study: Assessing the Influence of Transformational Leadership Practices on Teacher Adaptability, Innovation and collaboration in Primary Schools.

No.	Name of Investigator	Designation	Address/Telephone/Email	Institution of Affiliation
1.	Bugwata Robert	Principal Investigator	0774092902 / bugwatro@yahoo.com	UCU
2.	Dr. Masagazi Joel Yawe Dr Wilson Eduan	Co-investigator/ Academic supervisor	0772834748 0776661613	UCU

1. Introduction and Rationale of the Study

This study seeks to investigate the extent to which headteachers' leadership styles influence teachers' adaptability and innovation in the evolving educational environment. It is a qualitative and quantitative inquiry involving headteachers and primary school teachers across selected regions in Uganda. The rationale of the study lies in addressing critical gaps in teacher performance and leadership effectiveness in the primary education sector, which is foundational to national development.

The study poses **minimal risks** to participants, and the researcher does not anticipate any severe harm. However, as with any research involving human subjects, some risks may still emerge. These could manifest in areas related to public health exposure or psychological and social discomfort during participation.

2. Potential Risks of the Study

a) Public Health-Related Risks

i. COVID-19 Risk Management

Although the Ministry of Health has not officially declared Uganda as COVID-19 free, the virus remains a latent public health concern. The researcher will strictly adhere to national health guidelines, including wearing face masks where necessary, frequent hand sanitization, maintaining appropriate physical distance, and monitoring for updates or new protocols. All research activities will be planned with consideration for minimizing any risk of transmission.

ii. Monkeypox (Mpox) Considerations

Recent public health advisories have indicated the emergence of Monkeypox cases in Uganda. The researcher will remain vigilant, follow Ministry of Health protocols, and encourage participants and team members to observe preventive practices. If necessary, field visits may be adjusted or postponed in response to public health alerts.

3. Research-Related Risks

i. Psychological or Emotional Discomfort

Participants may experience emotional discomfort when discussing sensitive topics such as workplace challenges or leadership dynamics. To mitigate this, interviews and questionnaires will be designed to ensure psychological safety. Participants will be clearly informed about their right to skip questions or withdraw at any time without any consequences.

ii. Time and Schedule Inconveniences

Recognizing that teachers and headteachers have demanding schedules, the study will provide **flexible participation windows**. Sessions will be scheduled at times convenient for participants, ideally outside of instructional hours.

iii. Privacy and Confidentiality Concerns
All data collected will be anonymized and securely stored. The research team will be trained in ethical data handling, privacy assurance, and respectful engagement. Consent will be obtained prior to participation, with assurances of voluntary involvement and confidentiality.
iv. Impact on Social or Professional Relationships
There is a possibility that discussing leadership practices could raise concerns about professional relationships. The study will ensure that no identifying information is attributed to responses and that all findings will be reported in aggregate form. Professional counseling referrals will be made available if participants report distress.
4. Researcher and Team Safeguards
The research team will receive comprehensive training on ethical research practices, including the principles of **beneficence, respect, and justice**. Safety protocols will be enforced not only to protect participants but also to ensure the wellbeing of the researchers. This includes appropriate personal protective equipment (PPE), mental health awareness, and emergency response planning where necessary.
The researcher acknowledges and upholds the **civic responsibility** of safeguarding all involved in the study process—participants, school communities, and research staff—and will actively implement all necessary measures to uphold the highest ethical standards.

P.O. Box 4, Mukono, Uganda, Plot 67-173, Bishop Tucker Road, Mukono Hill
Tel: +256 (0) 312 350 885Email: rec@ucu.ac.ug Web: www.ucu.ac.ug
Accredited by Uganda National Council for Science & Technology

4. Whom to contact in case of ethical related concerns.

This risk management plan was reviewed and Approved by Uganda Christian University Research Ethics Committee (UCU-REC) and cleared by Uganda national Council for Science and Technology (UNCST), In case of any Ethical or your rights related concerns or inquiries, please contact UCUREC Chairperson; Prof. Peter Waiswa, 0772405357, pwaiswa@musph.ac.ug or UCUREC Manager, Mr. Osborn Ahimbisibwe, 0775737627 or oahimbisibwe@ucu.ac.ug. UNCST: Tel; +256 414 705500,info@uncst.go.ug

P.O. Box 4, Mukono, Uganda, Plot 67-173, Bishop Tucker Road, Mukono Hill
Tel: +256 (0) 312 350 885Email: rec@ucu.ac.ug Web: www.ucu.ac.ug
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APPENDIX E: INFORMED CONSENT FORM

Title of the Study

Assessing the Influence of Transformational Leadership Practices on Teacher Adaptability, Innovation and Collaboration in Primary Schools

1. Introduction and Rationale of the Study

You are invited to participate in a research study being conducted as part of a PhD program in Educational Administration and Management. The purpose of this study is to examine how headteachers' transformational leadership practices influence teachers' adaptability and innovation in the dynamic educational environment of primary schools in Uganda. Your participation will help provide valuable insights to strengthen teacher support systems and leadership development at the primary education level.

2. Description of the Research

This study will use a quantitative research design, and participants will be required to complete a structured questionnaire. The questionnaire will capture information on leadership behaviors exhibited by headteachers and how these relate to teacher adaptability, innovation, and collaboration. Teachers from selected primary schools in the Eastern region of Uganda will be invited to participate. No interviews, focus groups, or other qualitative techniques will be used.

3. Participation

Participation will involve filling out a questionnaire, which will take approximately 30–45 minutes**.** The questions will relate to your experiences with leadership at your school and your professional practices as a teacher. The questionnaire will be administered during a scheduled visit to your school or via an approved digital platform, depending on accessibility and convenience.

4. Potential Risks and Discomforts

This study involves minimal risk to participants. However, as with any research, potential discomfort may arise from reflecting on professional experiences or completing the questionnaire under time constraints. Public health-related risks such as COVID-19 or Mpox will be mitigated through adherence to national health guidelines during any in-person engagements.

5. Potential Benefits

While you may not receive any direct benefits, your responses will contribute to research that aims to improve leadership practices and teacher support mechanisms in Uganda's primary education system. The findings may inform policy, school administration, and professional development initiatives.

6. Confidentiality

All information provided will be kept strictly confidential**.** No identifying information will be recorded on the questionnaire. Data will be aggregated and stored in a secure, password-protected system. Results will be reported in a manner that ensures no individual can be identified.

7. Procedure

You will receive a printed or digital questionnaire to complete at your convenience. No names or personal identifiers will be required. You may skip any question you do not wish to answer. You may ask for clarification before or during the completion of the form.

8. Voluntary Participation

Your participation in this study is entirely voluntary. Choosing not to participate will not affect your employment, professional relationships, or access to services. You are free to ask questions at any point in the process.

9. Withdrawal from the Study and/or Withdrawal of Authorization

You have the right to withdraw at any point without giving a reason. If you withdraw after submitting your questionnaire, you may request that your data be excluded, provided it has not yet been anonymized and analyzed.

10. Reimbursements

There will be no financial reimbursement for participation. However, small items such as pens or refreshments may be provided during data collection activities as a courtesy.

11. Whom to Contact in Case of Ethical-Related Concerns

For questions about your rights as a participant or concerns regarding ethical conduct, you may contact:

Chairperson, Research Ethics Committee (REC) In case of any Ethical or your rights related concerns or inquiries, please contact UCUREC Chairperson; Prof. Peter Waiswa, 0772405357, pwaiswa@musph.ac.ug or UCUREC Manager, Mr. Osborn Ahimbisibwe, 0775737627 or oahimbisibwe@ucu.ac.ug. UNCST: Tel; +256 414 705500, info@uncst.go.ug

12. Prior Ethical Approvals and Permissions

This study will be received approval from the Uganda Christian University Research Ethics Committee (UCU-REC), and will further be registered with the Uganda National Council for Science and Technology (UNCST).

13. Local Authorities and Approvals

Permission to conduct the research will be obtained from the relevant **District Education Officers**, **headteachers**, and other local authorities within the selected districts in Eastern Uganda. All procedures will align with local administrative and ethical protocols.

14. Statement of Consent

By signing below, you confirm that: You have read and understood the purpose and procedures of this study. You have had an opportunity to ask questions and received satisfactory answers. You voluntarily agree to complete the questionnaire as part of this study.

Participant's Name (Printed): _____

Signature: _____

Date: _____

Researcher's Name: _____

Signature: _____

Date: _____

APPENDIX F: PROPOSED WORK-PLAN

No	Activity	Time schedule
1.	Topic Submission and Approval	January 2024
2.	Proposal writing	February-April, 2024
3.	Proposal submission (1st draft)	May, 2024
4.	Editing and Submission of 2nd & 3rd draft	June-October, 2024
5.	Final proposal Submission	November, 2024
6.	Seeking Ethical Approval (UCUREC and UNCST)	March - April 2025
7.	Field work –data collection and Analysis	April - May, 2025
8.	First Draft dissertation	June - August, 2025
9.	Second and Final Draft Dissertation	Sept - Dec, 2025
1.	Submission for Internal and External examination	Jan - April, 2026

APPENDIX G: ETHICAL CLEARANCE APPROVAL (UCUREC)

UGANDA CHRISTIAN UNIVERSITY
A Centre of Excellence in the Heart of Africa

21/06/2025

To: ROBERT BUGWATA

0

Type: Initial Review

Re: UCUREC-2025-1756: Assessing the influence of Transformational Leadership Practices on Teacher Adaptability and Innovation in primary schools

I am pleased to inform you that the Uganda Christian University REC, through expedited review held on **19/06/2025** approved the above referenced study.
Approval of the research is for the period of **21/06/2025** to **21/06/2026.**

As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and addenda to the protocol or the consent form must be submitted to the REC for re-review and approval **prior** to the activation of the changes.
3. Reports of unanticipated problems involving risks to participants or any new information which could change the risk benefit: ratio must be submitted to the REC.
4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by participants and/or witnesses should be retained on file. The REC may conduct audits of all study records, and consent documentation may be part of such audits.
5. Continuing review application must be submitted to the REC **eight weeks** prior to the expiration date of **21/06/2026** in order to continue the study beyond the approved period. Failure to submit a continuing review application in a timely fashion may result in suspension or termination of the study.
6. The REC application number assigned to the research should be cited in any correspondence with the REC of record.
7. You are required to register the research protocol with the Uganda National Council for Science and Technology (UNCST) for final clearance to undertake the study in Uganda.

The following is the list of all documents approved in this application by Uganda Christian University REC:

No.	Document Title	Language	Version Number	Version Date
1	CVs of the investigators	English	1	2025-06-07
2	Community Engagement plan	English	1	2025--07
3	COVID-19 & EBOLA risk management plan	English	1	2025-06-07
4	Informed Consent forms		1	2025--07
5	Data collection tools	English	1	2025-06-07
6	Protocol	English	1	2025-06-07

Yours Sincerely

Prof. Peter Waiswa
For: Uganda Christian University REC

UGANDA CHRISTIAN UNIVERSITY
A Centre of Excellence in the Heart of Africa

Office of the Vice Chancellor
Research Ethics Committee UG-026

20th October, 2025

ROBERT BUGWATA,
Uganda Christian University
+256 774 092902,
Email: bugwatro@yahoo.com

UG-REC-026 LETTER OF AMENDMENT NOTICE

To: Robert Bugwata, Principal Investigator

Re: UCUREC Application titled: *Assessing the influence of Transformational Leadership Practices on Teacher Adaptability and Innovation in primary schools* **To** *Assessing the influence of Transformational Leadership Practices on Teacher Adaptability, Collaboration and Innovation in primary schools*

Application Number: **UCU REC-2025-1756**
Version: 4.0

UGANDA CHRISTIAN UNIVERSITY APPROVED UNTIL 21 JUN 2026 RESEARCH ETHICS COMMITTEE

Type: [ ] **LETTER OF AMENDMENT (LOA)**
[ ] Initial Review
[ ] Protocol Amendment
[ ] Continuing Review
[ ] Material Transfer Agreement
[ ] Other, Specify:

I am pleased to inform you that the **UG-REC-026;** UCUREC has accepted to amend the above referenced application.
The amendment is valid with the initial approval of the research which is from **21st June, 2025,** to **21st June, 2026.**

This research is considered minimal risk category.
As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and additions to the protocol or the consent form must be submitted to the REC for re-review and approval **prior** to the activation of the changes. The REC application number assigned to the research should be cited in any correspondences
3. Reports of unanticipated problems involving risks to participants or other must be submitted to the REC. New information that becomes available which could change the risk: benefit ratio must be submitted promptly for REC review.

P.O. Box 4, Mukono, Uganda, Plot 67-173, Bishop Tucker Road, Mukono Hill
Tel: +256 (0) 312 350 885 Fax: +256 (0) 4142 90 800 Email: rec@ucu.ac.ug Web: www.ucu.ac.ug
UCUREC is accredited by Uganda National Council for Science & Technology, FDA, and National Institutes for Health of the United States of America

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Office of the Vice Chancellor
Research Ethics Committee UG-026

4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by subjects and/or witnesses should be retained on file. The REC may conduct audits of all study records, and consent documentation may be part of such audits

5. Regulations require review of an approved study not less than once per 12-month period. **Therefore, a continuing review application must be submitted to the REC eight weeks prior to the above expiration date of 21st June, 2026 in order to continue the study beyond the approved period.** Failure to submit a continuing review application in a timely fashion may result in suspension or termination of the study, at which point new participants may not be enrolled and currently enrolled participants must be taken off the study.
6. The REC application number assigned to the research should be cited in any correspondence with the REC of record.
7. You are required to register the research protocol with the Uganda National Council for Science and Technology (UNCST) for final clearance to undertake the study in Uganda.

The following is the list of all documents approved in this application by **UG-REC _026:**

	Document Title	Language	Version	Version Date
1.	Research Proposal	English	1.0	2025-06-07
2.	Data Collection Tools	English	1.0	2025-06-07
3	Informed consent forms	English	1.0	2025-06-07
4	CVs for Investigators	English	1.0	2025-06-07
5	Community Engagement plan	English	1.0	2025-06-07
6	Risk Management Plan	English	1.0	2025-06-07

Signed and Stamped

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Prof. Peter Waiswa.
UCUREC Chairperson,
pwaiswa@musph.ac.ug

UGANDA CHRISTIAN UNIVERSITY APPROVED UNTIL 21 JUN 2026 RESEARCH ETHICS COMMITTEE

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APPENDIX H: UNCST APPROVAL

Uganda National Council for Science and Technology

(Established by Act of Parliament of the Republic of Uganda)

Our Ref: SS4052ES **8 August 2025**

ROBERT BUGWATA
Uganda Christian University
Mukono

Re: Research Approval: **Assessing the influence of Transformational Leadership Practices on Teacher Adaptability and Innovation in primary schools**

I am pleased to inform you that on **08/08/2025**, the Uganda National Council for Science and Technology (UNCST) approved the above referenced research project. The Approval of the research project is for the period of **08/08/2025** to **08/08/2026**.

Your research registration number with the UNCST is **SS4052ES**. Please, cite this number in all your future correspondences with UNCST in respect of the above research project. As the Principal Investigator of the research project, you are responsible for fulfilling the following requirements of approval:

1. Keeping all co-investigators informed of the status of the research.
2. Submitting all changes, amendments, and addenda to the research protocol or the consent form (where applicable) to the designated Research Ethics Committee (REC) or Lead Agency for re-review and approval **prior** to the activation of the changes. UNCST must be notified of the approved changes within five working days.
3. For clinical trials, all serious adverse events must be reported promptly to the designated local REC for review with copies to the National Drug Authority and a notification to the UNCST.
4. Unanticipated problems involving risks to research participants or other must be reported promptly to the UNCST. New information that becomes available which could change the risk/benefit ratio must be submitted promptly for UNCST notification after review by the REC.
5. Only approved study procedures are to be implemented. The UNCST may conduct impromptu audits of all study records.
6. An annual progress report and approval letter of continuation from the REC must be submitted electronically to UNCST. Failure to do so may result in termination of the research project.

Please note that this approval includes all study related tools submitted as part of the application as shown below:

No.	Document Title	Language	Version Number	Version Date
1	Community Engagement plan	English	1	
2	COVID-19 & EBOLA risk management plan	English	1	07 June 2025
3	Informed Consent forms	English	1	
4	Data collection tools	English	1	07 June 2025
5	Project Proposal	English	1	
6	Approval Letter	English		
7	Administrative Clearance	English		

Yours sincerely,

Dr. Christopher Ddamulira
For: Executive Secretary
UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

APPENDIX I: KAPCHORWA DISTRICT ADMINISTRATIVE CLEARANCE

kapchorwamc@gmail.com

Alternative Communication routes
Town Clerk: 0772903541
Town Treasurer..... 0782 037 471
PEO.....0776 882 287
In any correspondence on this

KAPCHORWA DISTRICT LOCAL GOVERNMENT
OFFICE OF THE TOWN CLERK
P.O BOX 36

KAPCHORWA

Date 25th July 2025

THE EXECUTIVE SECRETARY
UGANDA NATIONAL COUNCIL OF SCIENCE AND TECHNOLOGY
KAMPALA, UGANDA

Dear Sir/Madam

RE: ADMINISTRATIVE CLEARANCE FOR ACADEMIC RESEARCH BY ROBERT BUGWATA AS THE PRINCIPAL INVESTIGATOR IN KAPCHORWA

I hereby write to confirm that **ROBERT BUGWATA UCUREC-2025-1756**, PhD student in Education Administration and Management at Uganda Christian University has been permitted by my office to collect data from primary school teachers and headteachers in Kapchorwa Municipality for academic research on the topic: **"Assessing the influence of Transformational Leadership Practices on Teacher Adaptability and Innovation in primary schools".** This study will be of great use for effective leadership and management of our institutions of learning.

I therefore recommend him for a research permit from your office.

Yours faithfully

KAPCHORWA MUNICIPAL COUNCIL
25 JUL 2025
P. O. BOX 36, KAPCHORWA
FOR TOWN CLERK

KUYET YOLAM

DEPUTY TOWN CLERK

KAPCHORWA MUNICIPALITY

Cc: Principal Education Officer

Cc: File

KAPCHORWA DISTRICT LOCAL GOVERNMENT
EDUCATION DEPARTMENT
P.O BOX 2

KAPCHORWA

Date 24th July 2025

THE EXECUTIVE SECRETARY
UGANDA NATIONAL COUNCIL OF SCIENCE AND TECHNOLOGY
KAMPALA, UGANDA

Dear Sir/Madam

RE: ADMINISTRATIVE CLEARANCE FOR ACADEMIC RESEARCH BY ROBERT BUGWATA AS THE PRINCIPAL INVESTIGATOR IN KAPCHORWA

I hereby write to confirm that **ROBERT BUGWATA UCUREC-2025-1756**, PhD student in Education Administration and Management at Uganda Christian University has been permitted by my office to collect data from primary school teachers and headteachers in Kapchorwa District for academic research on the topic: **"Assessing the influence of Transformational Leadership Practices on Teacher Adaptability and Innovation in primary schools".** This study will be of great use for effective leadership and management of our institutions of learning.

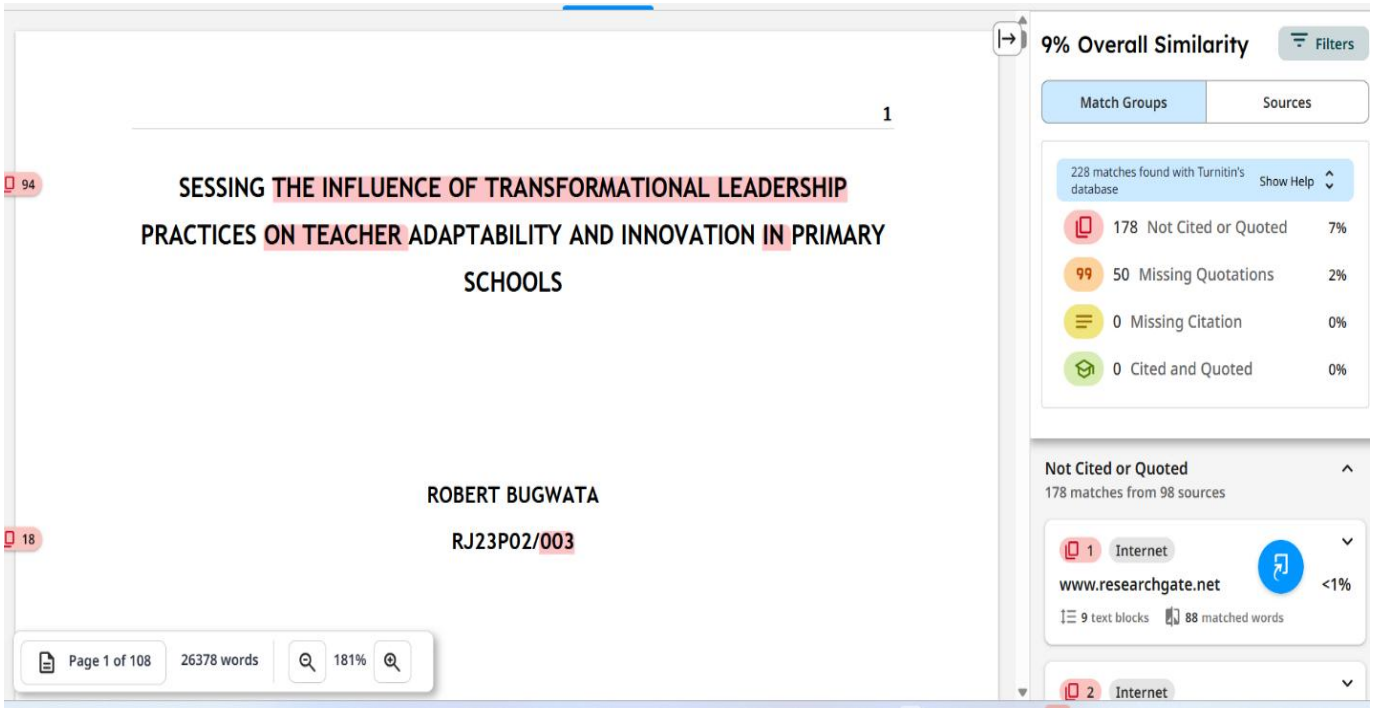
I hereby recommend him for a research permit from your office such that he can start collecting data.

Yours faithfully

25/7/25

DISTRICT EDUCATION OFFICER
KAPCHORWA

KWEKO OWEN CHEBET
DISTRICT
EDUCATION OFFICER

KAPCHORWA DISTRICT

APPENDIX J: TURNITIN SIMILARITY REPORT