

Hands-on learning and Students' Community Engagement Practices: A Case of Secondary
Schools in Gulu city, Uganda

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Declaration

I, Oyella Gloria, declare that this dissertation titled “Hands-on Learning and Students’ Community Engagement Practices: A case of Secondary Schools in Gulu City, Uganda” is my original work and has not been submitted for any other academic award at any University or Institution. Any material or reproduction that is not my original work is duly acknowledged.

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Approval

This is to certify that this dissertation titled “Hands-on Learning and Students’ Community Engagement Practices: A case of Secondary Schools in Gulu City, Uganda” was written under my supervision and is now submitted for review with my approval.

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DR. JOHN BISMARCK OKUMU, (PhD)

Dedication

I dedicate this work to my beloved parents, the late William Ochola and the late Grace Oyella Atim, whose love, gave me courage during difficult circumstances.

May the Lord continue to rest their souls.

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List of Abbreviations/Acronyms

AU:	African Union
CBO:	Community Based Organizations
ELT:	Experiential Learning Theory
HOL:	Hands-on Learning
NCDC:	National Curriculum Development Centre
SCEP:	Students' Community Engagement Practices
SPSS:	Statistical Package for Social Sciences
TVET:	Technical and Vocational Education and Training
UNESCO:	United Nations Scientific and Cultural Organization
UNYC:	Uganda National Youth Council
WHO:	World Health Organization

Abstract

This study examined the relationship between hands-on learning and students' community engagement practices in secondary schools in Gulu City, Uganda. The study was guided by three objectives: to examine students' community engagement practices, to assess the state of hands-on learning activities, and to determine the relationship between hands-on learning and students' community engagement practices. The study was grounded in Kolb's Experiential Learning Theory (1984) and employed a convergent parallel mixed-methods design. A sample of 284 respondents comprising 234 students and 50 teachers was drawn from secondary schools in Gulu City. Data were collected using semi structured questionnaires and key informant interviews. Quantitative data were analyzed using descriptive statistics, Pearson correlation mean score, standard deviation, and multiple linear regression, while qualitative data were analyzed using thematic analysis. The findings revealed that students demonstrated high levels of community engagement ($\mu=4.08$, $SD=0.81$), with environmental activism ($\mu=4.22$) and volunteering ($\mu=4.23$) being the most prevalent dimensions. Hands-on learning activities showed moderate to high implementation levels (Student $\mu=3.72$, $SD=0.85$; Teacher $\mu=4.04$, $SD=0.79$), with games and sports recording the highest mean scores. Pearson correlation analysis revealed significant positive relationships between overall hands-on learning and community engagement (Student $r=0.40$, $p<0.01$; Teacher $r=0.64$, $p<0.01$). Regression analysis indicated that hands-on learning significantly predicts community engagement practices among students ($B=0.145$, $p=0.020$ from student perspective; $B=0.479$, $p<0.001$ from teacher perspective). Extraneous variables including teachers' facilitation, time constraints, school resources, and parental support influenced the relationship. The study concludes that hands-on learning activities significantly influence students' community engagement practices, but implementation is constrained by resource limitations, time pressures, and inadequate teacher training. The study recommends increased budget allocation for hands-on learning resources, structured teacher professional development, flexible curriculum implementation, and strengthened school-community partnerships.

Keywords: Hands-on Learning, Students' Community Engagement Practices, Secondary Schools, Gulu City,

CHAPTER ONE

INTRODUCTION

1.1 Overview

World over, Community engagement in education has been widely recognized as a vital force in the effort to remove barriers to achieving quality education for all (Epstein, 2018). As education systems around the world strive to meet the evolving demands of the 21st century, it is vital to sustain and expand these practices (UNESCO, 2023). Community engagement initiatives which include ideas of social change and collaboration, seek to value and use its student's knowledge in real-world situations (Waghid, 2024). Future research and policy should focus on scaling successful models, addressing systemic barriers, and ensuring that hands-on and community-based learning is accessible to all students, regardless of context (Darling-Hammond *et al.*, 2020). In doing so, we move closer to an education that is not only informed and inclusive but also deeply rooted in the communities it serves (Waghid, 2024).

This chapter includes introduction to the study, background to the study, statement of the problem, purpose of the study, objectives of the study, research questions, scope of the study, significance of the study, conceptual framework and operational definition of key terms.

1.2 Background to the Study

1.2.1 Historical Background

Historically, education systems have undergone significant transformation to align with the dynamic demands of the 21st century (OECD, 2018). There has been a marked shift toward student-centered, experiential learning approaches aimed at equipping learners with critical thinking, problem-solving, and civic engagement skills. Internationally, community engagement and hands-on learning practices such as project-based learning, service-learning, and inquiry-based learning have gained traction as powerful pedagogical tools. These approaches foster social responsibility, interdisciplinary learning, and real-world application of academic knowledge (UNESCO, 2017). Countries around the world have integrated these practices into secondary education to address global challenges, promote sustainable development, and prepare learners for increasingly complex societal roles (World Bank, 2020).

Educators in Thailand discussed the education practices that they needed to improve to align with the world of learning (Teemuangsai & Meesoo, 2017). Therefore, Thai secondary schools implemented community-based learning initiatives, enabling students to engage with local communities and develop social responsibility (Thongpermpoon & Panjaburee, 2022). Service-learning programs were introduced, allowing students to apply theoretical knowledge in real-world contexts and develop empathy (Sukkumnoed & Panjaburee, 2021). Thai educators hence adopted inquiry-based learning approaches, encouraging students to explore and discover concepts through hands-on activities (Srisawasdi & Panjaburee, 2019). STEM education was integrated into Thai secondary schools, emphasizing hands-on learning and real-world applications (Khamisri & Panjaburee, 2020).

Hamilton (2019), in a study at Massey University in New Zealand, found that project-based learning, a form of hands-on learning, increased student motivation and allowed them to apply their theoretical knowledge in an interactive environment. The study found that this method of learning enhanced students' confidence in making design decisions and improved their understanding of how engineering principles related to real-world problem solving (Hamilton, 2019). For example, in a project-based scenario, a group of students were tasked with designing an environmentally friendly, durable, and low-cost roofing material using locally available resources. This project required the students to apply their theoretical knowledge, work collaboratively, and think critically to develop solutions that meet the needs of the community (Hamilton, 2019).

In China, student community engagement practices in secondary schools were deeply influenced by traditional Confucian values, the evolution of Chinese educational policy, and the political and social changes that had occurred in the country over the past century (Chen & Li, 2019). The Chinese government placed a strong emphasis on environmental education and sustainability (Chen & Li, 2019). Many secondary schools organized volunteer programs focused on environmental protection, public health, and disaster relief (Chen & Li, 2019). Students were actively involved in initiatives such as tree planting, waste management, and organizing public health awareness campaigns (Chen & Li, 2019). A study on ethnic minority among high school students in China found that school-based social support promoted self-confidence, learning motivation, and a positive learning environment (Liu & Li, 2023). By integrating cultural practitioners, historians, and artists, students demonstrated increased motivation and involvement in cultural learning activities (Peng & Rahman, 2024).

Across sub-Saharan Africa, hands-on learning was promoted through initiatives such as the African Union's (AU) 2063 Agenda, which emphasized the importance of technical and vocational education and training (TVET) as a key driver of sustainable economic growth. This agenda advocated for the transformation of education systems to better align with the needs of the labour market, focusing on practical and hands-on learning opportunities that enhanced employability and entrepreneurship (African Union, 2015).

In Tanzania, secondary schools saw the introduction of service-learning initiatives. These programmes integrated community service with academic learning, allowing students to apply classroom knowledge to real-world problems. Service-learning projects included activities like community health education, environmental conservation, and rural development projects. This form of student engagement has become increasingly popular as it provides students with valuable hands-on experiences and encourages social responsibility (Nguvumali., 2015). Tanzania's ongoing educational reforms had also emphasized practical skills and civic responsibility. Community service was seen as a means to foster social and economic development and help address pressing issues.

Student community engagement practices in Uganda reflected the evolving educational, social, and political landscape of the country. Community engagement, particularly in the context of student involvement, was shaped by Uganda's socio-political history, development challenges, and the global trends in education. By the 2000s, Uganda began to formalize student community engagement as part of the national education curriculum. The introduction of programmes such as the Uganda National Youth Council (UNYC) and the emphasis on "hands-on" learning in schools provided more structured opportunities for students to engage with their communities. (Kivumbi & Nakato, 2016). The teaching and learning process had variety of hands-on based activities that were carried out in secondary schools across the country especially in science subjects. This was intended to prepare learners for a VUCA (Volatile, Uncertain, Complex, and Ambiguous) world, regardless of the grades they attain. Each subject topic emphasised learning outcomes with strands in the cognitive (knowledge and understanding), psychomotor (skills) and the affective (values and attitudes) to enable the learners' engagement with the community. (Hezron, 2024).

In Gulu City, the importance of community engagement has been emphasized as a means to support post-conflict recovery, where students are encouraged to engage in projects that promote social cohesion, peacebuilding, and community development (Mugisha, 2022).

1.2.2 Theoretical Background

The Theory of Experiential Learning, which was developed by David Kolb in 1984 guided this study. The theory considers the experiential learning cycle as a key principle, and the direct or actual experience is the core for reflection and thinking. Reflection and thinking are implemented and transformed into abstract concepts, providing new meaning to actions which can be actively experimented. They lead to new experience. Kolb presents the process of experiential learning as a cycle or helix where the student passes all stages: experiencing, reflection, thinking and action.

Dillon, *et al.*, (2006), applied Kolb's theory to develop an environmental education program that promoted hands-on learning experiences and community engagement. The study found that participants who engaged in experiential learning activities demonstrated increased environmental awareness and behaviour. Research by Froyd, *et al.*, (2012), applied Kolb's theory to develop a project-based learning experience for engineering students. The study found that students who participated in the experiential learning experience demonstrated improved problem-solving, critical thinking, and teamwork skills. A study by Priest, *et al.*, (2013), used Kolb's Experiential Learning Theory to design an outdoor education programme that promoted hands-on learning experiences and environmental awareness. The results showed that participants who engaged in experiential learning activities demonstrated increased environmental awareness and behaviour. Curriculture (2024) discusses how Kolb's cycle informs the development of curricula that foster holistic development by integrating active participation with reflection and theory application.

The Experiential Learning Theory states that Learning is a process of knowledge creation and knowledge is the interaction between two forms of knowledge: social knowledge constructed in the social and historical context, and personal knowledge constructed as student's subjective experience. This idea of knowledge is different from the educational model of knowledge transfer in which standard assumptions are transmitted to the learner (Kolb, 1984). This means that when learners have socially and personally experienced knowledge, they get engaged, and they can practice what they have been facilitated to do. Therefore, this study believes that if community engagement is embedded in hands-on learning and secondary school learners have experienced it, they will transfer these experiences in their communities through actively engaging in meaningful activities.

This theory was used because it enabled students' engagement into direct experiences close to real-world problems and situations, students analyze what they know, what they do not know, and how to decisions, and the theory guided the instructor (teacher) to facilitate, not direct students' progress.

Experiential learning ensures strong motivation to learn. It motivates students to reflect on their existing knowledge and make it deeper through reflection; transfer their prior learning experience to new context; acquire new ideas, principles, and skills. Eventually, these skills help students to become self-directed life-long learners.

1.2.3 Conceptual Background

Conceptually, Community engagement refers to the process of involving students in activities that address the needs of their local community, fostering a sense of social responsibility and civic engagement aligning with the idea that education should not only prepare students academically but also equip them to contribute meaningfully to society (UNESCO, 2017). These activities may include volunteering, community service, or participation in local development projects. Studies have indicated that when students engage with their communities, they develop a deeper sense of social responsibility, empathy, and leadership skills (Hsu & Wu, 2019). Community engagement initiatives which include ideas of social change and collaboration, seek to value and use its student's knowledge in real-world situations (Waghid, 2024). According Vance (2018), Community engagement, refers to the active participation of students in addressing local issues, which fosters social responsibility, teamwork, and leadership skills. Student involvement in community engagement activities positively correlates with enhanced academic performance, increased retention rates, and a deeper sense of civic responsibility (Jones & Abes, 2021). Community-based learning practices bridge the gap between theoretical knowledge and practical application, allowing students to engage directly with community issues and contribute to meaningful change (Mitchell, 2022).

In my study, students' community engagement practices refer to activities through which students participate in community-oriented initiatives and contribute to addressing community needs.

The dimensions examined included volunteering, service learning, social activism, and environmental activism (Researcher, 2026)

Hands-on learning is defined as learning by experience. For instance, students handle scientific instruments to manipulate the objects they are learning with. In other words, hands-on learning offers effective realistic, and exciting learning experiences. Most studies prove that conducting hands-on activities will lead to positive motivational outcomes in learning. Smith et al. (2020) demonstrates that hands-on learning strategies, including project-based learning and simulations, significantly improve student engagement, critical thinking, and problem-solving skills. Hands-on learning also facilitates the transfer of classroom knowledge to real-world situations, enhancing students' ability to adapt and apply their learning in diverse contexts (Brown and Green, 2023).

In this study, Hands-on learning is an approach in which learners actively participate in practical activities to develop knowledge, skills, and understanding through experience.

In my study, the activities examined included gardening, field trips, arts and crafts, games and sports, and health and wellness activities (Researcher, 2026).

1.2.4 Contextual Background

In Gulu, secondary schools have begun integrating community-focused activities into their curricula, such as engaging in local agricultural projects, environmental clean-ups, and social initiatives that aim to address issues like child welfare and sanitation hence providing opportunities for students to apply their learning (Kanyange, 2020). Students are often involved in project-based learning, where they are tasked with solving community-based problems through practical works such as agricultural projects, environmental conservation efforts, or health-related initiatives, encouraging them to take ownership of their learning while contributing to the community (Nsubuga, 2015). However, challenges such as inadequate instructional materials and limited time for group work can hinder its full implementation (Kidega *et al.*, 2024).

Through various educational policies, Uganda has developed national priorities that include training responsible and lifelong learners who are motivated to contribute to the wellbeing of themselves, their community, and the nation, and who can plan, reflect, and direct their own learning (NCDC, 2020). The Lower Secondary Curriculum, rolled out by the National

Curriculum Development Centre (NCDC) in 2020, explicitly emphasizes competence-based, hands-on learning and community engagement as core pedagogical approaches. Policy documents mandate that at least 30% of instructional time should be dedicated to practical, experiential learning activities.

1.3. Statements of Problem

Through various educational policies, Uganda has developed national priorities that include training responsible and lifelong learners who are motivated to contribute to the wellbeing of themselves, their community, and the nation, and who can plan, reflect, and direct their own learning (NCDC, 2020). The Lower Secondary Curriculum, rolled out by the National Curriculum Development Centre (NCDC) in 2020, explicitly emphasizes competence-based, hands-on learning and community engagement as core pedagogical approaches. Policy documents mandate that at least 30% of instructional time should be dedicated to practical, experiential learning activities.

Secondary schools in Gulu have implemented community engagement programs that aim to address local challenges, such as environmental degradation, health issues, and poverty (Ochieng, 2020). However, empirical evidence from Gulu City secondary schools revealed a significant implementation gap. Kidega *et al.* (2024) found that while teachers express positive attitudes toward hands-on learning, actual implementation remains limited: only 35% of lessons incorporate any hands-on activity, and structured community engagement programs exist in fewer than half of the 28 secondary schools. Okello (2020) documented that limited resources (80% of schools report inadequate materials), insufficient teacher training (only 25% of teachers have received competence-based curriculum training), and lack of structured community engagement opportunities hinder effective implementation.

The consequence of this gap is two-fold: First, students are missing opportunities to develop practical skills, civic responsibility, and lifelong learning competencies promised by the national curriculum. Secondly, schools and communities are failing to benefit from the mutual advantages of school-community partnerships that could support both educational outcomes and community development. Without empirical evidence documenting current practices and their relationships, policymakers and educators cannot make informed decisions about resource allocation, teacher training, or program development.

This study therefore sought to establish baseline data on students' community engagement practices and assessed the state of hands-on learning activities in Gulu City secondary schools to determine their relationship, thereby informing targeted interventions in this post-conflict context.

1.4 Purpose of the Study

1.4.1 General Objective

The purpose of this study was to assess the relationship between hands-on learning and students' community engagement practices in secondary schools in Gulu City, Uganda.

1.4.2 Specific Objectives

The study was guided by the following objectives:

- i. To examine the students' community engagement practices in secondary schools in Gulu City.
- ii. To assess the hands-on learning activities in secondary schools in Gulu City.
- iii. To determine the relationship between hands-on learning and students' community engagement practices in secondary schools in Gulu City.

1.5 Research Questions

- i. What are the students' community engagement practices in secondary schools in Gulu City?
- ii. What hands-on learning activities exist in secondary schools in Gulu City?
- iii. What is the relationship between hands-on learning and students' community engagement practices in secondary schools in Gulu City?

1.6 Significance of the Study

This study may provide empirical evidence on the current state of hands-on learning and community engagement in a post-conflict urban setting, enabling evidence-based policy decisions regarding resource allocation, curriculum implementation support, and teacher training priorities by the Ministry of Education and Sports.

The findings of this study may help establish baseline data for Gulu City Education Office and School Inspectors against which future progress can be measured and identify specific

schools requiring targeted support for hands-on learning or community engagement program development

The findings of this study may help School Administrators to identify which hands-on learning activities most strongly correlate with community engagement practices, enabling strategic resource allocation and program design. Specific actionable recommendations will be provided for implementing each of the five hands-on activity types.

The study may provide feedback to NCDC on the implementation of competence-based curriculum in a specific Ugandan context, highlighting gaps between policy intentions and classroom realities.

Findings regarding teacher facilitation practices and training gaps will inform pre-service and in-service training curricula for secondary school teachers in Gulu and similar contexts.

The study may identify partnership opportunities between schools and community-based organizations to support student engagement in volunteering, service learning, and environmental activism.

This study may provide a validated conceptual framework and data collection instruments for investigating hands-on learning and community engagement relationships in other Ugandan regions and comparable sub-Saharan African contexts.

1.7 Scope of the study

1.7.1 Geographical Scope

The study was conducted in Gulu City is in the Northern Region of Uganda. The coordinates of Gulu city are 2°46'54.0"N 32°17'57.0"E. Its neighbors are Gulu District to the north, Omoro District to the East, South, and Southwest, and Amuru District to the west.

1.7.2 Content Scope

This study focused on community engagement practices (volunteering, service learning, social activism, environmental activism) and secondary school based hands-on learning activities (gardening, field trip, arts and craft, games and sports and health and wellness) in secondary schools. It further focused on extra venous variable (teacher's facilitation, school

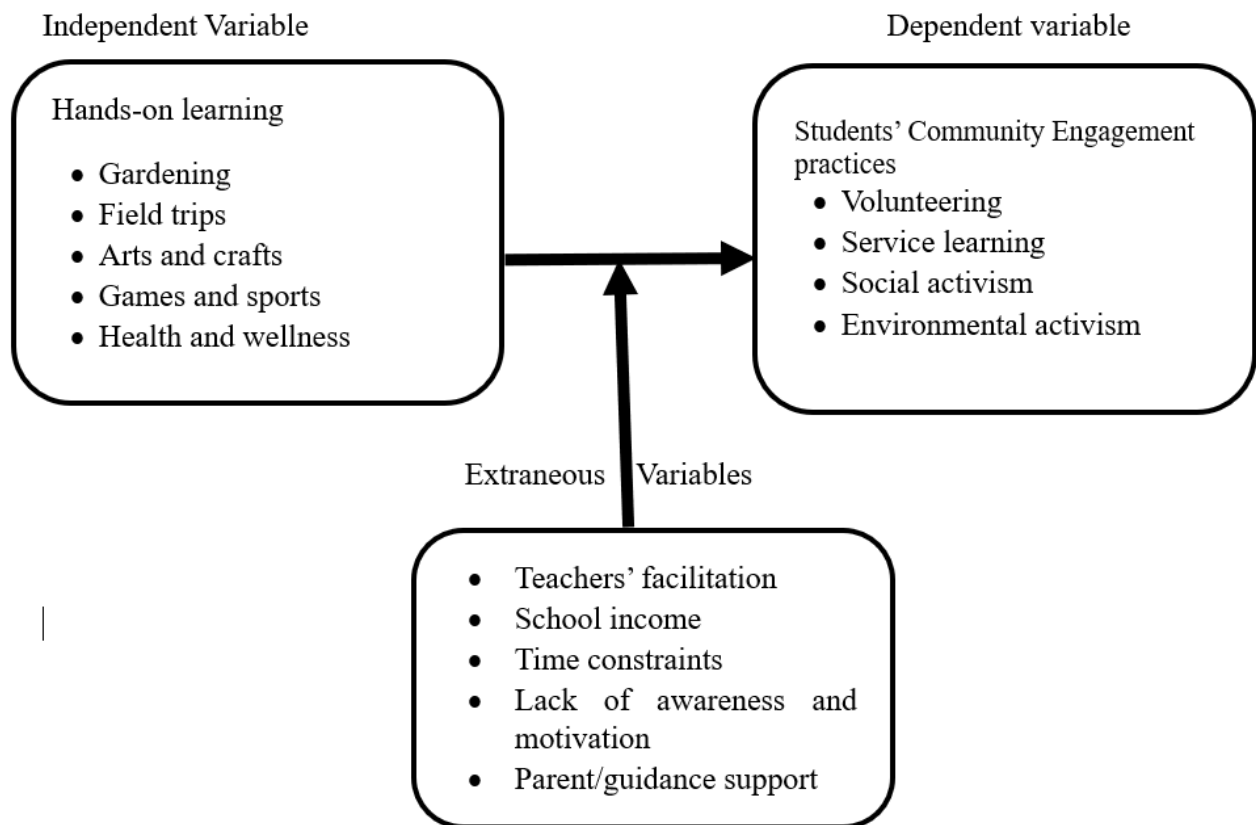
income/fundings, time constraints, awareness/motivation and parental support) that moderate the relationship community engagement practices and hand on learning activities.

1.7.3 Time Scope

The study focused on the period from 2020 to 2026. This period was significant because it captures recent education reforms and initiatives in Uganda, such as the conclusion of the old curriculum and the implementation of competence-based curricula and community engagement programs supported by government and partners. The period also allowed for analysis of trends in student outcomes, community participation, and educational quality over a meaningful period, capturing both challenges and progress. The period spanned a eight month period from proposal development to completion with data analysis and conducted between May and June 2026.

1.8 Conceptual Framework

In this study, it was assumed that hands-on learning had influence on students' community engagement practices. However, it also anticipated that extraneous variables like teachers' facilitation, school level of income, time constraints, and lack of awareness and motivation arranged a distinctive impact of hands-on learning on community engagement as illustrated in figure 1.1 below;



(Source: Adapted with modification from (Kizilaslan *et al.*,2021; Herrera-Pavo, 2021)

Figure 1 Conceptual framework of the study

hands-on learning and students' community engagement practices. The research explored the association between hands-on learning as the independent variable and community engagement practices as the dependent variable in this study. The research assessed how hands-on learning activities like agricultural practices, field trips, arts and crafts, physical education, health and wellness affect community engagement practices in form of volunteering and service learning, social and environmental activism.

In the above demonstration, the relationship between hands-on learning and community engagement was to be mediated by factors such as teachers' facilitation, school level of income, time constraints, lack of awareness and motivation. These factors can have a detrimental or valuable influence on the relationship between community engagement and hands-on learning.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents a comprehensive review of literature related to hands-on learning and students' community engagement practices in secondary schools. The review is structured according to the study's specific objectives and conceptual framework. The chapter begins with the theoretical perspective underpinning the study, followed by an examination of students' community engagement practices, an assessment of hands-on learning activities, and an exploration of the relationship between hands-on learning and community engagement practices. The chapter also reviews literature on extraneous variables that may influence this relationship and concludes with a summary of identified gaps that this study seeks to address.

2.1 Theoretical Perspective

2.1.1 Kolb's Experiential Learning Theory

This study is primarily grounded in David A. Kolb's Experiential Learning Theory (ELT), developed in 1984. Kolb conceptualized learning as a cyclical process where knowledge is created through the transformation of experience. The theory posits that learning occurs through a four-stage cycle: concrete experience, reflective observation, abstract conceptualization, and active experimentation (Kolb, 1984).

According to Kolb (2015), effective learning requires the learner to pass through all four stages of the cycle. First, the learner engages in a concrete experience, followed by reflective observation to consider the experience from multiple perspectives. Through abstract conceptualization, the learner integrates observations into logical theories or concepts. Finally, active experimentation allows the learner to apply these concepts to new situations, thereby creating new experiences that continue the cycle.

The experiential learning theory emphasizes that learning is a process of knowledge creation rather than knowledge transmission. Kolb (1984) distinguished between two forms of knowledge: social knowledge, constructed within social and historical contexts, and personal knowledge, constructed through the learner's subjective experience. This distinction

challenges traditional educational models that assume knowledge can simply be transmitted from teacher to learner.

2.1.2 Application of ELT to this Study

Kolb's Experiential Learning Theory is particularly relevant to this study for several reasons. First, the theory provides a framework for understanding how hands-on learning activities such as gardening, field trips, arts and crafts, games and sports, and health and wellness programs can facilitate meaningful learning experiences. When students engage in these activities, they undergo concrete experiences that can be reflected upon, conceptualized, and actively applied in community contexts.

Second, ELT explains how hands-on learning can lead to community engagement. As students reflect on their practical experiences and develop abstract concepts about social and environmental issues, they are better prepared to engage actively in their communities. The theory suggests that learning becomes meaningful when it is connected to real-world contexts and when learners have opportunities to apply their knowledge in authentic situations (Curriculture, 2024).

Third, ELT has been empirically validated across various educational contexts. Dillon *et al.* (2006) applied Kolb's theory to develop an environmental education program and found that participants who engaged in experiential learning activities demonstrated increased environmental awareness and behavior change. Froyd *et al.* (2012) used ELT to design project-based learning experiences for engineering students and reported improved problem-solving, critical thinking, and teamwork skills. Similarly, Priest *et al.* (2013) applied ELT to outdoor education programs and found that experiential learning activities enhanced environmental awareness and responsible behavior.

In the Ugandan context, Kidega *et al.* (2024) demonstrated that hands-on learning activities aligned with Kolb's stages enhanced student motivation and academic performance by engaging students in concrete experiences followed by reflection and application. This suggests that ELT provides an appropriate theoretical lens for examining the relationship between hands-on learning and community engagement in secondary schools in Gulu City.

2.1.3 Dewey's philosophy of experiential education

Complementing Kolb's theory is John Dewey's philosophy of experiential education. Dewey (1938) argued that education must be grounded in experience and that meaningful learning occurs when students make connections between theory and practice. Dewey emphasized that education should prepare students for active participation in democratic society, a concept closely aligned with community engagement.

Dewey's work is particularly relevant to this study because he explicitly linked experiential learning to civic participation. He argued that schools should serve as communities where students learn democratic values through practical engagement with real-world problems. This philosophy supports the argument that hands-on learning activities in secondary schools can and should lead to students' active involvement in community development.

2.1.4 Justification for Theoretical Framework

This study adopts Kolb's Experiential Learning Theory as its primary theoretical framework because it directly addresses the relationship between practical learning experiences and subsequent action. The theory explains how hands-on learning can transform students from passive recipients of information into active agents of change in their communities. When learners experience knowledge both socially and personally, they become engaged and capable of transferring their learning to community contexts.

The theory will guide this study by providing a lens through which to examine how specific hands-on learning activities facilitate community engagement. The study assumes that if community engagement is embedded in hands-on learning and secondary school learners experience it actively, they will transfer these experiences to their communities through meaningful engagement activities.

2.2 Students' Community Engagement Practices

2.2.1 Conceptualizing Community Engagement in Education

Community engagement in secondary education refers to the involvement of students in activities that address local community needs, fostering social responsibility and civic awareness (Garrick & Beazley, 2019). This practice aims to cultivate students' sense of purpose and connection to their local environment by engaging them in addressing local challenges and contributing to societal development (Wehling *et al.*, 2019).

Epstein (2018) conceptualized community engagement as a vital force in removing barriers to quality education, emphasizing that schools, families, and communities must work together to support student development. This partnership approach recognizes that learning extends beyond classroom walls and that community involvement enhances educational outcomes.

According to Vance (2018), community engagement encompasses the active participation of students in addressing local issues, which fosters social responsibility, teamwork, and leadership skills. Jacoby (2015) further distinguished community engagement from mere volunteerism, emphasizing that meaningful engagement involves reciprocal relationships where both students and communities benefit from the interaction.

2.2.2 Dimensions of Community Engagement Practices

Drawing from the conceptual framework of this study, community engagement practices can be understood through four key dimensions:

Volunteering: This dimension refers to unpaid assistance provided by students to peers, schools, or communities without formal academic credit. Sander and Smeby (2007) found that volunteering activities, such as helping younger students, participating in school clean-ups, and assisting teachers with non-academic duties, contribute to students' sense of belonging and civic responsibility. In Ugandan secondary schools, Uwase (2025) documented that participation in community service activities significantly enhances student engagement across affective, behavioural, and cognitive dimensions.

Service Learning: Unlike general volunteering, service learning involves structured projects with explicit learning objectives and service goals, documented with reflection components. According to Mitchell (2022), service-learning bridges the gap between theoretical knowledge and practical application, allowing students to engage directly with community issues. Service-learning programs in Thailand enabled students to apply theoretical knowledge in real-world contexts and develop empathy (Sukkumnoed & Panjaburee, 2021). Similarly, in Tanzania, Nguvumali (2015) documented service-learning initiatives that integrated community service with academic learning, allowing students to apply classroom knowledge to community health education, environmental conservation, and rural development projects.

Social Activism: This dimension involves student-led awareness campaigns on rights, inclusion, equity, or social justice issues. Peng and Rahman (2024) found that students demonstrated increased motivation and involvement in cultural learning activities when given opportunities to engage in social advocacy. In China, Liu and Li (2023) reported that school-based social support promoted self-confidence, learning motivation, and a positive learning environment, enabling ethnic minority students to advocate for their cultural rights. Social activism in secondary schools includes debates, drama, awareness campaigns, and formation of clubs focused on human rights or anti-corruption advocacy.

Environmental Activism: This dimension encompasses student participation in tree planting, recycling programs, anti-litter campaigns, or environmental conservation projects. Chen and Li (2019) documented that secondary schools in China organized volunteer programs focused on environmental protection, where students were actively involved in tree planting, waste management, and public health awareness campaigns. In Gulu City, Ochieng (2020) reported that secondary schools have implemented community engagement programs addressing environmental degradation as a key local challenge.

2.2.3 Global perspectives on student community engagement

Internationally, community engagement practices vary based on cultural, economic, and political contexts. In Thailand, community-based learning initiatives enabled secondary school students to engage with local communities and develop social responsibility (Thongpermpoon & Panjaburee, 2022). Thai educators adopted inquiry-based learning approaches that encouraged students to explore and discover concepts through hands-on activities connected to community needs (Srisawasdi & Panjaburee, 2019).

In China, student community engagement practices were deeply influenced by traditional Confucian values and the evolution of educational policy (Chen & Li, 2019). The Chinese government placed strong emphasis on environmental education and sustainability, with secondary schools organizing volunteer programs focused on environmental protection, public health, and disaster relief. A study on ethnic minority high school students in China found that school-based social support, including community engagement opportunities, promoted self-confidence and learning motivation (Liu & Li, 2023).

In New Zealand, Hamilton (2019) found that project-based learning increased student motivation and allowed them to apply theoretical knowledge in interactive environments. Students engaged in projects that required them to design solutions to community problems, such as creating environmentally friendly roofing materials using locally available resources. This project required students to apply theoretical knowledge, work collaboratively, and think critically to develop solutions meeting community needs.

2.2.4 Community engagement in African Secondary Schools

Across sub-Saharan Africa, community engagement has been promoted through initiatives aligned with the African Union's Agenda 2063, which emphasizes technical and vocational education and training (TVET) as a driver of sustainable economic growth (African Union, 2015). This agenda advocates for education systems that align with labour market needs while fostering civic responsibility.

In Tanzania, the Ministry of Education and Vocational Training (2016) developed a National Strategy for Youth Civic Engagement, integrating community service into secondary school curricula. Service-learning projects included community health education, environmental conservation, and rural development initiatives. Nguvumali (2015) reported that this form of student engagement provided valuable hands-on experiences while encouraging social responsibility.

2.2.5 Community Engagement in Ugandan Secondary Schools

Student community engagement practices in Uganda reflect the country's evolving educational, social, and political landscape. By the 2000s, Uganda began formalizing student community engagement as part of the national education curriculum through programs such as the Uganda National Youth Council (UNYC) and emphasis on "hands-on" learning in schools (Kivumbi & Nakato, 2016).

The National Curriculum Development Centre (NCDC, 2020) established national priorities that include training responsible and lifelong learners who are motivated to contribute to the wellbeing of themselves, their communities, and the nation. Each subject topic emphasizes learning outcomes across cognitive (knowledge and understanding), psychomotor (skills), and affective (values and attitudes) domains to enable learners' engagement with the community (Hezron, 2024).

Community engagement in Ugandan schools has been found to improve students' academic outcomes by enhancing motivation and commitment to studies (Mugisha, 2022). Students who participate in community activities demonstrate better teamwork, problem-solving abilities, and deeper understanding of scientific concepts related to ecology and sustainability (Okello & Nsubuga, 2021).

2.2.6 Community Engagement in Gulu City

In Gulu City, community engagement has been emphasized as a means to support post-conflict recovery. Mugisha (2022) documented that students are encouraged to engage in projects that promote social cohesion, peacebuilding, and community development. Secondary schools in Gulu have implemented community engagement programs that address local challenges such as environmental degradation, health issues, and poverty (Ochieng, 2020).

Kanyange (2020) reported that secondary schools in Gulu began integrating community-focused activities into their curricula, including local agricultural projects, environmental clean-ups, and social initiatives addressing child welfare and sanitation. These initiatives not only benefit the community but also help students develop empathy, responsibility, and leadership skills crucial for their future endeavors.

Nabirye *et al.* (2023) found that secondary schools in Gulu City that integrated hands-on learning into their curricula reported higher levels of community involvement among students, particularly in volunteer work and social advocacy. However, Kidega *et al.* (2024) noted that challenges such as inadequate instructional materials and limited time for group work hinder full implementation of community engagement practices.

2.3 Hands-on Learning Activities

2.3.1 Defining Hands-on Learning

Hands-on learning, also known as experiential learning, refers to an educational approach where students actively participate in real-world tasks, experiments, or projects requiring application of knowledge and skills (Kolb, 1984). This approach contrasts with traditional classroom learning where students typically engage in passive learning through lectures or reading assignments.

Smith *et al.* (2020) demonstrated that hands-on learning strategies, including project-based learning and simulations, significantly improve student engagement, critical thinking, and problem-solving skills. Hands-on learning also facilitates the transfer of classroom knowledge to real-world situations, enhancing students' ability to adapt and apply learning in diverse contexts (Brown & Green, 2023).

2.3.2 Dimensions of Hands-on Learning

Based on the conceptual framework of this study, hands-on learning encompasses five key dimensions:

Gardening: This dimension involves maintaining school vegetable gardens, tree nurseries, or demonstration farms. Gardening activities teach environmental and agriculture-related topics while developing responsibility and practical skills. In Gulu City, Okello and Nsubuga (2021) documented that hands-on learning in agriculture showed promise in fostering engagement among students, improving academic performance while developing life skills such as teamwork, leadership, and self-confidence.

Field Trips: These are organized visits to farms, nature parks, museums, or community sites lasting at least two hours. Field trips enrich classroom learning by providing concrete experiences that can be reflected upon and conceptualized. Holstermann *et al.* (2010) found that field trips significantly influence student interest and learning outcomes in science education. In the Thai context, STEM education was integrated into secondary schools emphasizing hands-on learning and real-world applications through field experiences (Khamisri & Panjaburee, 2020).

Arts and Crafts: This dimension includes drawing, painting, building, or construction projects completed during class time. Arts and crafts allow students to express understanding of academic subjects creatively. Adkins (2020) reported that hands-on activities including arts and crafts positively influence student achievement, interest, and attitude toward learning. Peng and Rahman (2024) documented that integrating cultural practitioners, historians, and artists into school activities increased student motivation and involvement in cultural learning.

Games and Sports: This dimension encompasses structured physical activities including team sports, leadership games, or cooperative challenges. Games and sports teach teamwork,

leadership, critical thinking, and conflict resolution. The Ministry of Education and Sports in Uganda (2024) emphasized play-based learning as a strategy for developing holistic student competencies. Xu *et al.* (2024) found that collaborative games and sports activities enhance student engagement across cognitive, behavioral, and affective dimensions.

Health and Wellness: This dimension includes hygiene demonstrations, nutrition education sessions, or physical exercise programs. Health and wellness activities promote practical knowledge about disease prevention, healthy eating, and physical fitness. The World Health Organization (2019) recognizes school-based health and wellness programs as effective strategies for improving both health outcomes and educational achievement.

2.3.3 Global Perspectives on Hands-on Learning

Internationally, hands-on learning has gained traction as a powerful pedagogical tool. The OECD (2018) identified experiential learning approaches as essential for equipping learners with critical thinking, problem-solving, and civic engagement skills needed for the 21st century. UNESCO (2017) emphasized that hands-on learning fosters social responsibility, interdisciplinary learning, and real-world application of academic knowledge.

In Thailand, Teemuangsai and Meesoo (2017) documented that educators discussed education practices needing improvement to align with today's world of learning. Thai secondary schools implemented community-based learning initiatives enabling students to engage with local communities through hands-on activities. Sukkumnoed and Panjaburee (2021) reported that inquiry-based learning approaches encouraged students to explore and discover concepts through hands-on activities.

In New Zealand, Hamilton (2019) found that project-based learning increased student motivation and allowed application of theoretical knowledge in interactive environments. The study found that hands-on learning enhanced students' confidence in making decisions and improved understanding of how principles related to real-world problem-solving.

2.3.4 Hands-on Learning in African Secondary Schools

Across sub-Saharan Africa, hands-on learning has been promoted through initiatives aligned with the African Union's Agenda 2063, emphasizing TVET as a key driver of sustainable economic growth (African Union, 2015). This agenda advocates for transforming education

systems to better align with labor market needs, focusing on practical hands-on learning opportunities that enhance employability and entrepreneurship.

In Tanzania, educational reforms emphasized practical skills and civic responsibility. Nguvumali (2015) reported that service-learning initiatives integrated community service with academic learning, allowing students to apply classroom knowledge to real-world problems. These programs provided valuable hands-on experiences while encouraging social responsibility.

2.3.5 Hands-on Learning in Ugandan Secondary Schools

In Uganda, hands-on learning has been integrated into the teaching and learning process across various subjects, particularly in sciences. Hezron (2024) documented that each subject topic emphasizes learning outcomes across cognitive, psychomotor, and affective domains to enable learners' engagement with the community. This approach intends to prepare learners for a VUCA (Volatile, Uncertain, Complex, and Ambiguous) world, regardless of the grades they attain.

However, Mugagga (2017) noted that hands-on learning in Uganda remains underutilized due to infrastructural challenges, overcrowded classrooms, and limited resources. Despite these challenges, Lwanga (2018) found that schools incorporating practical activities such as science experiments, field trips, and vocational training show improved academic outcomes, especially in science, mathematics, and technical education.

In Gulu City, Okello and Nsubuga (2021) reported that hands-on learning shows promise in fostering engagement among students, particularly in agriculture, home economics, and technical skills. Wokadala and Nanyunja (2020) documented that these activities improve academic performance while contributing to development of life skills such as teamwork, leadership, and self-confidence. Kidega et al. (2024) found that learner-centered approaches, including hands-on learning, increased student motivation and participation in Gulu High School.

2.3.6 Implementation Challenges for Hands-on Learning

Despite documented benefits, hands-on learning implementation faces significant challenges. Okello (2020) identified limited resources, inadequate teacher training, and lack of community engagement opportunities as barriers to implementing hands-on learning in

Ugandan secondary schools. Kidega *et al.* (2024) found that challenges such as inadequate instructional materials, limited time for group work, and large class sizes hinder full implementation of hands-on learning.

In Gulu City specifically, Omolo-Okalebo & Buyinza (2024) documented environmental challenges affecting schools, including climate impacts on gardening and outdoor activities. These contextual factors further complicate implementation of hands-on learning activities requiring outdoor spaces and natural resources.

2.4 Relationship Between Hands-on Learning and Students' Community Engagement Practices

2.4.1 Theoretical Links Between Variables

Kolb's Experiential Learning Theory provides a theoretical explanation for the relationship between hands-on learning and community engagement. According to the Experiential Learning Theory, concrete experiences (hands-on learning) lead to reflective observation, which in turn leads to abstract conceptualization about social and environmental issues, ultimately resulting in active experimentation (community engagement). This cyclical process suggests that hands-on learning activities provide the foundational experiences from which community engagement behaviors emerge.

Dewey (1938) similarly argued that experiential learning prepares students for active democratic participation. When students engage in practical problem-solving activities, they develop both the skills and the motivation to address real community issues. This philosophical foundation supports the hypothesis that hands-on learning activities influence students' community engagement practices.

2.4.2 Empirical Evidence of the Relationship

Several studies suggest a positive relationship between hands-on learning and community engagement. Yoon Thiri *et al.* (2024) conducted a study at Asia Pacific International University and found a positive correlation between hands-on learning activities and student learning engagement, showing that practical, skill-based tasks enhance students' focus, motivation, and effective use of time. This increased engagement is foundational for extending participation beyond the classroom into community activities.

Belete (2024) identified a significant relationship between students' community engagement activities and academic success, emphasizing that experiential learning through volunteerism and service-learning improves students' ability to apply academic knowledge in real-world community contexts. This suggests hands-on learning facilitates practical skills and social responsibility essential for meaningful community involvement.

In Uganda, Kidega *et al.* (2024) highlighted that hands-on learning approaches increase student motivation and participation, which can encourage greater community involvement as parents and local stakeholders observe improved student interest and achievement. Nabirye *et al.* (2023) showed that secondary schools in Gulu City integrating hands-on learning into curricula reported higher levels of community involvement among students, particularly in volunteer work and social advocacy.

2.4.3 Specific Activity-Engagement Relationships

Different types of hands-on learning activities may relate differently to specific forms of community engagement:

Gardening and Environmental Activism: Research by Okello and Nsubuga (2021) demonstrated that students engaged in school gardening projects showed increased participation in environmental conservation activities in their communities. Gardening provides concrete experiences with ecological systems, leading to greater awareness of environmental issues and motivation to address them.

Field Trips and Service Learning: Hamilton (2019) documented that field trips to community sites helped students identify local needs and develop projects to address those needs. Field trips provide exposure to real-world contexts, enabling students to recognize opportunities for service and apply academic knowledge to community problems.

Arts and Crafts and Social Activism: Peng and Rahman (2024) found that arts activities enabled students to express understanding of social issues and advocate for change. Arts and crafts provide alternative modes of expression for students who may struggle with traditional written or verbal advocacy, enabling broader participation in social activism.

Games and Sports and Volunteering: Xu *et al.* (2024) reported that cooperative games and sports develop teamwork and helping behaviors that transfer to volunteering activities. Sports

programs that emphasize fairness, discipline, and cooperation build prosocial values that motivate volunteering.

Health and Wellness and Service Learning: WHO (2019) documented that students participating in health and wellness programs often become health advocates in their communities, applying knowledge about hygiene, nutrition, and disease prevention to help others.

2.4.4 Moderating Factors in the Relationship

The relationship between hands-on learning and community engagement is not direct but is moderated by various factors. Darling-Hammond *et al.* (2020) emphasized that future research and policy should focus on scaling successful models, addressing systemic barriers, and ensuring that hands-on and community-based learning is accessible to all students regardless of context.

Uwase (2025) found that teacher facilitation significantly moderates the impact of hands-on activities on community engagement. When teachers actively connect hands-on experiences to community needs and provide structured reflection opportunities, students are more likely to transfer learning to community contexts.

2.5 Extraneous Variables Influencing the Relationship

The conceptual framework of this study identifies several extraneous variables that may influence the relationship between hands-on learning and community engagement:

2.5.1 Teachers' Facilitation

Teacher facilitation plays a critical role in connecting hands-on learning to community engagement. Billings and Halstead (2013) emphasized that teachers must not only organize hands-on activities but also explicitly link these activities to community needs and provide structured reflection opportunities. Kidega *et al.* (2024) found that teacher training and facilitation practices significantly affect implementation of learner-centered approaches in Ugandan secondary schools.

2.5.2 School Income Level

School financial resources affect capacity to implement hands-on learning and community engagement programs. Okello (2020) identified limited funding as a key barrier to

implementing competency-based education requiring practical activities and community partnerships. MacDonald (2023) documented that community-led learning initiatives can be implemented as low-cost models, but adequate resources are still necessary for transportation, materials, and teacher training.

2.5.3 Time Constraints

Time constraints, including crowded curricula and examination pressure, limit opportunities for hands-on learning and community engagement. Kidega *et al.* (2024) found that limited time for group work hinders implementation of learner-centered approaches. Teachers report feeling pressured to cover syllabi quickly, leaving little time for experiential learning or community projects.

2.5.4 Lack of Awareness and Motivation

Limited awareness of benefits and low motivation among teachers, students, and parents affect implementation of hands-on learning and community engagement. Kidega *et al.* (2024) noted that some teachers lack understanding of how to implement learner-centered approaches effectively. Parents may prioritize academic examination results over community engagement activities, reducing support for these programs.

2.5.5 Parent/Guardian Support

Parental support significantly influences student participation in community engagement activities. Epstein (2018) emphasized that school, family, and community partnerships are essential for effective engagement. When parents value and encourage community participation, students are more likely to engage meaningfully.

2.6 Identified Gaps in the Literature

This review of literature has revealed several gaps that this study seeks to address:

Geographical Gap: Most studies on hands-on learning and community engagement have been conducted in developed countries or in other African nations such as Tanzania, with limited empirical evidence from northern Uganda, particularly Gulu City. The post-conflict context of Gulu City presents unique characteristics that may influence both hands-on learning implementation and community engagement practices.

Conceptual Gap: While existing literature examines hands-on learning and community engagement separately, few studies have explicitly operationalized these concepts using the specific indicators identified in this study's conceptual framework (gardening, field trips, arts and crafts, games and sports, health and wellness for hands-on learning; volunteering, service learning, social activism, environmental activism for community engagement). This study operationalized both variables using these specific dimensions.

Empirical Gap: Limited empirical research has tested the relationship between hands-on learning and community engagement in Ugandan secondary schools using correlational designs. While Kidega *et al.* (2024) and Nabirye *et al.* (2023) touched on correlations, they did not provide systematic quantitative evidence of the strength and direction of relationships between specific hands-on activities and specific forms of community engagement.

Contextual Gap: Few studies have examined how extraneous variables such as teacher facilitation, school income, time constraints, awareness, and parent support moderate the relationship between hands-on learning and community engagement in resource-limited settings. Understanding these moderating effects is essential for designing effective interventions.

Methodological Gap: Most existing studies have used either purely quantitative or purely qualitative methods. This study's mixed-methods approach provided both breadth through survey data and depth through interviews, enabling comprehensive understanding of both patterns and experiences.

2.7 Summary of literature review

This chapter has reviewed literature on students' community engagement practices, hands-on learning activities, and the relationship between these two constructs. The review established that community engagement encompasses volunteering, service learning, social activism, and environmental activism, while hands-on learning includes gardening, field trips, arts and crafts, games and sports, and health and wellness activities.

The theoretical framework, grounded in Kolb's Experiential Learning Theory, explains how concrete experiences (hands-on learning) can lead through reflection and conceptualization to active experimentation (community engagement). Empirical evidence generally supports a

positive relationship between hands-on learning and community engagement, though research specifically in Ugandan secondary schools, and particularly in Gulu City, remains limited.

The review identified several gaps that this study addresses, including geographical focus on post-conflict northern Uganda, explicit operationalization of variables using the conceptual framework indicators, correlational analysis of relationships between specific activities and specific engagement forms, examination of moderating extraneous variables, and mixed-methods methodology.

2.8 Conclusion

The literature reviewed confirms that both hands-on learning and community engagement are recognized as important components of quality secondary education globally and in Uganda. However, significant gaps remain in understanding how these concepts relate specifically in the Gulu City context, where post-conflict recovery, resource limitations, and unique community needs create distinctive conditions for educational practice.

This study will contribute to filling these gaps by providing empirical evidence on the relationship between hands-on learning and students' community engagement practices in secondary schools in Gulu City, examining specific dimensions of both variables, and investigating extraneous variables that may influence this relationship. The findings will inform policy and practice for enhancing both hands-on learning and community engagement in Ugandan secondary schools and similar contexts in sub-Saharan Africa.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology that guided the conduct of the study. It outlines the research design, study area, target population, sample size and sampling procedures, research instruments, validity and reliability measures, data collection procedures, data analysis strategies, and ethical considerations.

3.2 Research Design and approach

3.2.1 Research design

The study employed a cross-sectional research design to collect numerical data on the extent and relationship between hands-on learning practices and students' community engagement in secondary schools in Gulu City and this enabled the researcher to gather data from multiple groups of respondents at a single point in time. The qualitative component employed a phenomenological approach to explore the lived experiences of teachers, head teachers, and community leaders regarding hands-on learning and community engagement practices.

3.2.2 Research approach

This study adopted a mixed-methods, combining both quantitative and qualitative approaches within a convergent parallel design. According to Creswell and Creswell (2023), a mixed-methods approach is appropriate when a research problem is best understood by collecting and analysing both numerical data and textual data concurrently and then integrating the results.

The integration of these two approaches was intended to generate a more complete and nuanced understanding of the research problem than either approach could achieve independently (Bryman, 2021). The convergent parallel design, specifically, involved the simultaneous collection of quantitative and qualitative data, separate analysis of each data set, and subsequent integration of the findings to provide a comprehensive understanding of the research problem (Creswell & Creswell, 2023).

3.3 Study Area

The study was conducted in Gulu City, located in northern Uganda. Gulu City was granted city status in July 2020 and is the administrative capital of Gulu District and the largest city in northern Uganda. The city has a population of approximately 150,000 people (Uganda Bureau of Statistics, 2024) and hosts a significant number of secondary schools, ranging from government-aided to private institutions.

Gulu City was selected as the study area for the following reasons; it is the largest and most educationally significant urban Centre in post-conflict northern Uganda; it represents a diverse educational landscape with both urban and peri-urban secondary schools; its post-conflict recovery context provides a unique and important setting for examining hands-on learning and community engagement practices; and it is strategically located to allow the researcher convenient access to study participants (Uganda Bureau of Statistics, 2024).

3.4 Study Population

The target population for this study comprised all stakeholders involved in secondary education in Gulu City, including secondary school students, subject teachers, head teachers, deputy head teachers, and community leaders who interact with secondary schools. According to the Gulu City Education Department records (2024), there are approximately 28 registered secondary schools in Gulu City, with a combined student population of approximately 18,500 students and approximately 680 teaching staff.

Table 1: Study Population

Category	Population	Percentage (%)
Students	18,500	96.2%
Teachers	680	3.5%
Head Teachers / Deputies	56	0.3%
Community Leaders	~100	~0.5%
Total	~19,336	100%

Source: Gulu City Education Department, 2024

3.5 Sample Size and Sampling Procedures

3.5.1 Sample Size

Using Krejcie and Morgan's (1970) sample size determination formula (appendix J) for a population of approximately 19,000, and corroborated by Yamane's (1967) formula, this study targets a sample size of 380 participants from the quantitative component. However, considering attrition and non-response, the study targeted 400 questionnaire respondents. Additionally, 20 key informants were purposively selected for qualitative data collection, bringing the total study sample to 420 participants.

Table 2: Sample Size Distribution

Category	Population	Sample Size	Sampling technique
Students	18,500	320	Simple random sampling
Teachers	680	60	Simple random sampling
Head Teachers/Deputies	56	14	Purposive
Community Leaders	~100	6	Purposive
City Education Officer	01	01	Purposive
City Inspector of Schools	01	01	Purposive
City and Division Town Clerks	03	03	Purposive
City and Division Mayors	03	03	Purposive
Total	~19,336	408	

Source: Researcher's Computation, 2026

3.5.2 Sampling Procedures

The secondary schools in Gulu City were stratified into government-aided and private schools. From each stratum, schools were randomly selected using simple random sampling (lottery method) to ensure representation of both school types.

Students were selected using simple random sampling from class registers, ensuring every student has an equal chance of being selected.

The number of students sampled from each school was proportionate to the school's total student population, ensuring both larger and smaller schools are appropriately represented in the sample.

Head teachers/deputy head teachers, and community leaders with direct engagement with secondary schools were purposively selected based on their knowledge, experience, and relevance to the research questions.

3.6 Research Instruments

3.6.1 Students Questionnaire

A structured questionnaires (appendix G) with closed-ended items were administered to student respondents. The questionnaire was organized into three sections: (a) biographical information of respondents; (b) items assessing the nature and extent of hands-on learning practices in their schools, measured on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree); and (c) items assessing the level and frequency of students' community engagement practices, also measured on a 5-point Likert scale. The use of Likert-scale items follows established survey research methodology as recommended by Creswell and Creswell (2023).

3.6.2 Teachers Questionnaire

Separate structured questionnaires (appendix F) were administered to teacher respondents, gathering data on their pedagogical practices, the frequency and types of hands-on learning activities they implement, perceived challenges, and their assessment of students' community engagement behaviors. The teacher questionnaire used a 5-point Likert scale for quantitative items.

3.6.3 Key Informant Interview Guide

Semi-structured interview guides (appendices C-E) were used to conduct individual key informant interviews with head teachers, deputy head teachers, and community leaders. The interview guide was to explore participants' perceptions, experiences, and perspectives on hands-on learning practices, community engagement activities, school-community partnerships, challenges, and recommendations. Semi-structured interviews are appropriate for this purpose as they allow for both depth and flexibility in data collection (Bryman, 2021).

3.7 Validity and Reliability of Instruments

3.7.1 Validity

Content validity of the research instruments was established through a systematic review of the instrument items by a panel of experts comprising three university faculty members with expertise in educational research, curriculum studies, and community engagement. The expert panel assessed the relevance, clarity, and completeness of each item in relation to the study objectives and research questions. Feedback from the expert review was used to refine and improve the instruments before piloting.

Construct validity was assessed through confirmatory factor analysis of the Likert-scale items following the pilot study, ensuring that the items adequately measure the constructs of hands-on learning and community engagement as theoretically conceptualized in this study (Creswell & Creswell, 2023).

3.7.2 Reliability

The reliability of the quantitative instruments was assessed using Cronbach's Alpha coefficient following a pilot study conducted in two secondary schools outside the main study sample in Gulu City. A Cronbach's Alpha value of 0.70 or above has been considered acceptable for research purposes, as recommended by Nunnally and Bernstein (1994) and cited in Bryman (2021). The pilot study involved 30 student respondents and 10 teacher respondents. Results of the reliability analysis has been used to refine items with low item-total correlations before the main data collection.

3.7.2.1 Results of pilot study

All Cronbach's Alpha values exceeded the acceptable threshold of 0.70 recommended by Nunnally and Bernstein (1994), indicating that the instruments demonstrated good to excellent internal consistency reliability. The overall scales for hands-on learning ($\alpha = 0.872$) and community engagement ($\alpha = 0.891$) showed excellent reliability (Table 3.3).

Table 3: Reliability Statistics (Cronbach's Alpha)

Variable	Number of Items	Cronbach's Alpha	Interpretation
Hands-on Learning (Overall)	25	0.872	Excellent
Gardening Activities	5	0.845	Good
Field Trips	5	0.821	Good
Arts and Crafts	5	0.793	Acceptable
Games and Sports	5	0.834	Good
Health and Wellness	5	0.856	Good
SCEP (Overall)	20	0.891	Excellent
Volunteering	5	0.846	Good
Service Learning	5	0.812	Good
Social Activism	5	0.775	Acceptable
Environmental Activism	5	0.863	Good
Extraneous Variables	6	0.768	Acceptable

Source: Primary Field Data, 2026

3.8 Data Collection Procedure

Prior to data collection, the researcher obtained clearance from Gulu University's and formal permission from the Gulu City Clerk (appendix K) Department and the head teachers of selected schools. Each selected school were formally notified about the study, and participants were briefed on the study's purpose, procedures, and their rights.

Questionnaires were administered by the researcher with the assistance of two trained research assistants during school hours. The researcher was present during questionnaire administration to clarify items and address any concerns raised by respondents. Questionnaire administration took 30-45 minutes per session.

Individual key informant interviews were conducted by the researcher at times and locations convenient for the interviewees. Each interview lasted 45-60 minutes. With participants' consent, interviews were audio-recorded using a digital voice recorder and subsequently transcribed verbatim.

3.9 Data Analyses

3.9.1 Quantitative Data Analysis

Quantitative data collected through questionnaires was entered into the Statistical Package for Social Sciences (SPSS) version 22.0 for analysis. Descriptive statistics, including; percentages, means score, and standard deviations, was computed to describe the nature and extent of hands-on learning practices and the level of students' community engagement

practices. The interpretation of mean scores followed a scale where 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.

Table 4: *Benchmark for Interpretation*

Mean score range	Interpretation
1.00-1.80	Very Low
1.81-2.60	Low
2.60-3.40	Moderate
3.41-4.20	High
4.21-5.00	Very High

Source: Researchers' Computation based on the five-point Likert scale

To determine the relationship between hands-on learning and students' community engagement practices, Pearson's Correlation Coefficient was computed. The strength of the correlation was interpreted using Cohen's (1988) guidelines: $r = 0.10-0.29$ (weak); $r = 0.30-0.49$ (moderate); $r = 0.50$ and above (strong). Multiple linear regression analysis was conducted to determine the predictive contribution of specific hands-on learning practices on community engagement outcomes. All the analyses set at $p < 0.05$.

3.9.2 Qualitative Data Analysis

Qualitative data from interviews was analyzed using thematic analysis as described by Braun and Clarke (2021). The analysis followed the six-phase thematic analysis process: familiarization with data; generation of initial codes; searching for themes; reviewing themes; defining and naming themes; and producing the report. Atlas.ti Version 26 qualitative data analysis software was used to facilitate the systematic organization, coding, and thematic analysis of qualitative data.

3.9.3 Integration of Quantitative and Qualitative Findings

Following the convergent parallel mixed-methods design, the quantitative and qualitative findings was integrated at the interpretation stage. The qualitative findings were used to explain, elaborate, and contextualize the quantitative results, providing a richer and more complete understanding of the relationship between hands-on learning and community engagement in the secondary schools of Gulu City (Creswell & Creswell, 2023).

3.10 Ethical Considerations

All participants were provided with a written informed consent form clearly explaining the study's purpose, procedures, potential benefits and risks, their right to withdraw at any time without consequences, and how their data will be used. For student participants under 18 years, parental or guardian consent was also be obtained.

Participants privacy were protected through the use of codes and pseudonyms in all research records and reports. Schools has similarly been anonymized. All raw data (completed questionnaires, audio recordings, transcripts) was stored securely and accessed only by the researcher and supervisors.

Participation in the study was entirely voluntary, with no inducements or coercion. Participants will be explicitly informed of their right to withdraw from the study at any point without any negative consequences.

The researcher ensured that the study poses no physical, psychological, or social harm to participants.

The researcher maintained the highest standards of academic integrity, ensuring that data is collected, analyzed, and reported honestly and accurately without fabrication, falsification, or plagiarism.

Formal clearance was got from the faculty of education and Humanities, Gulu University (appendix J). Permission letters were also obtained from the Gulu City clerk (appendix K) and school administrations before commencing data collection.

CHAPTER FOUR

DATA, PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS

4.0 Introduction

This chapter presents the analysis, presentation, and interpretation of data collected from 234 students and 50 teachers from secondary schools in Gulu City, Uganda. The chapter begins with the reliability statistics of the research instruments, followed by the socio-demographic characteristics of respondents. Subsequently, the chapter presents findings according to the three research objectives: students' community engagement practices, hands-on learning activities, the relationship between hands-on learning and community engagement, and the influence of extraneous variables. Both quantitative and qualitative findings are integrated throughout the presentation.

4.1 Response Rate

The study assessed the response rate to establish the proportion of questionnaires that were returned and considered usable for data analysis. The response rate was calculated by dividing the number of questionnaires returned and found usable by the total number of questionnaires distributed, multiplied by 100.

Table 5: *Response Rate of Questionnaires*

Category of respondents	Questionnaires distributed	Questionnaires returned and usable	Response rate (%)
Students	320	234	73%
Teachers	80	50	63%
Total	400	284	71%

Source: Primary Field Data, 2026

4.2 Socio-Demographic Characteristics of Respondents

The student sample comprised 52.1% females and 47.9% males, with the majority (66.7%) aged 16-19 years and enrolled in UCE level (69.2%). Most students had been in their institutions for between 1-2 years (43.6%). Among teachers, males (56.0%) slightly outnumbered females (44.0%), and the majority (76.0%) held Bachelor's degrees. Teacher

age distribution showed 64.0% were aged 24 years and above, indicating a relatively experienced teaching workforce (Table 4.2).

Table 6: *Demographic Characteristics (N = 284)*

Characteristics	Category	Students(n=234)	Teachers(n=50)	Total(N=284)
Gender	Male	112 (47.9%)	28 (56.0%)	140 (49.3%)
	Female	122 (52.1%)	22 (44.0%)	144 (50.7%)
Age Group	16-19 yrs	156 (66.7%)	-	156 (54.9%)
	20-23 yrs	78 (33.3%)	18 (36.0%)	96 (33.8%)
	>24 yrs	-	32 (64.0%)	32 (11.3%)
Education	UCE	162 (69.2%)	-	162 (57.0%)
	UACE	72 (30.8%)	-	72 (25.4%)
	Diploma	-	12 (24.0%)	12 (4.2%)
	Bachelor	-	38 (76.0%)	38 (13.4%)
Years	<1 year	56 (23.9%)	8 (16.0%)	64 (22.5%)
	1-2 years	102 (43.6%)	22 (44.0%)	124 (43.7%)
	>3 years	76 (32.5%)	20 (40.0%)	96 (33.8%)

Source: Primary Field Data, 2026

4.2 What are the Students' Community Engagement Practices in Secondary Schools in Gulu City?

4.2.1 Student Perspectives

The findings indicate that students demonstrated high levels of community engagement overall ($\mu=4.08$, $SD=0.81$). Environmental activism ($\mu =4.22$, $SD=1.15$) and volunteering ($\mu =4.23$, $SD=1.23$) were rated as “very high” while service learning ($\mu =3.93$, $SD=1.42$) and social activism ($\mu =3.97$, $SD=1.42$) were rated as “high” (Table 4.3).

Table 7: *Descriptive Statistics for Students' Community Engagement Practices (n=234)*

S/N	Dimension/Item	Mean(μ)	SD	Interpretation (μ)
01	Volunteering	4.23	1.23	Very High
02	Service Learning	3.93	1.42	High
03	Social Activism	3.97	1.42	High
04	Environmental Activism	4.22	1.15	Very High
	Overall Community Engagement	4.08	0.81	High

Source: Primary Field Data, 2026

4.2.2 Teacher Perspectives

Teachers confirmed high levels of student community engagement overall ($\mu =4.01$, $SD=1.07$), with volunteering rated as “Very High” ($\mu =4.21$, $SD=1.04$). Environmental

activism ($\mu = 3.85$, $SD = 1.05$), Service Learning ($\mu = 3.74$, $SD = 1.12$), and Social Activism ($\mu = 3.74$, $SD = 1.12$) also rated highly.

Table 8: *Descriptive Statistics for Students' Community Engagement Practices (n=50)*

S/N	Dimension/Item	Mean	SD	Interpretation (μ)
01	Volunteering	4.21	1.04	Very High
02	Service Learning	3.74	1.12	High
03	Social Activism	3.74	1.12	High
04	Environmental Activism	3.85	1.05	High
	SCEP overall	4.01	1.07	High

Source: Primary Field Data, 2026

4.3.3 Qualitative Findings on Community Engagement

The thematic analysis of interview data revealed that students' community engagement practices in Gulu City is predominantly defined by visible, physical, and immediate needs-based service acts rather than structural social change advocacy. One respondent stated (SCEP-01):

"We do a lot of outreaches such as helping the elderly, market clean ups, charity work at community functions, and animation of mass at community events. We also organize friendly matches to create awareness about school-community relations."

Another respondent confirmed (SCEP-04):

"Yes, they are involved. They do through arts and crafts, music dance and drama, catering, and community work such as garbage collection and opening up water drainage channels."

4.3 What Hands-on Learning Activities exist in Secondary Schools in Gulu City?

4.3.1 Student Perspectives

The findings show that overall hands-on learning was rated as "High" ($\mu = 3.72$, $SD = 0.85$). Games and sports recorded the highest mean ($\mu = 4.43$, $SD = 1.02$ "Very High"), while field trips recorded the lowest ($\mu = 3.14$, "Moderate"). (Table 4.5).

Table 9: *Descriptive Statistics for Hands-on Learning Activities (n=234)*

S/N	Dimension/Item	Mean	SD	Interpretation
01	Gardening Activities	3.43	1.68	High
02	Field Trips	3.14	1.78	Moderate
03	Arts and Crafts	3.63	1.55	High
04	Games and Sports	4.43	1.02	Very High
	Health and Wellness	3.96	1.42	High
	Overall Hands-on Learning (Student)	3.72	0.85	High

Source: Primary Field Data, 2026

4.3.2 Teacher Perspectives

Teachers rated overall hands-on learning as “High” ($\mu = 4.04$, $SD=0.79$), with games and sports again recording the highest mean ($\mu = 4.49$, “Very High”). Table 4.6 presents teachers’ perspectives on hands-on learning activities (Table 4.6).

Table 10: *Descriptive Statistics for Hands-on Learning Activities (n=50)*

S/N	Dimension/Item	Mean	SD	Interpretation
01	Gardening Activities	3.40	1.26	Moderate
02	Field Trips	4.06	1.21	High
03	Arts and Crafts	3.81	0.92	High
04	Games and Sports	4.49	0.89	Very High
05	Health and Wellness	3.92	1.14	High
	HOL Overall	4.04	0.79	High

Source: Field Data, 2026

4.3.3 Qualitative Findings on Hands-on Learning

The qualitative findings revealed that while students show immense enthusiasm for practical instruction compared to passive lectures, the implementation of hands-on learning across Gulu City is deeply constrained by institutional funding differences and resource limitations. One respondent noted (HL-03):

“The bigger schools have resources and students are doing well. Unfortunately, the smaller schools are lagging behind because they do not have capacity... This hands-on learning is very expensive on the parent’s side.”

Another respondent added (HL-04): *“Major challenges we face include expensive implementation, tiresome procedures, high student-teacher ratios, inadequate resources, lack of technical skills among staff, and severely limited time within the curriculum.”*

4.4 What is the relationship between hands-on learning and students’ community engagement practices in secondary schools in Gulu City?

4.4.1 Student perspective correlation analysis

The results show a significant positive relationship between overall hands-on learning and overall community engagement ($r=0.40$, $p<0.01$), indicating a moderate positive correlation. Games and sports showed the strongest correlations with volunteering ($r=0.36$), service learning ($r=0.24$), social activism ($r=0.27$), environmental activism ($r=0.22$), and overall community engagement ($r=0.437$) (Table 4.7).

Table 11 *Matrix - Hands-on Learning and Students’ Community Engagement Practices (n=234)*

S/N	Dimension	Gardening	Field Trips	Arts & Crafts	Games & Sports	Health & Wellness	HOL Overall
01	Volunteering	0.10 (p=0.11)	0.06 (p=0.39)	-0.08 (p=0.23)	0.36 (p=0.00)	0.19 (p=0.00)	0.19 (p=0.00)
02	Service Learning	0.04 (p=0.52)	0.19 (p=0.00)	0.06 (p=0.38)	0.24 (p=0.00)	0.21 (p=0.00)	0.25 (p=0.00)
03	Social Activism	0.05(p=0.41)	0.13 (p=0.05)	0.15 (p=0.02)	0.27 (p=0.00)	0.20 (p=0.00)	0.26 (p=0.00)
04	Environmental. Activism	0.14 (p=0.03)	0.12 (p=0.07)	0.08 (p=0.21)	0.22 (p=0.00)	0.29 (p=0.00)	0.29 (p=0.00)
	SCEP Overall	0.13 (p=0.05)	0.21(p=0.00)	0.09 (p=0.14)	0.437 (p=0.00)	0.35 (p=0.00)	0.40 (p=0.00)

Source: Primary Field Data, 2026

4.4.2 Teacher perspective correlation analysis

From the teacher perspective, overall hands-on learning showed a strong positive correlation with overall community engagement ($r=0.64$, $p<0.01$). All dimensions of hands-on learning showed significant positive correlations with community engagement practices (Table 4.8)

Table 12: Correlation Matrix - Hands-on Learning and Students' Community Engagement Practices ($n=50$)

S/N	SCEP	HOL Forms					
		Gardening	Field Trips	Arts & Crafts	Games & Sports	Health & Wellness	HOL Overall
01	Volunteering	0.51 ($p=0.00$)	0.42 ($p=0.00$)	0.37 ($p=0.00$)	0.55 ($p=0.00$)	0.30 ($p=0.03$)	0.61 ($p=0.00$)
02	Service Learning	0.18 ($p=0.19$)	0.45 ($p=0.00$)	0.32 ($p=0.02$)	0.32 ($p=0.02$)	0.24 ($p=0.09$)	0.43 ($p=0.00$)
03	Social Activism	0.23 ($p=0.10$)	0.48 ($p=0.00$)	0.37 ($p=0.01$)	0.45 ($p=0.00$)	0.23 ($p=0.09$)	0.50 ($p=0.00$)
05	Environmental Activism	0.30 ($p=0.03$)	0.55 ($p=0.00$)	0.55 ($p=0.00$)	0.47 ($p=0.00$)	0.27 ($p=0.05$)	0.60 ($p=0.00$)
	SCEP Overall	0.36 ($p=0.01$)	0.57 ($p=0.00$)	0.48 ($p=0.00$)	0.53 ($p=0.00$)	0.32 ($p=0.02$)	0.64 ($p=0.00$)

Source: Primary Field Data, 2026

4.4.3 Qualitative Findings on the Relationship

The thematic analysis revealed a strong positive significant relationship linking classroom-based practical expertise with voluntary civic engagement. One respondent explained (REL-01):

“Yes, hands-on learning significantly influences community engagement. For example, there is a boy training member of his community in making briquettes and poultry farming. Some students have become highly self-reliant, hence helping their communities directly.”

Another respondent added (REL-03): *“Absolutely. Students gain skills such as problem-solving, teamwork, communication, and entrepreneurship through our experiential learning models, which directly apply to community engagement. Students have launched small*

enterprises addressing community needs, such as sanitation products and agricultural solutions.”

4.5 Extraneous Variables Analysis

4.5.1 Student Perspective on Extraneous Variables

Students rated teachers’ facilitation highly ($\mu=3.99$) and parental support as “High” ($M=3.56$), but time constraints ($\mu =2.87$) and school resources ($\mu =3.09$) were rated as “Moderate”, indicating these factors limit participation (Table 4.9).

Table 13: Descriptive Statistics for Extraneous Variables (Student Perspective, $n=234$)

S/N	Statement	Mean	SD	Interpretation (μ)
01	Time Constraints	2.87	1.22	Moderate
02	School Income / Resources	3.09	1.24	Moderate
03	Teachers’ Facilitation / Encouragement	3.99	0.90	High
04	Lack of Awareness / Motivation	3.75	0.98	High
05	Parental/Guardian Support	3.56	1.06	High

Source: Primary Field Data, 2026

4.5.2 Teacher Perspective on Extraneous Variables

Teachers rated their facilitation as “High” ($\mu=4.01$, $SD=0.80$), while school income/funding ($\mu =3.17$) and time constraints ($\mu =2.93$) were rated as “Moderate,” indicating these factors pose challenges to implementation.

Table 14: Descriptive Statistics for Extraneous Variables ($n=50$)

S/N	Statement	Mean	SD	Interpretation(μ)
01	Teacher’s Facilitation	4.01	0.80	High
02	School Income / Funding	3.17	1.22	Moderate
03	Time Constraints	2.93	1.16	Moderate
04	Lack of Awareness/Motivation	3.98	0.82	High

Source: Primary Field Data, 2026

4.6 Regression Analysis

The regression analysis from the student perspective shows that hands-on learning overall significantly predicts community engagement practices ($B=0.145$, $p=0.02$), with the item “Hands-on learning helps me understand real-life issues better” being the strongest predictor.

Table 15: *Regression Model - Hands-on Learning Predicting Student’s Community Engagement Practices (Student Perspective, $n=234$)*

Variable	Unstandardized	Standardized		95% CI for B			
	Coefficients	Coefficients					
	B	Std. Error	Beta	t	P value	Lower	Upper
(Const)	1.19	0.29		4.14	0.00	0.63	1.77
HOL overall	0.145	0.06	0.19	2.349	0.020	0.023	0.267
Gardening	0.111	0.064	0.14	1.74	0.08	-0.014	0.236
Field trips	0.06	0.056	0.10	1.11	0.27	-0.05	0.172
Games and sports	-0.004	0.067	-0.005	-0.056	0.956	-0.136	0.128
Health and wellness	0.033	0.070	0.04	0.467	0.641	-0.105	0.171

Source: Primary Field Data, 2026

From the teacher perspective, teacher facilitation significantly predicted community engagement practices ($B=0.479$, $p<0.001$). The model explains a substantial portion of the variance in community engagement practices.

Table 16: *Regression Model – Extraneous Variables Predicting Community Engagement (Teachers’ Perspective)*

Variable	Unstandardized	Standardized		95% CI of B			
	Coefficients	Coefficients					
	B	Std. Error	Beta	t	Sig.	Lower	Upper
(Const)	1.517	0.54		2.79	0.01	0.42	2.61
Teacher’s facilitation	0.479	0.102	0.56	4.72	0.00	0.28	0.68
school income	-0.004	0.072	-0.01	-0.05	0.96	-0.15	0.14
Time constraints	0.06	0.07	0.12	0.94	0.35	-0.07	0.19
lack of awareness	-0.02	0.06	-0.05	-0.36	0.72	-0.14	0.10

Source: Primary Field Data, 2026

CHAPTER FIVE:

SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

5.0 Introduction

This chapter presents a detailed discussion of the findings presented in Chapter Four, organized according to the three research objectives. The discussion integrates the quantitative findings with qualitative insights and compares them with existing literature. The chapter also presents the conclusions drawn from the study, recommendations for policy and practice, limitations of the study, and contributions to knowledge.

5.1 Summary of Findings

Objective 1: To examine the students' community engagement practices in secondary schools in Gulu City

The findings revealed that students' community engagement practices in Gulu City is predominantly defined by visible, physical, and immediate needs-based service acts rather than structural social change advocacy. This suggests that students' engagement was more evident in direct community service than in broader forms of social mobilisation and advocacy.

Taken together, the findings indicate that volunteering and environmental activism were the strongest dimensions of reported community engagement among students in the participating secondary schools. However, the comparatively lower mean scores for service learning and social activism suggest that these dimensions may require greater attention. Schools could strengthen community engagement by integrating structured service-learning activities into the curriculum and creating opportunities for students to participate in community problem-solving and social awareness initiatives.

Objective 2: To assess the hands-on learning activities in secondary schools in Gulu City.

The findings noted that students show immense enthusiasm for practical instruction compared to passive lectures. However, the implementation of hands-on learning across Gulu City is deeply constrained by institutional funding differences and resource limitations.

The findings suggest that hands-on learning activities were implemented in the participating schools, although the reported levels varied across the different activities. Games and sports were the most prominent activities from both students' and teachers' perspectives, while field trips received a comparatively lower rating from students and gardening received a comparatively lower rating from teachers.

These differences suggest that the implementation of hands-on learning may vary according to the nature of the activity and the resources required. The qualitative findings concerning funding and resource limitations provide additional context for understanding these variations. Schools may therefore need to strengthen the implementation of less prominent activities by improving resource allocation, planning practical learning opportunities and linking classroom learning to real-life experiences.

Overall, the findings indicate that hands-on learning was reported to be implemented at a generally high level, but its implementation was not uniform across all activity categories.

Objective 3: To determine the relationship between hands-on learning and students' community engagement practices in secondary schools in Gulu City.

The findings revealed significant positive correlations between hands-on learning and community engagement. The qualitative findings provided additional context by suggesting that practical learning may help students develop skills such as problem-solving, teamwork, communication and entrepreneurship, which can be applied when addressing community needs. This interpretation is consistent with the study's use of experiential learning as a theoretical perspective. Nevertheless, the qualitative evidence and cross-sectional statistical findings establish a basis for understanding the relationship between the variables rather than proving that hands-on learning causes community engagement.

The findings therefore demonstrate a statistically significant positive association between hands-on learning and students' community engagement practices. The results suggest that practical learning activities may provide opportunities for students to develop and apply skills relevant to community participation. Integrating practical learning with structured community-oriented activities may consequently provide an opportunity to strengthen students' engagement with their communities.

However, the findings should be interpreted within the limits of the study's cross-sectional design. The observed relationships do not independently establish causation, and the reported

regression results should be interpreted according to the specification and assumptions of the fitted model.

5.2 Discussion of the findings

5.2.1 Students' community engagement practices

The finding that volunteering and environmental activism were the most prevalent forms of community engagement is consistent with the qualitative data, which showed that students' community engagement is predominantly defined by visible, physical, and immediate needs-based service acts. One respondent stated (SCEP-01), "We do a lot of outreaches such as helping the elderly, market clean ups, charity work at community functions". Another respondent confirmed (SCEP-01) that students engage in "community work such as garbage collection and opening up water drainage channels"

This finding provides contemporary evidence for Mugisha's (2022) assertion that community engagement programs in Gulu City are crucial tools for post-conflict recovery, helping rebuild social cohesion and community development. The emphasis on environmental clean-ups and physical labour reflects the immediate needs of a post-conflict community where basic sanitation and infrastructure remain priorities.

The high rating for volunteering aligns with Sander and Smeby's (2007) finding that volunteering activities contribute to students' sense of belonging and civic responsibility. In the Ugandan context, Uwase (2025) similarly documented that participation in community service activities significantly enhances student engagement across affective, behavioural, and cognitive dimensions.

The lower ratings for service learning and social activism compared to volunteering and environmental activism indicate that these more structured and advocacy-oriented forms of engagement are less developed in Gulu City secondary schools. This finding is concerning given that the National Curriculum Development Centre (NCDC, 2020) explicitly emphasizes that each subject should enable learners' engagement with the community through cognitive, psychomotor, and affective domains. The qualitative data revealed that codes associated with deeper civic transformation, such as social activism and rights advocacy, had near-zero occurrence counts. This indicates a major emphasis on immediate charity over systemic civic mobilization. This finding suggests that current practices fail to

achieve the deeper democratic goals described by Waghid (2024), who argued that community-centered schooling must go beyond simple charity and use student knowledge to challenge local inequalities and drive structural social change.

This gap may be attributed to several factors identified in the extraneous variables analysis, including time constraints ($\mu = 2.93$ from teacher perspective) and limited school resources ($\mu = 3.09$ from student perspective). Teachers reported feeling pressured to cover the syllabus quickly ($\mu = 2.62$), leaving little time for structured reflection that is essential for service learning. As Mitchell (2022) emphasized, service learning requires structured projects with explicit learning objectives and reflection components elements that appear to be lacking in many Gulu City schools.

The emphasis on environmental activism in Gulu City secondary schools aligns with global trends documented by Chen and Li (2019), who found that secondary schools in China organized volunteer programs focused on environmental protection, with students actively involved in tree planting, waste management, and public health awareness campaigns. Similarly, in Thailand, Thongpermpoon and Panjaburee (2022) documented that community-based learning initiatives enabled students to engage with local communities and develop social responsibility.

However, the relatively lower levels of social activism in Gulu City contrast with findings from other contexts. Peng and Rahman (2024) found that students demonstrated increased motivation and involvement in cultural learning activities when given opportunities to engage in social advocacy. Liu and Li (2023) reported that school-based social support promoted self-confidence and learning motivation, enabling ethnic minority students in China to advocate for their cultural rights. The lower levels of social activism in Gulu City may reflect the post-conflict context, where community priorities remain focused on basic survival and reconstruction rather than advocacy for rights and systemic change.

5.2.2 Hands-on Learning Activities

The very high ratings for games and sports across both student and teacher perspectives suggest that this dimension of hands-on learning is well-established in Gulu City secondary schools. The finding that students recognize games and sports as teaching teamwork ($\mu = 4.60$), problem-solving ($\mu = 4.40$), and making learning interesting ($\mu = 4.46$) aligns with the

Ministry of Education and Sports' (2024) emphasis on play-based learning as a strategy for developing holistic student competencies.

Xu *et al.* (2024) similarly found that collaborative games and sports activities enhance student engagement across cognitive, behavioural, and affective dimensions. The high implementation of games and sports may be attributed to the relatively low resource requirements compared to other dimensions sports can be organized with minimal equipment, and many traditional games require no specialized materials.

The moderate rating for field trips from the student perspective and the discrepancy between student and teacher ratings is noteworthy. This finding aligns with Okello's (2020) observation that limited resources (80% of schools report inadequate materials) hinder effective implementation of hands-on learning.

The qualitative data confirmed this challenge, with one respondent stating (HL-03), "The bigger schools have resources and students are doing well. Unfortunately, the smaller schools are lagging behind because they do not have capacity. This hands-on learning is very expensive on the parent's side". The finding that school income/funding was rated only "Moderate" ($\mu = 3.17$) from the teacher perspective supports this interpretation.

Holstermann *et al.* (2010) found that field trips significantly influence student interest and learning outcomes in science education. The limited implementation of field trips in Gulu City secondary schools represents a missed opportunity for enriching classroom learning and providing the concrete experiences that Kolb's (1984) Experiential Learning Theory identifies as essential for meaningful learning.

Gardening activities showed moderate to high implementation (Student $\mu = 3.43$; Teacher $\mu = 3.40$). The qualitative data revealed that some schools have successful gardening programs, with one respondent (HL-01) mentioning "agricultural outreaches" as a key activity. However, the finding that "Our school garden produces food that we use or sell" was only moderate ($\mu = 3.24$) and "Gardening has taught me to be responsible and hardworking" was moderate ($\mu = 3.12$) suggests that gardening programs may not be fully optimized for either production or educational outcomes.

Arts and crafts received high ratings from both students ($\mu = 3.63$) and teachers ($\mu = 3.81$), indicating reasonable implementation. The finding that students enjoy making things with their hands ($\mu = 3.78$) and use art to express their learning ($\mu = 3.65$) aligns with Adkins' (2020) report that hands-on activities including arts and crafts positively influence student achievement, interest, and attitude toward learning.

Health and wellness activities received high ratings from both perspectives (Student $\mu = 3.96$; Teacher $\mu = 3.92$), suggesting that hygiene demonstrations, nutrition education, and physical exercise programs are reasonably well-implemented. This finding aligns with the World Health Organization's (2019) recognition that school-based health and wellness programs are effective strategies for improving both health outcomes and educational achievement.

The qualitative findings revealed significant implementation challenges. One respondent summarized (HL-03): "Major challenges we face include expensive implementation, tiresome procedures, high student-teacher ratios, inadequate resources, lack of technical skills among staff, and severely limited time within the curriculum."

This finding confirms the critiques of Okello (2020), who demonstrated that the nation-wide implementation of Uganda's competence-based lower secondary curriculum is often undermined by major infrastructural challenges, overcrowded classrooms, and severe material deficits. The data also matches the practical observations of Kidega *et al.* (2024) in their case study of Gulu High School, which noted that inadequate instructional tools, limited funding, and rigid lesson scheduling heavily restrict group-based practical works.

The finding that time constraints were rated only "Moderate" (Teacher $\mu = 2.93$; Student $\mu = 2.87$) indicates that insufficient time is a significant barrier to hands-on learning implementation. Teachers reported feeling pressured to cover the syllabus quickly ($\mu = 2.62$), leaving little time for experiential learning or community projects. This finding aligns with Kidega *et al.* (2024), who found that limited time for group work hinders implementation of learner-centered approaches.

5.2.3 Relationship Between Hands-on Learning and Community Engagement

The findings revealed significant positive correlations between hands-on learning and community engagement from both student ($r=0.40$, $p<0.01$) and teacher ($r=0.64$, $p<0.01$) perspectives.

The moderate to strong positive correlations indicate that as hands-on learning activities increase, students' community engagement practices also increase. This finding provides empirical support for Kolb's (1984, 2015) Experiential Learning Theory, which posits that concrete experiences (hands-on learning) lead through reflection and conceptualization to active experimentation (community engagement).

The qualitative data provided compelling evidence of this causal pathway. One respondent explained (REL-01): "Yes, hands-on learning significantly influences community engagement. For example, there is a boy training member of his community in making briquettes and poultry farming. Some students have become highly self-reliant, hence helping their communities directly."

This finding aligns with previous research. Yoon Thiri *et al.* (2024) found a positive correlation between hands-on learning activities and student learning engagement. Belete (2024) identified a significant relationship between students' community engagement activities and academic success, emphasizing that experiential learning through volunteerism and service-learning improves students' ability to apply academic knowledge in real-world community contexts.

From the student perspective, games and sports showed the strongest correlations with all community engagement dimensions, particularly volunteering ($r=0.36$) and overall community engagement ($r=0.437$). This finding may be explained by the inherent nature of games and sports as cooperative activities that build teamwork, leadership, and helping behaviours skills that transfer directly to volunteering and other forms of community engagement.

From the teacher perspective, all hands-on learning dimensions showed significant positive correlations with community engagement. Gardening correlated most strongly with volunteering ($r=0.51$) and environmental activism ($r=0.30$). Field trips showed strong correlations with all community engagement dimensions, particularly environmental activism ($r=0.55$) and social activism ($r=0.48$). Arts and crafts correlated strongly with environmental activism ($r=0.55$) and social activism ($r=0.37$).

These specific relationships align with theoretical expectations. The finding that gardening correlates with environmental activism supports Dillon *et al.*'s (2006) finding that

experiential learning activities in environmental education increase environmental awareness and behaviour. The finding that field trips correlate with service learning aligns with Hamilton's (2019) observation that field trips to community sites help students identify local needs and develop projects to address those needs.

The finding that arts and crafts correlate with social activism supports Peng and Rahman's (2024) finding that arts activities enable students to express understanding of social issues and advocate for change. The finding that games and sports correlate with volunteering aligns with Xu et al.'s (2024) report that cooperative games and sports develop teamwork and helping behaviours that transfer to volunteering activities.

The regression analysis confirmed that hands-on learning significantly predicts community engagement practices. From the student perspective, the item "Hands-on learning helps me understand real-life issues better" was the strongest predictor ($B=0.145$, $p=0.020$). From the teacher perspective, teacher facilitation was the strongest predictor ($B=0.479$, $p<0.001$).

These findings suggest that simply providing hands-on activities is not sufficient; teachers must actively connect these activities to real-life issues and community needs. As Billings and Halstead (2013) emphasized, teachers must not only organize hands-on activities but also explicitly link these activities to community needs and provide structured reflection opportunities.

The finding that teacher facilitation is a strong predictor of community engagement aligns with Kidega et al. (2024), who found that teacher training and facilitation practices significantly affect implementation of learner-centered approaches in Ugandan secondary schools. This suggests that investments in teacher professional development may yield substantial returns in terms of both hands-on learning implementation and community engagement outcomes.

5.2.4 Influence of Extraneous Variables

The study examined several extraneous variables that may influence the relationship between hands-on learning and community engagement: teachers' facilitation, school income/funding, time constraints, lack of awareness/motivation, and parental support.

Teachers' facilitation was rated highly by both teachers ($\mu=4.01$) and students ($\mu =3.99$) and emerged as a significant predictor of community engagement in the regression analysis ($B=0.479$, $p<0.001$). This finding confirms the theoretical expectation that teacher facilitation moderates the relationship between hands-on learning and community engagement. When teachers actively encourage students, explain the importance of hands-on learning, and provide support for community projects, students are more likely to engage meaningfully.

This finding aligns with Uwase (2025), who found that teacher facilitation significantly moderates the impact of hands-on activities on community engagement. It also supports Billings and Halstead's (2013) emphasis that teachers must explicitly link hands-on activities to community needs and provide structured reflection opportunities.

School income/funding was rated only "Moderate" (Teacher $\mu =3.17$; Student $\mu =3.09$), indicating that limited financial resources constrain implementation. The qualitative data revealed a clear divide between well-funded and underfunded schools. One respondent stated (HL-03): "The bigger schools have resources and students are doing well. Unfortunately, the smaller schools are lagging behind because they do not have capacity".

This finding confirms Okello's (2020) observation that limited resources (80% of schools report inadequate materials) hinder effective implementation of hands-on learning. The finding that "Our school can afford transport for students to community service sites" was only moderate ($\mu =2.98$) from the teacher perspective indicates that transportation costs are a significant barrier to field trips and community engagement activities.

MacDonald (2023) documented that community-led learning initiatives can be implemented as low-cost models, but adequate resources are still necessary for transportation, materials, and teacher training. The moderate rating for school income suggests that while some low-cost activities can be implemented, the full range of hands-on learning and community engagement opportunities requires financial investment that many Gulu City schools lack.

Time constraints were rated "Moderate" from both perspectives (Teacher $\mu =2.93$; Student $\mu =2.87$), with teachers particularly reporting that they feel pressured to cover the syllabus quickly ($\mu =2.62$). This finding aligns with Kidega *et al.* (2024), who found that limited time for group work hinders implementation of learner-centered approaches.

The crowded curriculum and examination pressure appear to leave little room for the extended time required for meaningful hands-on learning and community engagement. As one respondent noted (EV-03), “severely limited time within the curriculum” is a major challenge. This finding suggests that curriculum reform may be necessary to allocate dedicated time for experiential learning and community engagement activities.

Lack of awareness and motivation was rated “High” from both perspectives (Teacher $\mu = 3.98$; Student $\mu = 3.75$), indicating that awareness and motivation are not major constraints. Teachers reported that they understand the benefits of hands-on learning ($\mu = 4.25$), and students reported understanding what community engagement means ($\mu = 3.80$) and seeing how activities like tree planting will help their future ($\mu = 4.15$).

However, the finding that “Parents do see the value of community engagement as well as academic activities” was only moderate ($\mu = 3.45$) from the teacher perspective, and students reported that “My parents talk to me about helping the community” was only moderate ($\mu = 3.45$). This suggests that while students and teachers may be motivated, parental awareness and support may be areas for improvement.

Parental/guardian support was rated “High” from the student perspective ($\mu = 3.56$), with students reporting that parents allow them to join community activities ($\mu = 4.05$) and encourage volunteering ($\mu = 4.00$). However, the finding that “My family can afford to pay for field trips or extra materials” was moderate ($\mu = 2.95$) indicates that financial constraints at the household level also limit participation.

This finding supports Epstein’s (2018) emphasis that school, family, and community partnerships are essential for effective engagement. When parents value and encourage community participation, students are more likely to engage meaningfully. However, when financial constraints prevent parents from supporting field trips or providing materials, student participation may be limited regardless of parental encouragement.

5.3 Conclusions

Based on the findings of this study, the following conclusions are drawn:

- 1) Students' community engagement practices in secondary schools in Gulu City are predominantly characterized by volunteering and environmental activism, with lower levels of service learning and social activism.
- 2) Hands-on learning activities are implemented at moderate to high levels across Gulu City secondary schools, with games and sports being the most frequently implemented dimension and field trips being the most challenging.
- 3) There is a significant positive relationship between hands-on learning and students' community engagement practices. Students who participate more frequently in hands-on learning activities demonstrate higher levels of community engagement.
- 4) Teachers' facilitation, school income/funding, time constraints, and parental support influence the relationship between hands-on learning and community engagement. Teacher facilitation emerged as the strongest predictor of community engagement, suggesting that active teacher encouragement and support are critical for translating hands-on learning into community engagement.

5.4 Recommendations

Based on the findings and conclusions of this study, the following recommendations are made:

- 1) The Ministry of Education and Sports should increase budget allocation for hands-on learning resources in secondary schools, including dedicated funding for field trips, gardening tools, art supplies, and sports equipment. The finding that school income/funding was rated only "Moderate" indicates that increased investment is needed to fully implement the competence-based curriculum.
- 2) Headteachers should prioritize the development of structured community engagement programs that go beyond volunteering to include service learning with explicit learning objectives and reflection components. The lower ratings for service learning ($\mu = 3.93$) suggest this area requires attention.
- 3) Teachers should explicitly link hands-on activities to community needs and provide structured reflection opportunities. The finding that "Hands-on learning helps me understand real-life issues better" was the strongest predictor from the student perspective ($B=0.145$) suggests that making these connections explicit enhances community engagement outcomes.

4) CBOs should establish formal partnerships with secondary schools to provide structured community engagement opportunities for students. The qualitative finding that students have launched small enterprises addressing community needs suggests that CBO-school partnerships can be mutually beneficial.

5) Longitudinal studies should be conducted to examine the long-term impact of hands-on learning on students' civic engagement and career outcomes.

5.5 Limitations of the Study

Several limitations of this study should be acknowledged:

1) The study employed a cross-sectional design, which captures relationships at a single point in time but cannot establish causation. Longitudinal research would be needed to determine causal directions.

2) The study was conducted in Gulu City, a post-conflict urban context. Findings may not be generalizable to other regions of Uganda or to rural contexts with different characteristics.

3) Limited time and funding prevented the inclusion of classroom observations, which would have provided objective data on hands-on learning implementation.

5.6 Contributions to Knowledge

Despite these limitations, this study makes several important contributions:

1) The study provides the first systematic baseline data on hands-on learning and community engagement practices in secondary schools in Gulu City, a post-conflict urban context in northern Uganda.

2) The study validates a conceptual framework linking specific hands-on learning dimensions (gardening, field trips, arts and crafts, games and sports, health and wellness) to specific community engagement practices (volunteering, service learning, social activism, environmental activism).

3) The study identifies and quantifies the influence of extraneous variables (teachers' facilitation, school income, time constraints, awareness, parental support) on the relationship between hands-on learning and community engagement.

4) The convergent parallel mixed-methods design provides both breadth through survey data and depth through interview data, enabling comprehensive understanding of both patterns and experiences.

5) The study provides specific, actionable recommendations for policymakers, school administrators, teachers, and community-based organizations based on empirical evidence from the Gulu City context.

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Appendices

Appendix A: Interview Guide for Local Council Members, CDOs, Town Clerk, and Mayor

I am Oyella Gloria, a student at Gulu University pursuing a Master of Education in Education Management. I am undertaking a study on “Hands-on Learning and Students’ Community Engagement Practices: A Case of Secondary Schools in Gulu City, Uganda”

Having selected you as one of the valuable respondents for this research, please kindly provide the necessary information to enable the researcher to complete the research project successfully. Please note that the information provided therein will be treated with the utmost confidentiality, and your cooperation therein is highly welcome. I therefore humbly seek your participation in this research.

Section A: Background

1. What is your role in overseeing education and youth development in the city?
2. How do you interact with schools and education stakeholders?

Section B: Student Involvement in Community Development

1. Are secondary school students visibly involved in community activities in Gulu City?
2. What structures e.g., youth councils, local committees exist for student engagement?
3. How does the City Council collaborate with schools to promote civic participation?

Section C: Hands-on Learning in Schools

1. Are you aware of school projects that apply hands-on skills to local issues (e.g., environmental clean-ups, agriculture)?
2. What kind of local government support (materials, land, training) is available for such initiatives?

Section D: Relationship between Hands-on Learning and Students’ Community Engagement Practices

1. How do you think hands-on learning prepares students for civic responsibility?
2. What can be done to ensure school learning addresses real community needs?
3. What partnerships or policies would improve school-community collaboration?

Appendix B: Interview Guide for Community Based Organizations

I am Oyella Gloria, a student at Gulu University pursuing a Master of Education in Education Management. I am undertaking a study on “Hands-on Learning and Students’ Community Engagement Practices: A Case of Secondary Schools in Gulu City, Uganda”

Having selected you as one of the valuable respondents for this research, please kindly provide the necessary information to enable the researcher to complete the research project successfully. Please note that the information provided therein will be treated with the utmost confidentiality, and your cooperation therein is highly welcome. I therefore humbly seek your participation in this research.

Section A: Background

1. What is the mission of your organization?
2. What age groups and issues do your CBO mainly focus on?
3. Do you currently partner with any schools? If yes, how?

Section B: Students’ Community Engagement Practices

1. In your experience, are students in secondary schools actively participating in community work?
2. What role has your organization played in engaging students?
3. What barriers do you think prevent students from being more involved?

Section C: Hands-On Learning

1. Are you aware of any hands-on learning programs in schools you work with?
2. Do these programs help students gain practical skills that are useful in your community work?

Section D: Relationship between Hands-on Learning and Students’ Community Engagement Practices

1. Have you seen successful examples where students used school-learned skills to support community initiatives?
2. How can your CBO collaborate with schools to bridge learning and real-life impact?

Appendix C: Interview Guide for Education Officer and Inspector of Schools

I am Oyella Gloria, a student at Gulu University pursuing a Master of Education in Education Management. I am undertaking a study on “Hands-on Learning and Students’ Community Engagement Practices: A Case of Secondary Schools in Gulu City, Uganda”

Having selected you as one of the valuable respondents for this research, please kindly provide the necessary information to enable the researcher to complete the research project successfully. Please note that the information provided therein will be treated with the utmost confidentiality, and your cooperation therein is highly welcome. I therefore humbly seek your participation in this research.

Section A: Students’ Community Engagement Practices

1. What types of community engagement activities are currently implemented by students in secondary schools in Gulu City?
2. In your view, how active are students in participating in these community-based initiatives?
3. What are the key factors influencing the extent of student involvement in community engagement?
4. Are there any formal programs or partnerships between schools and local community organizations? Please elaborate.
5. How do schools document or assess student participation in community engagement activities?
6. What role do school administrations and teachers play in promoting student involvement in the community?

Section B: State of Hands-On Learning Activities

1. What is your assessment of the current status of hands-on learning (practical-based learning) in secondary schools in Gulu City?
2. Which subjects or learning areas are more likely to incorporate hands-on learning approaches?

3. What resources (e.g., laboratories, materials, fieldwork opportunities) are available to support hands-on learning?
4. Are there challenges limiting the effective implementation of hands-on learning in schools? If so, what are they?
5. How is teacher capacity in terms of training and facilitation of hands-on learning?
6. Are there any outstanding examples of schools in your area where hands-on learning is being effectively implemented?

Section C: Relationship Between Hands-On Learning and Students' Community Engagement Practices

1. In your experience, how does hands-on learning influence student involvement in community activities?
2. Can you share any examples where hands-on learning led to or enhanced community engagement among students?
3. Do schools deliberately integrate community issues into practical learning tasks or projects?
4. What policies or strategies are in place (if any) to promote a link between practical learning and community engagement?
5. What recommendations would you make to strengthen the relationship between hands-on learning and community engagement practices in schools?

Section D: Suggestions and Final Remarks

1. What general improvements would you suggest for enhancing both hands-on learning and community engagement in secondary schools?

Are there specific support systems or partnerships that you believe could boost the success of these initiatives?

Appendix D: Questionnaire for teachers

I am Oyella Gloria, a student at Gulu University pursuing a Master of Education in Education Management. I am undertaking a study on “Hands-on Learning and Students’ Community Engagement Practices: A Case of Secondary Schools in Gulu City, Uganda”

Having selected you as one of the valuable respondents for this research, please kindly provide the necessary information to enable the researcher to complete the research project successfully. Please note that the information provided therein will be treated with the utmost confidentiality, and your cooperation therein is highly welcome. I therefore humbly seek your participation in this research.

Section A: Demographic Information

Please tick the corresponding box for your opinion on the question.

1. Gender

a) Male ☐ (b) Female ☐

2. Age Bracket

a) 21-25 ☐ b) 26-30 ☐ c) 31-35 ☐ d) 36 & Above ☐

3. Level of Education

(a) UACE ☐ b)Diploma ☐ c)Bachelor Degree ☐ d)Master Degree ☐

4. Number of years in the institution

a) < 1 year ☐ b)Between 1-2 years ☐ c)Between 3-4 years ☐ > 4 years ☐

For the remaining sections (B-D) of the questionnaire, please indicate your level of agreement with each statement using the scale: SD=Strongly Disagree, D= Disagree, NS=Undecided, A=Agree, SA=Strongly Agree. Please tick (✓) in the box for preferred option(s) matching your response.

Section B: Hands-on Learning

B1: Gardening Practices

S/No	Statement of inquiry	SD	D	U	A	SA
B1.1	I regularly integrate school gardening activities into my lesson plans.					
B1.2	Students at our school participate in planting, weeding, and harvesting crops.					
B1.3	Our school uses gardening projects to teach environmental conservation.					
B1.4	Gardening activities are linked to agricultural science or biology topics in our curriculum.					
B1.5	Students demonstrate improved responsibility through caring for school gardens.					

B2: Field Trips

S/No	Statement of inquiry	SD	D	U	A	SA
B2.1	Our school organizes at least one educational field trip per term.					
B2.2	Field trips are deliberately planned to connect classroom theory with real-world applications.					
B2.3	I use field trip experiences as a basis for follow-up classroom discussions and assignments.					
B2.4	Our students visit farms, nature parks, museums, or community industries for learning.					
B2.5	Field trips help students develop observation and inquiry skills relevant to their studies.					

B3: Arts and Crafts

S/No	Statement of inquiry	SD	D	U	A	SA
B3.1	I assign arts and crafts projects that require students to demonstrate academic concepts.					
B3.2	Our school displays student artwork related to community or environmental themes.					
B3.3	I encourage students to use drawing, modeling, or building to express their learning.					
B3.4	Arts and crafts activities are used to teach cultural heritage and social values.					
B3.5	Students are given recycled or low-cost materials for creative hands-on projects.					

B4: Games and Sports

S/No	Statement of inquiry	SD	D	U	A	SA
B4.1	Our school uses team sports to explicitly teach leadership and cooperation.					
B4.2	I incorporate educational games (e.g., quizzes, simulations) into my teaching.					
B4.3	Students learn conflict resolution skills through structured					

	games and sports.					
B4.4	Our sports program includes discussions on fairness, discipline, and teamwork.					
B4.5	Games are used to make abstract subjects (e.g., math, science) more engaging and practical.					

B5: Health and Wellness

S/No	Statement of inquiry	SD	D	U	A	SA
B5.1	Our school conducts practical hygiene demonstrations (e.g., handwashing, sanitation).					
B5.2	Students participate in physical exercise programs as part of health education.					
B5.3	Nutrition lessons include hands-on activities like meal planning or growing vegetables.					
B5.4	Health and wellness activities are linked to students' responsibilities to family and community.					
B5.5	Our school invites health workers to demonstrate first aid or disease prevention practices.					

B6: Experiential/Participatory Learning

S/No	Statement of inquiry	SD	D	U	A	SA
Item	Statement	SD	D	U	A	SA
B6.1	My lessons regularly include "learning by doing" activities rather than only lectures.					
B6.2	I design group projects where students solve real problems in their school or community.					
B6.3	Students are assessed on their participation in practical activities, not just written exams.					
B6.4	I encourage students to experiment, make mistakes, and learn from hands-on experiences.					
B6.5	Our school provides materials and space for experiential learning (e.g., labs, workshops).					

Section C: Students' Community Engagement Practices

C1: Volunteering

S/No	Statement of inquiry	SD	D	U	A	SA
C1.1	Students volunteer to clean classrooms, school compounds, and latrines without coercion.					
C1.2	Our learners assist younger or struggling peers with homework and school tasks.					
C1.3	Students participate in community clean-up campaigns outside the school grounds.					
C1.4	Volunteering activities are recognized through awards,					

	certificates, or public acknowledgment.					
C1.5	Students willingly give their time to help teachers with non-academic school duties.					

C2: Service Learning

S/No	Statement of inquiry	SD	D	U	A	SA
C2.1	Our school organizes projects where students apply academic skills to help the community (e.g., literacy campaigns).					
C2.2	Students visit and support elderly persons, orphanages, or people with disabilities.					
C2.3	Service projects are preceded by classroom learning and followed by structured reflection.					
C2.4	Learners help local farmers, health centers, or community groups as part of their coursework.					
C2.5	Students demonstrate improved civic responsibility after participating in service learning.					

C3: Social Activism

S/No	Statement of inquiry	SD	D	U	A	SA
C3.1	Students lead awareness campaigns on students' rights and child protection.					
C3.2	Learners speak up against bullying, discrimination, or unfair treatment at school.					
C3.3	Our school encourages students to write to local leaders about community problems.					
C3.4	Students participate in debates or drama on social issues like gender equality or inclusion.					
C3.5	Learners have formed clubs (e.g., human rights, anti-corruption) to advocate for change.					

C4: Environmental Activism

S/No	Statement of inquiry	SD	D	U	A	SA
C4.1	Students actively plant and care for trees on school grounds and in the community.					
C4.2	Learners sort waste, recycle materials, and lead anti-litter campaigns.					
C4.3	Our school has a functioning environmental club that meets regularly.					
C4.4	Students educate community members about dangers of deforestation or poor sanitation.					
C4.5	Learners demonstrate reduced littering and improved waste management behaviors.					

C5: What types of Students' Community Engagement Practices have been most popular among your students? Why?

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.....
 C6:What challenges have you observed in sustaining student community engagement?

Section D: Extraneous Variables

D1: Teachers's Facilitation

S/No	Statement of inquiry	SD	D	U	A	SA
D1.1	I feel confident in my ability to facilitate hands-on learning activities.					
D1.2	Our school provides professional development on experiential and community-based teaching.					
D1.3	I actively encourage students to participate in community engagement projects.					
D1.4	Teachers at our school collaborate to plan interdisciplinary hands-on projects.					
D1.5	I have sufficient autonomy to modify the syllabus to include hands-on activities.					

D2: School Income

S/No	Statement of inquiry	SD	D	U	A	SA
D2.1	Our school has a dedicated budget for field trips, gardening tools, and art supplies.					
D2.2	Our school funds for organizing regular community engagement activities.					
D2.3	We rely on donations or parent contributions to support hands-on learning.					
D2.4	Our school can afford transport for students to community service sites.					
D2.5	Our school provide enough funds to procure quality materials for arts, crafts, and gardening.					

D3: Time Constraints

S/No	Statement of inquiry	SD	D	U	A	SA
D3.1	The school timetable allocate enough time for hands on activities.					
D3.2	I don't feel pressured to cover the syllabus quickly, leaving me with time for experiential learning.					
D3.3	Our school allocate equal time for both examination preparation and community engagement practices.					
D3.4	Field trips and service projects are often allocated adequate time.					
D3.5	I give adequate time for hands-on activities as well as teaching periods.					

D4: Lack of Awareness and Motivation

S/No	Statement of inquiry	SD	D	U	A	SA
D4.1	Many teachers at our school do understand the benefits of hands-on learning.					
D4.2	Students are more motivated to participate in community activities					
D4.3	Parents do see value in community engagement, as well as academics activities.					
D4.4	I am fully aware of how to link hands-on activities to the national curriculum.					
D4.5	Learners are interested in environmental or social activism .					

D5. What specific challenges have you faced in implementing Hands-on Learning and Students' Community Engagement Practices?

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D6. What resources or support would help you improve in these areas?

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D7. In your opinion, how important is it for schools to promote Students' Community Engagement Practices?

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D8. What role do you believe teachers should play in shaping socially responsible students?

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Appendix E: Questionnaire for Learners

I am Oyella Gloria, a student at Gulu University pursuing a Master of Education in Education Management I am undertaking a study on *Hands-on Learning and Students' Community Engagement Practices: A Case of Secondary Schools in Gulu City, Uganda*

Having selected you as one of the valuable respondents for this research, please kindly provide the necessary information to enable the researcher to complete the research project successfully. Please note that the information provided therein will be treated with the utmost confidentiality, and your cooperation therein is highly welcome. I therefore humbly seek your participation in this research.

Section A: Demographic Information

1. Gender

a) Male ☐

b) Female ☐

2. Age Bracket

a) 18-20 ☐

b) 21-23 ☐

c) 24-26 ☐

3. Level of Education

a) UCE ☐

b) UACE ☐

4. Number of years in the institution

a) Less than a year ☐

b) Between 1-2 years ☐

c) More than 3 years ☐

For the remaining sections (B-D) of the questionnaire, please indicate your level of agreement with each statement using the scale: SD=Strongly Disagree, D= Disagree, NS=Undecided, A=Agree, SA=Strongly Agree. Please tick (✓) in the box for preferred option(s) matching your response

Section B: Hands-on Learning

B1: Gardening

S/No	Statement of inquiry	SD	D	U	A	SA
B1.1	We plant, water, and harvest crops in our school garden.					
B1.2	I have learned about soil, crops, or weather from gardening activities.					
B1.3	Our school garden produces food that we use or sell.					
B1.4	I enjoy working in the garden with my classmates.					
B1.5	Gardening has taught me to be responsible and hardworking.					

B2: Field Trips

S/No	Statement of inquiry	SD	D	U	A	SA
B2.1	My class has gone on a field trip outside the school this year.					
B2.2	Field trips help me understand what I learn in books better.					
B2.3	I have visited a farm, museum, factory, or nature park for learning.					
B2.4	After a field trip, my teacher asks us to discuss or write about what we saw.					
B2.5	Field trips make learning more interesting than staying in class.					

B3: Arts and Crafts

S/No	Statement of inquiry	SD	D	U	A	SA
B3.1	We draw, paint, or build things as part of our lessons.					
B3.2	I use art to show what I have learned in subjects like science or social studies.					
B3.3	Our school has materials like paper, glue, clay, or scissors for arts and crafts.					
B3.4	I enjoy making things with my hands in class.					
B3.5	Arts and crafts help me express my ideas and feelings.					

B4: Games and Sports

S/No	Statement of inquiry	SD	D	U	A	SA
B4.1	We play educational games (e.g., quizzes, puzzles) in class.					
B4.2	Sports and games teach me to work as a team.					
B4.3	I have learned to solve problems or make decisions through games.					
B4.4	Our school has a sports program that all students can join.					
B4.5	Playing games helps me learn without feeling bored.					

B5: Health and Wellness

S/No	Statement of inquiry	SD	D	U	A	SA
B5.1	We practice handwashing, brushing teeth, or other hygiene habits at school.					
B5.2	Our teachers talk to us about eating healthy food.					
B5.3	We do physical exercises like running, stretching, or dancing at school.					
B5.4	I have learned how to stay clean and avoid getting sick.					
B5.5	Health activities have taught me to help my family stay healthy too.					

Section C: Students' Community Engagement Practices

C1: Volunteering

S/No	Statement of inquiry	SD	D	U	A	SA
C1.1	I help clean our classroom and school compound without being forced.					
C1.2	I have helped a classmate who was struggling with schoolwork.					
C1.3	I have taken part in cleaning the community outside our school.					
C1.4	I volunteer to help teachers carry books, arrange chairs, or run errands.					
C1.5	I feel happy when I help others without being paid.					

C2: Service Learning

S/No	Statement of inquiry	SD	D	U	A	SA
C2.1	I have visited old people, sick people, or orphans to help them.					
C2.2	Our class has done a project that helped people in our community.					
C2.3	I have used what I learned in class (e.g., reading, math) to help someone outside school.					
C2.4	My teacher asks us to think about how our service helped others.					
C2.5	I want to do more projects that help my community.					

C3: Social Activism

S/No	Statement of inquiry	SD	D	U	A	SA
C3.1	I have spoken up when I saw someone being treated unfairly at school.					
C3.2	Learners at our school have led campaigns about our rights (e.g., against bullying).					
C3.3	I have participated in a debate or drama about social issues like gender equality.					
C3.4	Our school has a club where we discuss how to make things better for students.					
C3.5	I believe young people can change problems in our community.					

C4: Environmental Activism

S/No	Statement of inquiry	SD	D	U	A	SA
C4.1	I have planted a tree at school or at home.					
C4.2	I put rubbish in the bin and encourage others not to litter.					
C4.3	Our school recycles things like plastic bottles or paper.					
C4.4	I have taught my family or friends about protecting the environment.					
C4.5	I care about keeping our village or town clean and green.					

C5. What is the most meaningful community activity you've taken part in?

.....

C6. Do you think school activities help you care more about your community? ☐ Yes ☐ No
If yes, how?

.....

Section D: Extraneous Variables

D1: Time Constraints

S/No	Statement of inquiry	SD	D	U	A	SA
D1.1	My school day is provide time for extra activities.					
D1.2	Homework and exams leave me with time for community service.					
D1.3	I have more time during school for fun, hands-on learning.					
D1.4	Our teachers do not rush to finish the syllabus, so we do not skip practical activities.					
D1.5	Weekends and holidays are not the only times I can help my community.					

D2: School Income / Resources

Item	Statement	1	2	3	4	5
D2.1	Our school have tools like hoes, watering cans, or garden seeds.					
D2.2	We always go for field trips because the school plan for these activities					
D2.3	There are enough art supplies (paper, paint, scissors) for all students.					
D2.4	Our sports equipment are sufficient and adequate					
D2.5	We always do more practical activities.					

D3: Teachers' Facilitation / Encouragement

S/No	Statement of inquiry	SD	D	U	A	SA
D3.1	My teachers encourage me to take part in community activities.					
D3.2	Teachers explain why hands-on learning is important.					
D3.3	My teachers praise me when I volunteer or help others.					
D3.4	Most teachers always want us to read books, as well as do practical work.					
D3.5	I feel supported by my teachers when I suggest a community project.					

D4: Lack of Awareness / Motivation

S/No	Statement of inquiry	SD	D	U	A	SA
D4.1	I really know what "community engagement" means.					
D4.2	My friends are interested in helping the community, so I am either.					
D4.3	I see how planting trees or cleaning will help my future.					
D4.4	My parents talk to me about helping the community.					
D4.5	Even if someone doesnot explained the benefits, I would still participate more.					

E5: Parental/Guardian Support

S/No	Statement of inquiry	SD	D	U	A	SA
D5.1	My parents or guardians allow me to join community activities.					
D5.2	My family encourages me to volunteer and help others.					
D5.3	My parents think school is for Holistic learning					
D5.4	My family can afford to pay for field trips or extra materials.					
D5.5	My parents come to school events that support community projects.					

Appendix F: Krejcie Morgan Sample Size Table

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

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

Appendix G: Introductory letter from Faculty of Education and Humanities

GULU
P.O. BOX 166 GULU



UNIVERSITY
TEL: +256471432922

OFFICE OF THE DEAN, FACULTY OF EDUCATION AND HUMANITIES

23rd September 2025

TO : WHOM IT MAY CONCERN

This is to introduce to you Ms. Oyella Gloria (Reg No. 23/U/0676/MED/PS) a student pursuing a programme of study leading to an award Master of Education in Education Management of Gulu University, Master of Gulu University.

He is undertaking research on the Topic:

**HANDS-ON LEARNING AND STUDENTS' COMMUNITY ENGAGEMENT PRACTICES:
A CASE OF SECONDARY SCHOOLS IN GULU CITY. UGANDA**

Which is in partial fulfilment of the requirements for the award.

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

Yours faithfully,



Dr. Denis Thaddeus Ofoyuru

Dean, Faculty of Education and Humanities

Appendix H: Permission from office of City clerk



GULU CITY COUNCIL
OFFICE OF THE CITY TOWN CLERK
P.O. BOX 140, GULU. Email: gulucitycouncil@gmail.com
Mob: 0772-470586 Email: inoahimbi@gmail.com



Our Ref: GCC/CR/220/1

Date: 13th November 2025

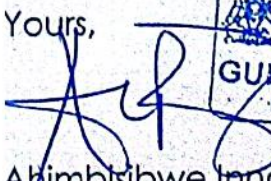
Oyella Gloria
Reg No 23/U/0676/MED/PS

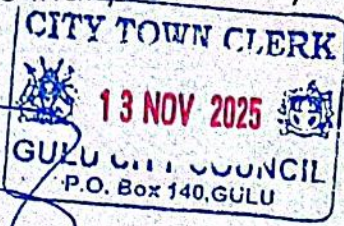
RE: PERMISSION TO CARRYOUT RESEARCH IN GULU CITY

This is to inform you that your request to carryout Data Collection on the topic "**Hands-on Learning and Students Community Engagement Practices**" is considered and permission is hereby aranted **w.e.f 17th – 28th November 2025.**

Furthermore, your attention is drawn to the **Uganda Public Service Standing Orders and Circular Standing Instruction No.3 of 2011, relating to Enhancing Employability Skills of Graduates from Training Institution.**

Please ensure that you restrict your study to only academic purposes.

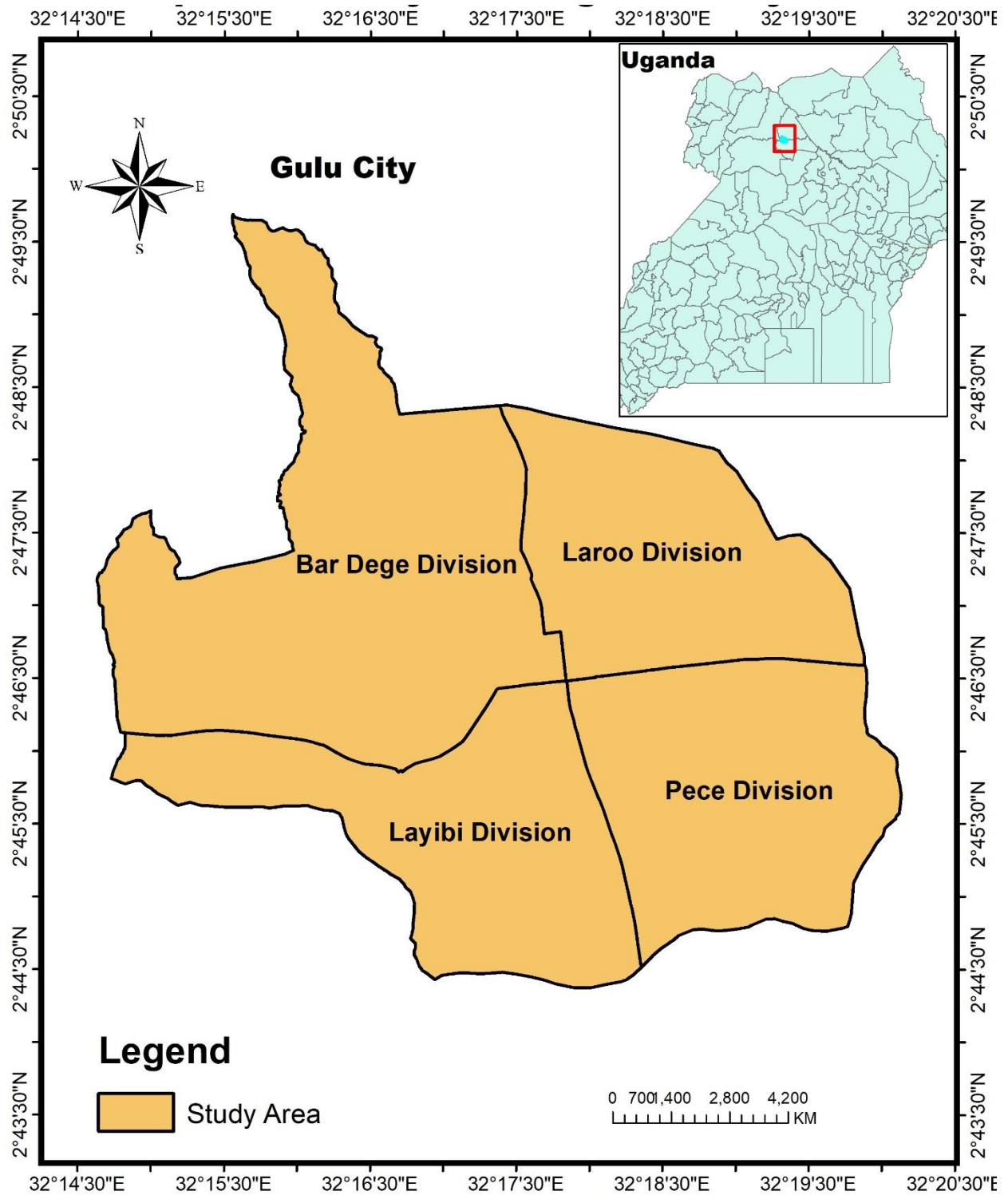
Yours,

Ahimbisibwe Innocent
CITY TOWN CLERK-GULU CITY



CITY TOWN CLERK
13 NOV 2025
GULU CITY COUNCIL
P.O. Box 140, GULU

CC: City Education Officer, Gulu
CC: Head of Human Resource. Gulu City
CC: File

Appendix I: Map of the study area



Appendix J: Final Coding Framework for Thematic Analysis

Code ID	Code Label	Definition	Representative Quotation
Theme 1: Student Community Engagement Practices (SCEP)			
SCEP-01	Types of Community Engagement Activities	Any reference to the specific activities through which students engage with the community.	“Students participate in activities such as community cleaning campaigns, tree planting, health awareness drives, peer education, visiting orphanages, and participating in local cultural events.” (City Education Officer)
SCEP-02	Motivations for Student Participation	Factors that drive students to take part in community activities.	“The opportunity to interact with the community. Students are social beings who require exposure for future life in the community.” (Admin 6)
SCEP-03	Importance / Value of Community Service	Perceptions of how community service benefits students and the broader school-community relationship.	“Yes, empowers students, creates a sense of patriotism, and improves school-community relations.” (Admin 4)
Theme 2: Hands-On Learning (HL) Activities			
HL-01	Types of Hands-On Learning Activities	All practical/experiential learning activities implemented in schools.	“We implement experiential learning programs where students run real businesses, vocational training, and solve real-world problems.” (CBO - Educate!)
HL-02	Student Response to Hands-On Learning	How students respond to practical learning compared to traditional classroom instruction.	“Students respond more to HL because of active participation.” (Admin 2)
HL-03	Challenges to Hands-On Learning Implementation	Obstacles that hinder effective implementation of practical learning.	“Major challenges include inadequate funding, lack of equipment, overcrowded classrooms, limited teacher training, and insufficient time allocated for practical work.” (City Education Officer)
HL-04	Resources for Hands-On Learning	Materials, facilities, and financial inputs available to support practical learning.	“Land for agricultural activities; Students’ financial contribution; Locally available feeds for poultry.” (Admin 6)
Theme 3: Relationship Between HL and SCEP			

REL-01	HL Influences SCEP (Positive Relationship)	Statements demonstrating that hands-on learning activities positively influence students' community engagement practices.	"Yes, HL influences SCEP. 'You have touched the heart of school because of the values and attitude which can only be inculcated through community engagement.'" (Admin 4)
REL-02	Practical Examples of HL Linked to Community Projects	Concrete examples where school-based practical learning directly supported or initiated community-based initiatives.	"Agriculture projects have led students to support local farmers, and health science lessons have resulted in community sensitization campaigns." (City Education Officer)
REL-03	HL Prepares Students for Community Contribution	Views on how practical learning equips students with competencies to contribute meaningfully to their communities.	"Self-reliance to avoid over dependence on the community." (Admin 6)
Theme 4: Extraneous Variables			
EV-01	Teacher Role in Facilitating HL and SCEP	The extent to which teachers facilitate, encourage, or hinder student participation.	"School administrators and teachers play a central role by organizing activities, mobilizing students, supervising participation, and linking schools with community stakeholders." (City Education Officer)
EV-02	Income / Financial Resources as a Factor	How income levels and financial constraints affect the implementation of both HL and SCEP.	"To a greater extent because everything moves with money." (Admin 2)
EV-03	Time Allocation for HL and SCEP	Whether and how time is scheduled for practical learning and community engagement.	"Yes, it is programmed but sometimes it is based on the need of the community." (Admin 3)
Theme 5: Governance, Structures & Recommendations			
GOV-01	Structures Supporting Student Engagement	Formal and informal structures that support student participation in community activities.	"There are youth councils at parish and division levels, and some school clubs link with these structures." (Town Clerk)
GOV-02	Recommendations for Improving HL-SCEP Linkage	Suggestions on how to better connect practical school learning with real community needs	