



**Instructional Strategies, Learning Environment, and Student Engagement among
Learners in the Lower Secondary School Competence-Based Curriculum in Manafwa
District, Uganda**

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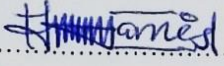
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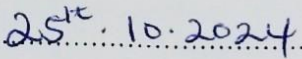
**A Dissertation Submitted to the Directorate of Graduate Studies, Research and
Innovation in Partial Fulfillment of the Requirements for the Award of the Degree of
Masters of Educational Psychology of Busitema University**

October 2024

Declaration

I James Oola, hereby declare that this is my original work, and has not been, to the best of my knowledge, presented for any award in any other University or institution of learning.

Signature.....

Date

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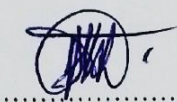
Approval

This dissertation was written under our guidance and has been submitted with our approval as the candidate's supervisor.

Supervisor

Signature.....

Date



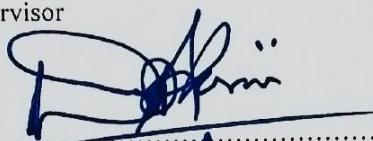
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Dedication

This dissertation is dedicated to my loving parents and family for their unwavering support, encouragement, and belief in my dreams. I also dedicate this work to the pioneers of the Educational Psychology class, 2022 cohort, whose camaraderie and inspiration were invaluable.

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List of Acronyms

CVI	Content Validity Index
CBC	Competency-Based Curriculum
SPSS	Statistical Package for the Social Sciences
SEM	Structural Equation Modeling
ANOVA	Analysis of Variance
MOES	Ministry of Education and Sport
D.E.O.	District Education Officer
ATUCBCPT	Assessment of Teacher's Utilization of Competency-Based Curriculum Pedagogical Tools
TELLMASS	Teaching-Empowering, Leading, and Learning in Massachusetts
OECD	Organization for Economic Co-operation and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization.

Abstract

This study investigated the relationship between instructional strategies, school environment, and student engagement in the Lower secondary schools in Manafwa District, Uganda. Specifically, the study examined the mediating effect of learning environment on the relationship between instructional strategies and student engagement adapting a cross-sectional concurrent, mixed-methods research design, integrating qualitative and quantitative data. A systematic sample of 310 students was selected and the quantitative data were collected using semi-structured and open-ended questionnaires for students, alongside a structured interview guide for 04 selected administrators. The study utilized both content analysis for qualitative responses and SPSS for quantitative data, employing descriptive statistics to assess relationships between variables and structural equation modeling to predict the covariance between variables. Findings indicate that effective instructional strategies and a supportive school environment significantly enhanced student engagement ($r=0.5674$, $p < .001$). Ethical adherences were prioritized throughout the study process, ensuring confidentiality and informed consent from participants. The study enhances understanding of how instructional practices and the school environment impact student engagement in competency-based learning, providing key insights for educators and policymakers in Uganda's lower secondary schools. It emphasizes the need to align teaching methods with the school environment to promote active, student-centered learning. This alignment will support the development of more effective instructional strategies within the competency-based curriculum framework.

Chapter One

Introduction

Overview

This chapter contains the background of the study, the historical background, the conceptual background, the contextual background, and the theory underpinning the study.

Background

The holistic development of people and society of any nation is greatly influenced by the quality of Education (Abd Majid et al., 2018). Achieving high levels of student engagement is a critical objective in modern education systems because it is closely linked to better academic results, increased rates of student retention, and the development of essential skills in life (Millican, 2014). The instructional approaches used by teachers is one of the major factors that determine how engaged students will be in a class. Nevertheless, these strategies are not effective on their own as one of the important mediating factors that affects how instructional strategies affect student engagement is the school environment (Sanjeev & Natrajan, 2019).

In this study context, instructional strategies are ways, approaches, or materials/resources that are adopted by teachers to enable students to learn and to encourage student participation in the learning process, they consist of inquiry-based learning, cooperative learning through group activity or projects, peer teaching, role play all aiming at active learning processes (Njogedde, 2023). Conversely, student engagement is a multifaceted notion that includes the behavioral, emotional, and cognitive aspects of students' involvement in their educational endeavors (Bernard, 2015). The physical, emotional, and social conditions that students need to flourish are provided by a nurturing and well-organized school environment, which moderates the impact of instructional approaches on the level of student engagement (Griffiths, Sharkey, & Furlong, 2009).

This study was based on Vygotsky's Social Constructivism Theory, which holds that social interactions in a classroom setting, such as those between teachers and students, impact students' cognitive development of the learners as Learning is a social process (Davis, 2003). This makes the school setting, where these kinds of social exchanges take place, crucial to comprehending how instructional strategies convert into successful learning and engagement. The purpose of this study is to investigate how instructional strategies, the school environment, and student engagement are interconnected.

Historical background

This study's foundation is the social construction theory, which holds that interactions between learners and more knowledgeable people, supported by environment and structured instruction, are what enable learning to occur across societies (Page, 2023). Globally, education systems have evolved significantly, with student engagement emerging as a key focus, particularly as a result of worldwide changes like the Industrial Revolution. During the First Industrial Revolution (1760–1840), formal education was introduced to meet the demands of industrializing societies. The main goals of education at the time were to prepare students for industrial labor through rote learning and teacher-centered methods, with limited emphasis on student engagement or the development of practical skills (Galofré-Vilà, 2023). There was minimal focus on developing students' practical skills and a predominantly authoritarian relationship between instructional practices and the school environment.

Many people went to school during the Second Industrial Revolution (1870–1914), as nations realized they needed a workforce with greater education (Tesla, 2023). However, educational systems started placing a higher value on abilities like creativity, adaptability, and critical thinking during the Third Industrial Revolution (1960s–1990s), which was marked by the rise of automation and information technology. Focus shifted to student engagement, with attention more on student-centered instructional strategies and learning settings that promoted

involvement and active participation of learners in the process of learning (Voronkova, Vasyl'chuk, Nikitenko, Kaganov, & Metelenko, 2023).

Global education systems have seen substantial changes in the Fourth Industrial Revolution which began in the late 20th century to date to better meet the demands of globalization and the quick advancement of technology. Currently, the emphasis is on teaching students 21st-century competencies including communication, problem-solving, and computer literacy supported by several global organizations in a bid to provide education programs that increase student engagement, retention, and application of learned competencies such as the OECD and UNESCO, have been the driving forces behind this change (Meskell & Brumann, 2015). Global educational shift now centers heavily on student engagement, Learning environment, and instructional approaches.

In pre-colonial Africa, the majority of informal education was student-centered and focused on problem-solving and practical skills that were passed down through community knowledge. Because learning was interactive and took place in naturally engaging environments, elders served as instructors, and as a result, student engagement was high. (Mosweunyane, 2013).

Formal education systems were implemented in Africa during the colonial era, which spanned the late 19th and mid-20th centuries. However, its main purpose was to further imperial interests. With little emphasis on critical thinking or active student participation, the curriculum was created to produce clerks and low-level administrators. The majority of instruction was rote-based. Student participation was limited in educational settings due to the rigid, authoritarian instructional techniques and little funding which crippled the learning Environment and Students were not able to become active learners or develop critical thinking abilities as a result of the scarcity of engagement during the learning process (Hoppers, 2001).

Many African countries Uganda inclusive, attempted to restructure their colonial educational systems after gaining independence in the middle of the 19th century. These changes were intended to replace exam-focused, content-heavy teaching methods with competency-based curricula (CBC) that promoted student active engagement, critical thinking, and creativity which was intended to effectively engage students in real-world learning experiences that would advance national development, these changes emphasized the significance of enhancing teaching methodologies and school environments (Radelet, 2010).

The Afrocentric approaches towards revitalizing the education systems however suffer setbacks in most of the African countries due to increased corruption, breakdown in governance, political instability, and failure to consolidate the shared vision for African development which saw gradual implementation of major educational reforms with Rwanda (2015) taking lead in East Africa followed by Kenya in 2017 and Uganda in 2020 (Mlambo, Mubecua, & Mlambo, 2023).

The colonial elites of East Africa were the main beneficiaries of education during this time, with the mass of the people only having access to rudimentary reading and numeracy abilities. To remedy these disparities, nations like Kenya, Tanzania, and Uganda sought extensive educational reforms after gaining independence. Competency-based education started to gain traction during the late 20th century, especially in Rwanda and Kenya, where the CBC was implemented in the 2010s. However, there were major barriers to successfully implementing these reforms in rural areas, such as overcrowded classrooms and under-resourced schools (Odebero, 2011).

The colonial education system in Uganda prioritized memorization and examinations, which limited possibilities for critical thinking and the development of useful skills (D'Agostino, 2023). Uganda increased educational access after gaining independence in 1962, but the exam-focused approach persisted until the Competency-Based Curriculum (CBC) was

implemented in 2020. With an emphasis on practical competencies pertinent to Uganda's socioeconomic concerns, this reform sought to link active student engagement and participation with the use of a diversity of instructional strategies that establish a conducive learning environment (Namubiru, Kitembo, Kasiita, Kagambe, & Kasiita, 2024).

In rural Districts such as Manafwa in Eastern Uganda, the implementation of CBC seems to be facing significant challenges due to factors not limited to overcrowded classrooms, inadequate school facilities, and a scarcity of educational materials which are some of the inherited from the colonial period, and continue to affect student engagement. (Kidega, Song, Ugochinyere, James, & Ndikubwimana, 2024).

Contextual Background

Globally, the necessity to equip students for a fast-changing and interconnected world has prompted a change from traditional knowledge-based educational systems to competency-based learning (CBL) (Anderson, 2018). In the development of constructivist learning theories in the late 19th century, Piaget, and Vygotsky, among other scholars emphasized that learning should be an active, student-centered process as opposed to a passive intake of information as provided by teachers (Matthews, 2020). Prioritizing the development of critical thinking, problem-solving, and other crucial 21st-century abilities, competency-based learning (CBL) was first implemented in the United States, Canada, and Finland (Mayer, 2002). These reforms were supported by international organizations like OECD and UNESCO, which promoted frameworks that emphasize lifelong learning, adaptability, and economic competitiveness (Declaration, 1999).

However, in Africa, Authoritarian teacher-centered learning, high-stakes tests, and rote memorization have historically dominated educational systems, resulting in low student engagement and high dropout rates. Due to the limited of practical skills necessary to succeed in the workforce, these traditional techniques frequently produced disengaged students. The

early 2000s saw the adoption of competency-based curricula in African countries as a response to this, to advance student-centered methods that promote engagement and skill development for survival in contemporary times (Amutabi, 2019). According to Odora Hoppers (2001), the Competency-Based Curriculum (CBC) was introduced in South Africa in 2005 and Kenya in 2017, both prioritizing the cultivation of pragmatic skills and the capacity for lifelong learning. These changes, which were implemented throughout the continent, aimed to close the gap between workforce demands and educational performance by fostering skills like communication, creativity, and problem-solving. Africa saw a change in instructional strategies toward student-centered, more participatory methods, emphasizing the alignment of school environments to support competency-based learning. However, obstacles such as a lack of resources, inadequate teacher preparation, and enormous class sizes persisted in hindering the effective execution of these changes, limiting student engagement (Tabulawa, 2013).

With the introduction of competency-based curriculum education systems in 2016 and 2017, respectively, East African countries such as Rwanda and Kenya took the lead in this regard. The high rate of youth unemployment and the discrepancy between graduates' skill sets and the demands of the labor market were the main concerns of these reforms (Fomiškina, Woogen, Peiris, Abdulrazzak, & Cameron, 2021). Low student involvement in learning has been one of the major, enduring difficulties despite these modifications. Many students are disengaged as a result of the inadequate adaptation of classrooms and instructional practices to promote active learning. Students frequently find it difficult to relate to the subject matter and take an active role in their education in settings where teaching is still mostly lecture-based and teacher-centered (Mwita, 2023).

To transform its long-standing authoritarian knowledge-based educational system, the Ministry of Education and Sport together with the NCDC of Uganda implemented the Lower Secondary Competency-Based Curriculum (CBC) in 2020 with a focus on students developing

problem-solving, creativity, and critical thinking competencies (Charles, Song, & Khaing, 2022). This change was a component of Uganda's larger initiative to raise student achievement, lower dropout rates, and better match curriculum to job demands (Namubiru et al., 2024).

The Learning environment plays a critical role in the success of these reforms since classrooms need to be conducive to learning and encourage active student participation. Nevertheless, many of schools in Uganda especially those in rural areas remain to confront serious issues with resources, facilities, and teacher capacity, all of which impede the CBC's effective implementation (Kidega et al., 2024). To support competency-based learning effectively despite these obstacles, the government and other educational stakeholders have concentrated on enhancing teacher preparation through training and seminars, classroom conditions, and resource accessibility (Nombo, 2022).

These problems are greater in rural areas like Manafwa in Eastern Uganda. Basic infrastructure and supplies are frequently lacking in schools, which results in cramped classrooms and inadequate teaching materials. Because students are rarely provided the opportunity for active participation or experiential learning that the CBC supports, these substandard learning environments lead to a decrease in student engagement (Kidega et al., 2024). In addition, although most of the teachers are expected to use student-centered instructional methods, they seem to lack the tools and training needed to do so (Tang, 2023). Consequently, learning environments in classrooms continue to be predominantly passive and teacher-centered, hindering students' ability to truly connect with the content or acquire the skills necessary for lifetime learning.

Conceptual Background

This study's fundamental objective was to establish the relationship between Instructional strategies, Learning environment, and student engagement. All three of these variables play an important role in determining learning outcomes and raising the standard of

instruction in the context of competency-based education (CBE), where the focus has moved from teacher-centered approaches to the development of practical skills, problem-solving, and critical thinking of students.

Instructional strategies are the approaches and techniques that teachers employ to help students learn. These techniques have a direct impact on how students connect with the subject matter, their peers, and the learning process. Contemporary educational research places a major emphasis on active learning approaches that encourage students to take responsibility for their learning which include cooperative learning, problem-based learning, and inquiry-based techniques have all helped to boost student engagement and understanding (Gillies, 2023). Such strategies change students from passive receivers of knowledge to active participants, increasing their engagement in the learning process (Blasco-Arcas, Buil, Hernández-Ortega, & Sese, 2013).

In a competency-based education system, instructional strategies ought to prioritize student-centered learning, in which students actively engage with the learning materials, build knowledge through collaboration, and apply what they've learned to real-world circumstances. This is consistent with constructivist views developed by scholars such as Piaget and Vygotsky, who posited that learners actively construct knowledge through interactions with their environment and peers (Vygotsky, 1978; Piaget, 1964). This would implies that Instructional approaches in a CBC framework have to prioritize the development of practical skills, critical thinking, problem-solving abilities, and creativity, and to accomplish this, teachers should employ strategies like problem-based learning, collaborative learning, project-based learning, and use of relatable real-world scenarios in the classroom. Many Teachers in Manafwa district, a rural setting lack the tools and training required to put these student-centered teaching strategies into practice, which makes it more difficult for them to involve learners in competency-based learning.

Learning Environment refers to the physio-psychosocial conditions within a school that can either support or impede effective teaching and learning. According to Shernoff (2013), the success of instructional strategies is dependent on aspects such as students' physical comfort, availability of learning resources, teacher support, and the overall learning environment. A Positive learning environment is vital for encouraging student-centered learning because it creates the circumstances for active involvement, collaboration, and critical thinking. Schools with collaborative learning spaces, access to technology, and enough materials allow for a more participatory, student-centered classroom (Hirumi, 2002). Equally, they observed that a negative environment constrains teachers' ability to employ more effective teaching strategies, thus reducing the potential for student engagement.

Several scholars have intimated the challenges of employing modern 21st-century teaching methods in a poor learning environment these are not limited to Cohen et al., (2009) who observed that, in an overcrowded school environment, teachers always prefer to use traditional teacher-centered methods to manage the large class sizes which greatly reduces the chances of realistic student engagement. Moreover, Weinstein (1979) posits that poorly maintained school environments often restrict teachers to select the teaching method that they deem possible irrespective of what they intend to use which can be frustrating because of the inability to apply their intended methods which hampers the Implementation of a diversity of teaching techniques(Good & Weinstein, 1986)

Learning engagement is influenced by various components of the Learning environment, such as students' physical comfort, teachers' support, involvement, autonomy, and peer interaction. The general environment of the school, staff, student, and teacher relationships, classroom environments, and the availability of educational materials are all included in this. Encouraging learning environments that are safe, supportive, and encouraging,

together with sufficient facilities and resources, motivate students to actively participate in their education.

Student engagement refers to the extent to which students actively participate in their learning. It consists of three essential dimensions: behavioral engagement (participation in academic and social activities), emotional engagement (students' attitudes and sentiments toward learning), and cognitive engagement (students' interest in knowing and mastering the content) (Li & Lerner, 2013). High levels of student engagement are vital in a competency-based framework because they ensure that students are not just receiving material but also acquiring the practical skills and competencies required for lifetime learning (Wijayati & Andriyanti, 2019).

In the context of this study, student engagement is an important concern in Manafwa. Despite the competency-based curriculum's goals of promoting active learning, many students stay disengaged due to obsolete instructional approaches and inadequate learning settings. Students in such settings are frequently passive consumers of knowledge, limiting their potential to develop critical thinking and problem-solving skills.

Interdependence of Instructional Strategies, Learning Environment, and Student Engagement is central to this study framework. A supportive learning environment enhances the effectiveness of student-centered teaching strategies, which in turn increases student engagement. Conversely, when the environment is lacking due to factors such as overcrowded classrooms, poor facilities, or insufficient materials student engagement is likely to decline, regardless of the instructional strategies employed (Glasgow & Hicks, 2009). As Reeve (2009) points out, for instructional strategies to be effective in promoting active learning, students must feel a sense of autonomy and involvement in their education, which requires a supportive and well-resourced learning environment (Reeve, 2009).

In conclusion, the successful implementation of student-centered teaching strategies in competency-based education depends heavily on the quality of the learning environment. A positive, resource-rich environment promotes active engagement, critical thinking, and teamwork core elements of contemporary teaching strategies (Jacobs & Renandya, 2019). Without these environmental supports, however, even the most thoughtfully designed instructional methods may fail to fully engage students or foster the competencies needed for success in the 21st century. Thus, this study seeks to explore how instructional strategies, the learning environment, and student engagement interact within the context of the competency-based curriculum in Manafwa district, to identify ways to enhance student participation and learning outcomes.

Theoretical perspective

This study was based on a multidimensional theoretical framework that includes Social Constructivism, Ecological Systems Theory, and Self-Determination Theory. These ideas, taken together, provided a solid framework for understanding the interaction between instructional strategies, learning environments, and student engagement in the context of competency-based education (CBE) in lower secondary education in Manafwa District.

Social constructivists, such as Vygotsky (1978) and Piaget (1964), stress that students actively create knowledge utilizing interactions with peers, teachers, and their surroundings, therefore mediating their process of learning. In the context of CBE, this theory underscores the importance of student-centered instructional strategies that promote active participation, collaboration, and problem-solving (Woo & Reeves, 2007). Teachers play a crucial role as facilitators in this process, guiding learners through scaffold instruction and promoting inquiry-based learning (Van Der Stuyf, 2002). In rural settings like Manafwa District, the challenge lies in providing teachers with the necessary tools and training to foster an interactive, constructivist learning environment, as many are limited by traditional, teacher-centered

methods. This study, which incorporates social constructivism, was intended to investigate how to better engage students in the learning process through effective instructional strategies, especially in settings with limited resources.

Ecological Systems Theory (Bronfenbrenner, 1979) was part of this study by looking at how different environmental constructs, ranging from the immediate classroom setting (microsystem) to broader societal influences (macrosystem), affect student participation (Ebadi, Aliabadi, & Ajabshir, 2024). According to this idea, the learning environment is not isolated; it is influenced by the interactions of numerous systems that support or impede learning outcomes. Overcrowded classrooms, poor infrastructure, and restricted access to instructional materials all create hurdles to student-centered learning in resource-constrained environments like Manafwa, lowering student participation. The notion emphasizes the importance of a supportive, resource-rich learning environment in which facilitators can use effective instructional practices. This study investigates how ecological elements in the school environment interact with instructional approaches to influence student engagement in a competency-based framework (Anand & Ebrahim, 2024).

Lastly, the Self-Determination Theory (Deci & Ryan, 2000) sheds light on the psychological components of student engagement, highlighting the role of autonomy, competence, and relatedness in cultivating intrinsic drive (Namaziandost, Kargar Behbahani, & Heydarnejad, 2024). According to this theory, when students have a sense of ownership over their learning, have opportunities to exhibit competence, and have positive interactions with peers and teachers, they are more likely to be engaged and motivated. Student-centered teaching practices in competency-based education, such as problem-based learning and collaborative activities, are consistent with self-determination principles since they encourage active engagement and promote autonomy.

Together, these theories provided a complete theoretical perspective for examining how instructional strategies, the learning environment, and student engagement interact within a competency-based curriculum, especially in resource-constrained contexts.

Statement of the problem

Although numerous studies have demonstrated the influence of student engagement on learning outcomes and academic development (Gilboy, Heinerichs, & Pazzaglia, 2015), The level of student engagement in lower secondary schools remains a major concern, notably in Uganda. Student engagement, which includes behavioral, emotional, and cognitive participation in learning, is critical to obtaining meaningful learning outcomes. Despite the implementation of innovative instructional practices aimed at encouraging active, student-centered learning, many students seem to display low levels of engagement due to unsupportive and under-resourced learning settings (Charles et al., 2022). Other studies observed that the relationship between the school environment and student engagement was low implying that students were not utilizing the learning environment effectively in their learning progress (Awori, Sekiwu, Ssempala, & Naluwemba, 2020).

The challenge in fostering optimal student engagement seems to be linked to the interaction between instructional strategies and the learning environment. Even when teachers adopt engaging, student-centered approaches, these strategies may not yield the intended results if the learning environment does not adequately support them. In resource-constrained settings, such as rural Uganda, factors like overcrowded classrooms, inadequate facilities, and a lack of teaching materials hinder the creation of an environment conducive to active student participation. This highlights the need to investigate how instructional strategies and the learning environment interact to either foster or hinder student engagement. Therefore, this study was to explore the mediating role of the learning environment in the relationship between instructional strategies and student engagement.

Purpose of the study

The purpose of this study was to investigate the relationship between instructional strategies, the learning environment, and student engagement in lower secondary schools in Manafwa District, Uganda. The study specifically aimed to explore how the learning environment mediated the effect of instructional strategies on student engagement. By focusing on the unique educational context of Manafwa District, the findings provided practical insights into how improvements in both instructional practices and the school environment could enhance student engagement and the overall learning experience under the Competency-Based Curriculum.

General objective

This study was to investigate the relationship between instructional strategies, the learning environment, and student engagement in lower secondary schools in Manafwa District, Uganda.

Specific Objectives

1. To determine the relationship between instructional strategies and student engagement in the lower secondary schools in Manafwa District
2. To examine the mediating effect of the learning environment on the relationship between instructional strategies and student engagement in the lower secondary schools in Manafwa
3. To determine the challenges facing the implementation of student-centered instructional strategies in the lower secondary schools in Manafwa district.

Research Hypotheses

This study was conducted based on the following hypotheses;

H₁: There is a variation in instructional strategies usage by teachers in Manafwa District.

H₂: Instructional strategies influenced student engagement in the lower secondary school.

H₃: The learning environment had a mediation effect on the relationship between instructional strategies and student engagement.

Research Questions

1. What is the relationship between instructional strategies and student engagement in the lower secondary schools in Manafwa District?
2. What is the mediating effect of the learning environment on the relationship between instructional strategies and student engagement in the lower secondary schools in Manafwa district?
3. What are the challenges facing the implementation of student-centered instructional strategies in the lower secondary schools in Manafwa district?
4. What strategies can be adopted to strengthen the implementation of student-centered instructional strategies in the lower secondary schools?

Scope of the Study

i.Geographical Scope

The study was conducted in Butiru County, Manafwa district, located in the Eastern part of Uganda. Manafwa was selected due to its predominantly rural setting and the presence of schools with different ownership and foundation types. This District was a representative of many rural areas in Uganda, where schools face challenges in fostering effective student engagement mainly diverse variations in instructional strategies as it is predetermined by resources/ materials availability, especially within the competency-based education (CBC) framework.

ii.Content Scope

The study focused on the relationship between instructional strategies, the learning environment, and student engagement in lower secondary schools. It aimed to explore how teaching approaches, particularly student-centered methods, and the available resources or school environment, influence student participation and engagement. The study targeted

teacher trainers, students, and selected school administrators, gathering insights from these groups to provide a comprehensive analysis of the issues faced in implementing competency-based learning strategies in rural settings.

iii. Time scope

This study was conducted for a period of two months, from June 2024 to August 2024 and the timeframe allowed the researcher to gather both qualitative and quantitative data from various stakeholders in lower secondary schools in Manafwa district and analyze the impact of instructional strategies on student engagement within the given period.

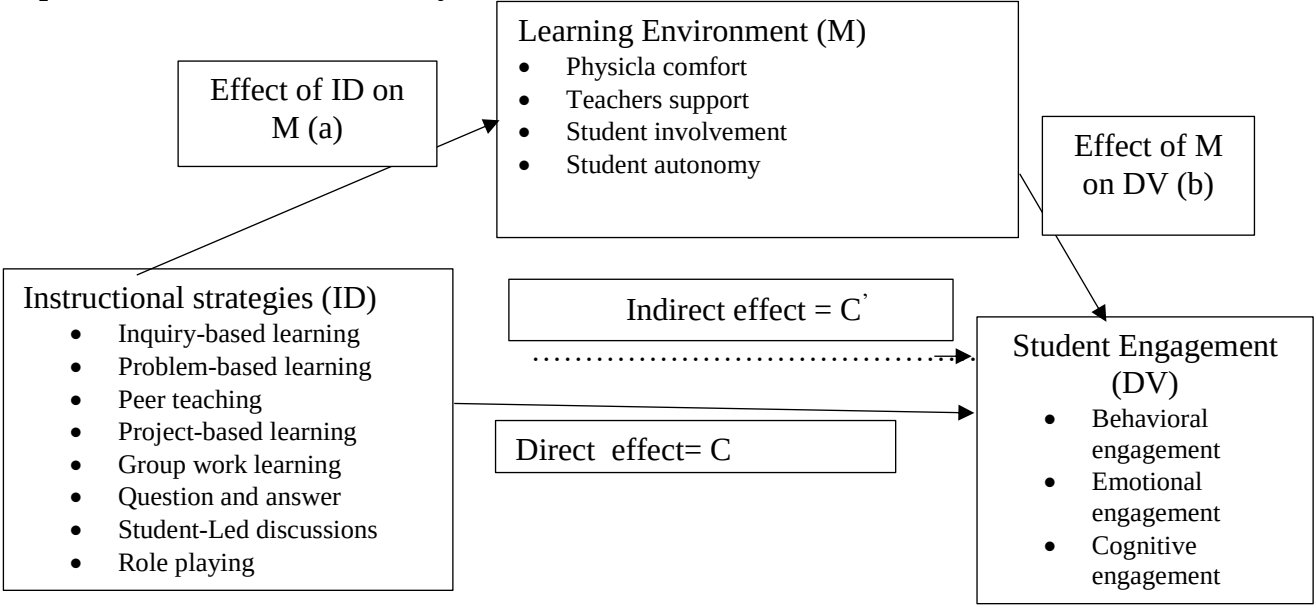
Significance of the Study

The study findings are expected to inform policymakers like the Ministry of Education and Sports (MoES), National Curriculum Development Center (NCDC), and others on the status of implementation of competence-based instructional strategies and tools in enhancing learner-centered instruction across the area of the study, the effectiveness, major challenges, and the possible mitigative measures that should be taken to achieve the objectives. Furthermore, this study may offer a unique perspective on the diversity of instructional strategies and tools that teachers should adopt so that the teachers and school administrators may identify the possible gaps in instructional strategies and tools and ways of making them better.

The study may generate new knowledge regarding instructional strategies and tools for learner-centered instruction in the face of new lower secondary as well as benefit future researchers in identifying gaps, solutions, and a broader dialogue on the implementation strategies of the learner-centered instructional strategies and tools, school environment, as well as the level of student engagement in the face of the competency-based curriculum. This study may also provide the possible future perspective of the graduates under these

instructional strategies and tools which can be used as a basis for guiding students and parents.

Conceptual Framework of the Study



Source: primary data (2024)

Figure 1
Conceptual Framework illustrating the Relationship between Instructional Strategy, School Environment, and Student Engagement

In this conceptual framework, instructional strategies, Learning environment, and student engagement are depicted as interconnected components influencing each other within the context of the lower secondary competency-based curriculum. Instructional strategies encompass various teaching methods and approaches aimed at promoting learner-centered learning. The school environment includes factors such as classroom climate, resource availability, and teacher support. Student engagement, influenced by instructional strategies and school environment, reflects the level of active participation and involvement in the learning process. The arrows indicate the direction of influence and interaction between these components, emphasizing the dynamic relationship among instructional strategies, school environment, and student engagement. This framework serves as a visual representation of how these elements interact and impact each other, guiding the study's exploration of their interplay in the context of the lower secondary competency-based curriculum.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter contains a review of related literature on instructional strategies, learning environments, and student engagement. This chapter contains information, data, ideas, and evidence that support the topic under study and the findings of other researchers who conducted the study on the related topic. It has been organized as a conceptual review, theoretical review, and empirical review according to the study objectives.

Conceptual Review

Instructional Strategies

Instructional strategies refer to procedures, tools, resources, and methods that are used by educators to enable students to achieve learning objectives and other related competencies (Dunlosky et al., 2013). Eggen & Kauchak (2012) define instructional strategies as "approaches and techniques teachers use to help students become independent, strategic learners. These strategies include different methods of delivering information, engaging students, and assessing their learning. Therefore, Instructional strategies can be generalized as a diversity of methods and techniques used by teachers to facilitate student learning, tailor teaching approaches, and guide students through the learning process. These strategies serve as the backbone of pedagogy, directly impacting how effectively students absorb, retain, and apply these competencies (Slavin, 2006).

Instructional strategies range from teacher-centered approaches to learner-centered approaches (Schuh, 2004). Teacher-centered strategies involve more structured methods, where the teacher directs the flow of information and controls the learning process. Direct instruction, for example, is a common approach in which the teacher provides clear, concise information to students, often through lectures or presentations. This method can be highly effective for teaching specific content, especially in subjects that require foundational

knowledge, such as mathematics and rare concepts of science. The clarity and focus of direct instruction allow teachers to cover substantial amounts of material in a relatively short period, ensuring that key concepts are conveyed systematically (Ahmed, 2013). On the other hand, Student-centered approaches such as inquiry-based learning, project-based learning, and collaborative learning promote active engagement by encouraging students to explore topics, and scenarios, and work in groups to solve problems. Studies have emphasized the effectiveness of these active learning strategies, noting that they enable students to develop critical thinking skills, deepen their understanding, and foster greater retention of the material. Student-centered approaches enable learners to take ownership of their educational experience, providing opportunities for self-directed exploration and discovery (Schuh, 2004).

Differentiated instruction is one flexible strategy that teachers can use to adjust their lessons activity or tasks to the diverse abilities of their students in a classroom, according to Tomlinson (2014). These involve teachers making adjustments to a lesson's content, procedure, or end product to make sure every student is adequately challenged and able to meet learning objectives and develop more competencies. Since it lets students work at their own pace and ability level, this method can be quite helpful in fostering engagement.

Learning environment

The learning environment refers to the comprehensive set of physical, social, and psychological factors that influence the process of learning. Fraser (2012) defines the learning environment as the interplay between elements such as classroom organization, available resources, teacher-student interactions, and the broader school climate. A positive learning environment promotes collaboration, inclusivity, and a supportive atmosphere, which enhances student engagement (Shindler et al., 2016). On the other hand, Freiberg (1999) emphasizes that inadequately managed environments can pose obstacles to learning, including distractions, insufficient resources, and reduced student motivation. For this study, the learning environment

is defined as the conditions within a school, both physical and infrastructure, and resources and social such as relationships, and classroom climate that influence the relationship between instructional strategies and student engagement.

The learning environment is a multi-dimensional concept encompassing the physical, social, and psychological conditions students learn (Chang et al., 2015). It plays a pivotal role in shaping educational experiences and outcomes. Scholars like Fraser (2012) observed that the learning environment consists of factors such as classroom arrangement and setup, the availability and use of learning resources, and the overall school climate including the nature of relationships between teachers and students and the interactions among students. A well-structured and resource-rich environment provides students with the tools necessary for effective learning and creates a space that encourages participation and engagement (Chan-Anteza, 2020).

According to (Grow, 1991; Harzer, Weber, & Huebner, 2016; Weimer, 2013), a positive learning environment fosters collaboration, inclusivity, and emotional support, which are key to enhancing student engagement. Shindler et al. (2016) emphasize that when the learning environment supports positive interactions, active learning, and creativity, students are more likely to participate fully in their education. This includes environments that allow for student autonomy, peer collaboration, and the use of diverse instructional materials. Such environments are more likely to engage students by making them feel valued, supported, and connected to their learning tasks.

However, the learning environment can also hinder learning if it is not managed well. As observed by (Mbiydzanyuy, 2020; Olivier & Burton, 2020), their findings highlight the negative impact of poorly designed or under-resourced learning environments. Classrooms that are overcrowded, noisy, or lack basic resources such as textbooks and teaching aids can create significant barriers to learning. In these cases, even well-designed instructional strategies may

fail to engage students effectively, as the environment lacks the necessary conditions for optimal learning (Manqele, 2017). Additionally, environments that foster negative social dynamics, such as bullying or exclusion, can lead to student disengagement, further hampering educational progress (Juvonen, Lessard, Rastogi, Schacter, & Smith, 2019).

For this study, the learning environment is defined as the overall conditions both physical and social that influence the relationship between instructional strategies and student engagement. This includes both tangible factors like classroom space, equipment, and learning materials, and also non-intangible elements such as the quality of teacher-student relationships, the level of peer support, and the inclusiveness of the school climate. In a well-functioning learning environment, these factors come together to support student-centered instructional strategies, which, in turn, foster higher levels of student engagement.

Theoretical review

Social Constructivism Theory

The study was rooted in social constructivism theory (SCT) by Vygotsky (1978). SCT asserts that learning is a socially mediated process where interaction with peers, teachers, and the environment facilitates cognitive development (Kozulin, 2003). His theory contends that experiences with more knowledgeable people such as teachers, and peers, and the challenging learning environment enable students to learn new knowledge and advance cognitively (Chew & Cerbin, 2021). The Zone of Proximal Development (ZPD), which illustrates the gap between what a learner can accomplish on their own and what they can accomplish with support and supervision, is a central element of his theory (Wass, Harland, & Mercer, 2011). According to Vygotsky (1978), learning practices like scaffolding are essential for assisting students in moving through their ZPD which involves giving them temporary support until they can finish assignments on their own, scaffolding enables students to advance to a higher level of cognitive functioning and this requires well-structured instructional strategies.

Scholars have weighed their views on the strength of this theory in mediating learning (Driver, Asoko, Leach, Scott, & Mortimer, 1994; Reed et al., 2010; Tomasello, Kruger, & Ratner, 1993) emphasizing social interaction as a central driver of learning and shifting the perspective of focus from the traditional view of learning as an individual process or teacher-centered to a student-centered approach where collaboration and dialogue are widely used making the theory valuable in understanding the importance of instructional strategies that promote group work, peer collaboration, and guided discovery as well as stressing the importance of social engagement which encourages the use of a diversity of instructional methods that can actively involve students in their learning, fostering critical thinking, problem-solving, and deeper comprehension, and retention of knowledge as well as application of skills (Ahlam & Gaber, 2014).

According to Edwards (2010), Vygotsky's theory highlights the critical role of teachers in shaping the learning environment citing that Teachers are facilitators who provide the appropriate scaffolding to guide students toward higher levels of understanding and this idea aligns with modern teaching strategies that prioritize student-centered learning such as inquiry-based instructional strategies while taking into consideration cultural and contextual factors, emphasizing that learning takes place in specific social and cultural environments, which is highly relevant for educational settings in diverse regions like Manafwa District in Uganda.

In other studies on teaching strategies (Mbelani, 2013; Singh, 2024), the application of Vygotsky's theory can be challenging, especially in under-resourced environments, and the success of scaffolding relies on the availability of adequately trained teachers who can guide students effectively through their ZPD. In rural or underfunded schools where teacher training may be lacking, the full potential of this theory may not be realized. In addition, effective social interaction requires a conducive learning environment with adequate resources, such as collaborative spaces, learning materials, and technology. In settings where such resources are

scarce like in Manafwa district, the benefits of social constructivist learning may be limited according to the theory (Datzberger, 2018). Vygotsky's theory also places significant responsibility on the teacher to continuously assess each student's ZPD and adjust instructional strategies accordingly, which can be difficult to manage in large or overcrowded classrooms (Kisa, 2021)

Emerging from the above, SCT is well-suited to this study as it provides a robust framework for understanding how instructional strategies and the learning environment interact to influence student engagement. The theory underscores the importance of social context and structured support, which are key to understanding how student-centered instructional methods can enhance engagement, particularly in a competency-based curriculum (D'Agostino, 2023). In lower secondary schools in Manafwa District, where the goal is to move away from rote learning teaching strategies towards more interactive and competency-based education, Vygotsky's emphasis on guided learning through social interaction is particularly relevant. The focus on scaffolding within the ZPD aligns with the need to develop instructional strategies that are responsive to students' varying needs and abilities. Moreover, the theory's recognition of the importance of the learning environment reinforces the study's focus on the role of school conditions in shaping the effectiveness of instructional strategies. In a supportive and well-resourced environment, students are more likely to engage deeply with learning tasks, collaborate with peers, and benefit from student-centered approaches, as suggested by Vygotsky's theory (Adams, 2006). Therefore, this theoretical framework is appropriate for examining how the learning environment mediates the impact of instructional strategies on student engagement.

Ecological Systems Theory

This study was equally grounded in ecological systems theory (EST) by Bronfenbrenner (1979) who argued that development in humans is influenced by how an

individual interacts with the various systems in their environment which range from the most immediate environment (microsystem) to the broader, overarching environment (macrosystem), these systems are nested within each other. The microsystem, which includes direct interactions in environments like the home, school, and peer groups, has a profound influence on student learning and this suggests that each system interacts not only with the individual but also with other systems, thereby creating a complex web of influences on student's development. In a school context, this means that instructional strategies are not isolated tools but operate within the broader learning environment, including the classroom setup, school policies, relationships with teachers, and interactions with peers (Eccles & Roeser, 2015).

According to Rudasill et al (2018), student learning development is comprehensive and systemic and is not only influenced by the immediate environment, such as the school, but also by external influences like the family, community, and cultural expectations which suggest that student engagement is influenced by multiple layers of interaction, including instructional strategies, the physical and learning environment of the school, and even broader societal factors like education policies and cultural norms and taking these in to account enable educators and researchers to understand the complex, interconnected factors that affect student engagement and learning outcomes emphasizing the use of proximal instructional strategies for shorter time learning achievement and distal instructional strategies for content that needed to be progressively learned (Rudasill, Snyder, Levinson, & L Adelson, 2018).

According to Christensen (2016), EST provides a holistic viewpoint of the system which makes it difficult to isolate the specific factors that most directly influence student engagement and achievement a case in point, while both instructional strategies and the broader learning environment influence student engagement, it can be challenging to determine which element exerts the strongest impact or to design interventions that address all levels of influence

simultaneously in addition to the fact that the theory doesn't offer specific guidance on how to measure or quantify these interactions, making it difficult for educators to assess the practical implications of the system range limit (Christensen, 2016).

The choice of integrating EST in this study was arrived at based on its robust framework for investigating the role that the learning environment plays as a mediator in the link between instructional strategies and student engagement. The study's emphasis on comprehending how certain instructional methods interact with learning settings to promote or hinder engagement is in line with the theory's focus on the microsystem, where direct interactions occur between students and their learning environment. Additionally, it enables the larger learning environment which encompasses peer dynamics, teacher support, and classroom resources to be taken into account as important components of the educational setting. We can investigate how changes in instructional strategies, such as student-centered learning or inquiry-based methods, are supported or limited by the classroom setting, school infrastructure, and social interactions within the school system by examining the learning environment through the lens of Bronfenbrenner's theory.

Self-determination theory

This study was equally rooted in self-determination theory (SDT) developed by Deci and Ryan (1985), which asserts that the satisfaction of three basic psychological needs autonomy, competence, and relatedness is what drives human motivation. The theory states that when these requirements are satisfied, people are most intrinsically motivated and engaged (Deci & Ryan, 2012). According to SDT, when students feel competent in their abilities, connected to their classmates and teachers, and autonomous in their learning process, they are more engaged in their studies in educational progress (Han, 2021). Higher levels of student engagement and intrinsic motivation are most likely to be the outcome of instructional strategies that support student autonomy like taking the lead and choice in learning activities,

fostering competence by getting exposed to appropriate challenges which can be real or scenario, and fostering positive relationships by promoting collaborative learning (Reeve, 2012).

Gresham (2019), supported the theory in their findings which assert that instructional practices that give students agency, choice, self-direction, and the ability to feel in control of their education and to make meaningful decisions regarding what and how they learn promote the sense of autonomy (Gresham, 2019), this was also in line with the finding of Sadler (2014) who observed that, when Teachers provide feedback, sets appropriate challenges, and help students develop their skills, they promotes confidence in their abilities and becomes actively engaged in the learning (Sadler, 2014), another study by Ruzek et al. (2016) supported the theory in their findings that a learning environment that promotes cooperation, respectful interactions, and communication can improve students' sense of peer support which foster engagement in the learning processes (Ruzek et al., 2016).

According to Alamri (2020), Self-determination theory (SDT) is a powerful tool for promoting meaningful learning and long-term student engagement because it highlights the significance of intrinsic motivation, which is motivated by personal interest and satisfaction (Alamri, Lowell, Watson, & Watson, 2020). Thus it offers a robust paradigm for maximizing the learning environment and instructional methods to satisfy students' psychological demands for relatedness, competence, and autonomy thus boosting student engagement. SDT, however, is predicated on the idea that all students have the same needs, which might not hold in classrooms with little resources or diversity. Furthermore, it minimizes the significance of outside incentives, like grades or tests, which are typical in a lot of educational systems (Richard M. Ryan & Deci, 2016).

Based on the scholarly findings indicated above, SDT becomes extremely important to this study because it provides a solid framework for comprehending how instructional

strategies and the learning environment interact to influence student engagement. The study's emphasis on student-centered techniques, like inquiry-based and collaborative learning, is consistent with the three main tenets of SDT; relatedness, competence, and autonomy. The study aims to investigate how different instructional strategies satisfy or diverge from students' psychological demands to shed light on how the learning environment influences how instructional methods affect student engagement. SDT is a perfect theoretical framework for this research since it sheds light on why some instructional strategies are successful in promoting engagement while others are unsuccessful in doing so.

Empirical literature on objectives

Relationship between Instructional strategies and student engagement

The effectiveness of instructional strategies in promoting student engagement has been the subject of extensive research. In a study conducted by Prince (2004), instructional strategies that actively involve students in the learning process, such as active learning and cooperative learning, tend to result in higher levels of engagement (Strachan & Liyanage, 2015), in another study, it was also discovered that, in comparison to traditional lecture-based instruction, active learning dramatically increases both cognitive and behavioral engagement of students. This implies that teaching methods that promote student participation, critical thinking, and problem-solving are more likely to increase classroom engagement (Freeman et al., 2014). This study was also in line with the one conducted by Reeves (2019) who argued that student-centered instructional strategies enable students to take charge of their education and these approaches are not limited to inquiry-based and project-based learning which foster intrinsic motivation hence increasing student engagement making them more likely to be behaviorally, emotionally, and intellectually engaged when teachers use strategies that provide them chances to work independently and with peers (Reeves, 2019). Other studies also emphasized the

importance of these active learning processes in fostering student engagement and participation (Chatmon, Chi, & Davis, 2010).

A study by McCarthy and Anderson (2000) as cited by Jackson (2009) found that although teacher-centered approaches can be useful for delivering content efficiently, they tend to result in lower levels of student engagement (Jackson, 2009). Similarly, Alshahrani and Ally (2015) emphasized the shortcomings of conventional teacher-centered education and argued in favor of more student-centered strategies that actively engage students (Alshahrani & Ally, 2015). Flexible Instructional strategies are essential for promoting learner-centered education and raising student engagement in Uganda's competency-based lower secondary school curriculum, according to (Charles et al., 2022). Based on this, several teaching techniques are useful in the implementation of this curriculum for its effectiveness (Sendagire, 2023). First of all, it has been evident that active learning methods like debates, discussions, and problem-solving exercises increase student participation and engagement (Chatmon et al., 2010). These exercises can be modified to meet particular competency objectives in the lower secondary curriculum of Uganda, which emphasizes competency-based learning.

To foster deeper learning and critical thinking, students can participate in cooperative problem-solving activities that call on them to apply their knowledge and abilities to real-world situations (Akçay, 2009). According to Mohammed and Kinyó (2020), social constructivism places a strong emphasis on cooperative learning activities and scaffolding for facilitating the creation of knowledge (Mohammed & Kinyó, 2020). Teachers in Uganda can use collaborative learning practices to help students construct meaning and solve issues together in the competency-based curriculum. Brophy, 1983, emphasizes the value of systematic practice, reward, and established objectives during instruction (Brophy, 1988). In order to enhance students' engagement, teachers can set clear competency-based objectives for each session or unit and give regular feedback and reinforcement to students. Incorporating systematic practice

activities will help students in gradually develop and reinforce their competencies (Brophy, 1988).

Teachers need to adopt the use of technological tools in conjunction with dynamic, interactive learning environments (Harasim, 2017). Technology integration can improve teaching practices in Uganda's lower secondary schools by giving students access to digital resources, interactive simulations, and multimedia materials that complement competency-based learning objectives. For instance, students can work with classmates on projects and assignments, participate in interactive learning activities, and access additional resources by using educational apps and online platforms (Njai & Nyabuto, 2021).

As a result, in Uganda's lower secondary schools, teaching strategies based on the principles of competency-based education and learner-centered learning are essential for encouraging student engagement and success (Voorhees & Bedard-Voorhees, 2016). Teachers can design dynamic and engaging learning experiences that enhance students' development of critical competencies and skills by utilizing active learning processes, including theoretical frameworks, and integrating technology resources (Voorhees & Bedard-Voorhees, 2016).

Similar patterns have been reported in studies about Ugandan secondary schools. In contrast to traditional lecture-based teaching, student-centered instructional practices resulted in better levels of student engagement, according to a study done in urban secondary schools in Namutumba by Muwaya (2018). However, the study also made clear that factors like teacher preparation, resource availability, and class size frequently limit how effectively these instructional strategies are implemented (Muwaya, 2018).

The problem is considerably more severe in lower secondary schools in rural areas like Manafwa District. Research by Nakabugo and Siebörger (2001) demonstrates that although instructional strategies can affect students' interest in student-centered learning, teachers' capacity to successfully apply student-centered approaches is frequently hampered by the

limited resources in rural schools. These results imply that while instructional tactics are important for increasing student engagement, other elements, like the learning environment, may also have an impact on how well they are implemented (Kidega et al., 2024; Nakabugo & Siebörger, 2001).

The Suitability of the Learning Environment

In the Uganda lower secondary school competency-based curriculum, the school environment plays a critical role in shaping students' learning experiences and engagement (Kidega et al., 2024). Student levels of school engagement are greatly impacted by elements including school culture, teacher-student relationships, classroom design, and the availability of resources (Pianta, Hamre, & Allen, 2012). Aslan and Reigeluth (2015) emphasized how critical it is to establish cooperative and encouraging learning settings where students may interact with teachers and other students (Reigeluth et al., 2015). The impact of insufficient instructional resources on teaching practices and student learning results was noted by Dhakal (2020) (Ma'dan, Ismail, & Daud, 2020). Theories like behaviorism and social constructivism emphasize the importance of the school environment even more (Ertmer & Newby, 2013).

While behaviorism promotes structured environments to shape student behavior and learning outcomes, social constructivism stresses the creation of collaborative learning environments that foster meaningful interactions and knowledge construction (Pistorio, 2010). In Uganda's competency-based curriculum, schools can leverage collaborative learning strategies, project-based learning, and experiential activities to create dynamic and engaging learning environments that support students' development of key competencies and skills. Schools should therefore establish clear routines, expectations, and reinforcement systems to promote positive behaviors and academic success. By creating supportive and conducive learning environments that prioritize collaboration, resource accessibility, and positive

relationships, schools can enhance student engagement and success in Uganda's lower secondary competency-based curriculum (Shernoff, 2013).

The Level of Student Engagement

In the competency-based curriculum of Uganda's lower secondary schools, achieving high student engagement levels is essential to successful learning outcomes and academic performance. The components of student engagement are motivation, interest, self-efficacy, and a sense of belonging; these elements need to be carefully taken into account within the educational framework (Cleveland-Innes & Emes, 2005). Cleveland-Innes and Emes (2005) emphasized how important it is to cultivate student interest and motivation through meaningful interactions and active engagement (Cleveland-Innes & Emes, 2005). To improve students' engagement with the material, educators should create learning experiences that align with the interests and motivations of their students within the framework of the competency-based curriculum. Theoretical perspectives like behaviorism and social constructivism offer important insights on understanding and encouraging student engagement. In line with the competency-based approach, which prioritizes real-world problem-solving and practical application, social constructivism emphasizes the value of active involvement and collaborative learning activities (Awandu, 2023). Teachers can help students understand and remember important topics by including them in group projects and practical exercises (Wurdinger, 2005). However, behaviorism emphasizes how important feedback and reinforcement are in influencing student behavior and advancing the intended learning goals (Burton, Moore, & Magliaro, 1996). Within the framework of the competency-based curriculum, prompt feedback and acknowledging students' accomplishments can serve as motivators for engaged and active learning.

The Mediating Effect of Learning Environment on the Relationship between Instructional Strategies and Student Engagement

It has been thoroughly investigated that the physio-psychosocial conditions in the learning environment could serve as a mediator in the link between student engagement and instructional strategies. Fraser (2012) asserts that the quality of the learning environment has the power to either physio-psychosocially increase or decrease the efficacy of instructional practices citing, that a well-stocked classroom with areas for collaboration and positive teacher-student interactions is more likely to foster student engagement, especially when combined with interactive teaching strategies (Fraser, 2012).

Instructional strategies like Inquiry-based, project-based learning, and other student-centered approaches are more likely to be successful in schools with strong organizational structures and positive learning environments, according to Shindler et al. (2016). This suggests that these strategies are more effective when a positive learning environment is present, as evidenced by classrooms with sufficient resources, suitable seating configurations, and access to technology, which encourages students to participate actively in class and learn collaboratively (Jones & Shindler, 2016).

The mediating effect of the learning environment becomes important, especially in Ugandan rural secondary schools, where the learning environment is frequently characterized by overcrowded classrooms, a lack of resources, and poor facilities (Soigi, 2018). According to a Kakuba (2014) study, instructional methods efficiency was greatly impacted by the school environment in rural secondary schools in Uganda. Even when teaching practices were similar to those in schools with limited resources, student engagement was higher in schools with better infrastructure, easier access to learning materials, and encouraging teacher-student interactions (Kakuba, 2014).

The learning experiences and level of engagement of students in the educational process are significantly shaped by the learning environment (Shernoff, 2013). With Uganda's competency-based lower secondary school curriculum, fostering a supportive classroom

environment is critical to raising student engagement. Students are more likely to be engaged in learning when they feel comfortable, respected, and appreciated in the classroom, as cited by Wang & Eccles (2012) and Roeser et al. (1996) (Wang & Eccles, 2013). As a result, educators ought to place a high priority on creating a feeling of community among students and a strong connection between teachers and students.

Another important component affecting student participation in the Ugandan education progress is the availability of resources (Nannyonjo, 2007). To support a variety of instructional methodologies, Dhakal et al (2023), emphasize the importance of instructional resources, including technology, textbooks, and learning materials (Joshi, Khanal, & Dhakal, 2023). Teachers can successfully implement the competency-based curriculum and accommodate students' different learning requirements and preferences in schools that have sufficient resources (Salleh & Yusoff, 2016). However, Olszewski-Kubilius et al. (2023) point out that resource limitations can make it difficult to educate effectively and reduce student participation (Subotnik, Olszewski-Kubilius, & Worrell, 2023). A key element that can boost student engagement in Uganda's lower secondary school curriculum is teacher encouragement and support. Wang & Holcombe (2010) place a strong emphasis on the role that teachers play in giving students precise instructions, helpful criticism, and emotional support. Teachers are essential in enabling students to take charge of their education under the competency-based curriculum, which promotes active student participation (Wang & Holcombe, 2010). Teachers can encourage a sense of autonomy and motivation in their students, which will boost engagement and academic performance, by involving them in decision-making and classroom activities (Stefanou, Perencevich, DiCintio, & Turner, 2004).

Literature gaps

While numerous studies have explored the relationship between instructional strategies and student engagement, research focusing on the mediating role of the learning environment

in this relationship is limited, particularly in under-resourced rural settings like Manafwa District, Uganda (Johnson, 2008).

Most studies tend to focus on either instructional methods or student engagement in isolation, neglecting how factors such as classroom infrastructure, access to learning materials, and social dynamics within the learning environment influence the effectiveness of these strategies.

Additionally, there is a scarcity of studies examining how the implementation of Uganda's Competency-Based Curriculum (CBC) is affected by the interaction between instructional strategies and the learning environment, especially in lower secondary education (Shaukat & Iqbal, 2012).

This gap is significant because the CBC emphasizes student-centered, skill-based learning, which may be hindered or facilitated by the quality of the learning environment, making it critical to understand these dynamics in rural contexts where resources are limited.

Chapter Three

Methodology

Introduction

This chapter provides a detailed overview of the research methodology employed in the study, encompassing aspects such as research design, sample selection criteria, determination of sample size, description of research instruments, data collection methods, analysis techniques, and presentation approaches. It offers insights into the rationale behind the chosen research design and sampling technique, elucidating how they align with the study's objectives and research questions. Additionally, ethical considerations about the research process are thoroughly examined and addressed. This comprehensive discussion lays the groundwork for the systematic investigation of instructional strategies, learning environment dynamics, and student engagement within the context of the lower secondary competency-based curriculum.

Research Design

The study used a concurrent parallel mixed-methods research design to comprehensively examine the relationship between instructional strategies, learning environment, and student engagement in the lower secondary competency-based curriculum. This approach allows for the consideration of data from qualitative and quantitative sources, enhancing the validity and reliability of the findings. The qualitative component involved administering a semi-structured and open-ended questionnaire with teachers and students to compare the consistency of the responses that enabled the study to gather rich insights into their perspectives and experiences. Additionally the other hand, the quantitative component utilized cross-sectional survey questionnaires administered to both teachers and students, along with structured observations in classroom settings.

By integrating the use of convergent methods, data were collected simultaneously from teachers and students in the lower secondary level in Manafwa District. This enabled a comprehensive examination of instructional practices, school environments, and student

engagement, providing a nuanced understanding of the dynamics at play within the competency-based curriculum framework.

Study Population

The study population for this research consisted of lower secondary school students from three categories of schools in Butiru County, Manafwa District: government-aided, private, and community schools. Government-aided schools comprised the largest portion of the population, followed by private schools, with community schools having the smallest population. Based on the data collected from these categories, the projected total student population in lower secondary schools is estimated to be approximately 3,100, with government-aided schools contributing around 1,340 students, private schools contributing about 1,480 students, and community schools accounting for around 280 students. This distribution highlights the variation in student populations across different types of schools in the County as shown in table 1.

Sample size

A sample of 310 students was drawn from a population of 3100 students from lower secondary schools in Butiru County, Manafwa District considering 10% representation. The sample was divided among different categories of schools: 134 students from government-aided schools, 148 from private schools, and 28 from community schools. Simple random sampling was used to select students from government-aided and private schools, while a combination of census and simple random sampling was employed for community schools as shown in Table 1.

The study collected substantial information that accurately reflects the opinions and experiences of educators, learners, and school administrators regarding instructional strategies, learning environments, and student engagement in the lower secondary

competency-based curriculum in Butiru County, Manafwa District Uganda, by implementing these sampling strategies.

Table 1
Sample Selection for Schools

Category of participant	Population	Sample size	Sampling strategy	Instrument
Students	3100	330	Simple random sampling	Questionnaires
Director of Studies	9	4	Purposive sampling	Interview guide

Sampling strategy and techniques

The schools were stratified and participants were selected using simple random sampling techniques (see Table 1)

Simple random sampling

Simple random sampling was used during the study to select the participants from lower secondary schools in the Manafwa district. First, each school had a slot for participants from each class, and class lists were gathered from each school for students in Senior One (S.1) through Senior Four (S.4), totaling 310 students (S.1 - 72, S.2 - 74, S.3 - 74, S.4 - 90). Each student received a unique identification number. A random number generator was then used to select students at random from the sample, guaranteeing that all students had an equal chance of being chosen (Dhivyadeepa, 2015).

Purposive sampling

A purposeful sample of administrators mainly directors of studies from every category of schools were taken which helped gain insight and a thorough understanding of instructional practices, the school environment, and student engagement in regards to the competency-based curriculum in Butiru County, Manafwa District

Research instrument

The study adopted a combination of research instruments to comprehensively gather data on instructional strategies, school environment, and student engagement under the New lower secondary school curriculum.

Questionnaire guide

The study employed two sets of self-administered questionnaires (SAQ): one for teachers and another for students. Both questionnaires consisted of five sections aimed at collecting comprehensive information from participants. The sections are (A) Participant Background Information/Bio Data, (B) Instructional Strategies and Tools, (C) Suitability of the School Environment, (D) Student Classroom Engagement, and (E) Challenges and Recommendations for Better Active Student-Centered Instructional Strategies and Engagement under the CBC. These tools offer greater assurance of anonymity, reducing the likelihood of participant bias and errors. They also provide a quick, consistent, stable, and uniform measure without unnecessary variation. Both closed-ended and open-ended items were included; closed-ended items were used to minimize unwanted responses, while open-ended ones were used to allow participants to express themselves freely and gather qualitative data.

The study used a modified Assessment of Teacher's Utilization of Competency-Based Curriculum Pedagogical Tools (ATUCBCPT) questionnaire to measure teachers' utilization of instructional strategies and tools during CBC teaching and learning (Asava, 2021), the suitability of the school environment was measured using a modified Teaching-Empowering, Leading, and Learning in Massachusetts (TELLMASS) questionnaire (Nolan, 2017), and student classroom engagement was measured using a specially designed Student Classroom Engagement in Competency-Based Curriculum questionnaire (Reeve & Lee, 2014). Structured questionnaires were administered to gather quantitative data from a broader sample of participants (teachers and students). These questionnaires captured standardized responses on

various aspects related to instructional strategies, perceptions of the school environment, and levels of student engagement.

Assessment of Teacher's Utilization of Competency-Based Curriculum Pedagogical Tools (ATUCBCPT) questionnaire (Ion, Cano, & Cabrera, 2016). , Teaching-Empowering, Leading, and Learning in Massachusetts (TELLMASS) questionnaire (Sterret, Parker, & Mitzner, 2018)., and Student Classroom Engagement in Competency-Based Curriculum questionnaire (Laird-Fick, Solomon, Parker, & Wang, 2018) to measure Teachers instructional strategies and tools, suitability of school environment, and student engagement level in the Lower Secondary school competency-Based curriculum in Manafwa district, Uganda. The items were answered on a rating scale from 1 (Never or Rarely), 2 (Occasionally), 3 (Sometimes), 4 (Frequently), to 5 (Always) for instructional strategies, materials, and suitability of school environment while that of student engagement levels ranges from a rating scale of 1 (strongly Disagree), 2 (Disagree), 3 (Neutral), 4 (Agree), and 5 (Strongly Agree).

Adopting both qualitative and quantitative research instruments in this study enabled it to explore different perspectives of data, thereby enhancing the validity and reliability of the findings which provided a comprehensive exploration of the relationship between instructional strategies, school environment, and student engagement in the lower secondary competency-based curriculum in Butiru County, Manafwa District, Uganda

Interview guide

The study employed a semi-structured interview guide to collect qualitative data from the Directors of Studies. The semi-structured format was chosen because it allows for flexibility in the responses while still providing a clear set of guidelines for the interview. This approach enabled the interviewees to share in-depth insights on key areas related to instructional strategies, the learning environment, and student engagement in lower secondary schools in Butiru County, Manafwa District (see Appendix D).

Data collection procedure and methods

The researcher got an introductory letter from the Dean of the Faculty of Science with Education, Busitema University as attached (Appendix A) introducing the researcher to the Manafwa District Education Officer (DEO) and other education departments where the researcher may deem necessary for data collection seeking their supportive assistance and clearance for study progress within the limit of their control and beyond. This was also followed by permission that was granted by the DEO to introduce the researcher to head teachers of selected schools as attached (Appendix B). Finally, appointments through physical visits to school were made with teachers and students of various schools to fill out the questionnaire.

A self-administered questionnaire was given to the selected participants, Teachers and students, some administrators, and other stakeholders. This helped a researcher to gather quantitative and qualitative data regarding instructional strategies and tools, suitability of the learning environment, and student engagement level in the lower secondary school competency-based curriculum in Butiru County, Manafwa District.

Data quality control

Validity of research instrument

The content validity of the instruments was tested by the researcher choosing the standardized test construct for all variables under study and availing the first draft of the questionnaire to the departmental senior lecturers who are more knowledgeable in the subject area under study to look into the item's relation with the study objectives.

The items that were relevant were identified and the content validity index was calculated, the researcher calculated the Content Validity Index (CVI) using the formula below;

$$CVI = \frac{n}{N}$$

Where;

CVI = Content Validity Index

n = Number of items indicated relevant

N = Total number of items in the questionnaire

The CVI= 44/50 was calculated and found to be .88. The instrument was therefore considered to be valid. The items that were considered not relevant were reconstructed.

Reliability of research instruments

The reliability of the study questionnaire was tested by piloting it to three different schools out of the sample range. Cronbach's alpha was obtained and cronbach coefficient for scales were .78, .90, and, .82 for instructional strategies, learning environment, and student engagement respectively.

The values were all above the recommended .70 for a reliable instrument (Amin, 2005)

Data analysis

The data collected were sorted and analyzed both quantitatively and qualitatively.

For objective one, quantitative data from students' questionnaires were entered into SPSS analysis. Descriptive statistics, Frequency, scores, the mean, and standard deviation were used to assess the level of instructional strategies (low level, moderate level, or High level) and the level of student engagement (low, moderate, or high level)

Objective one establishes the relationship between instructional strategies with student engagement, while also examining the mediating effect of the learning environment, Pearson product-moment correlation index was used to determine the magnitude of the correlation coefficient as shown in Table 10

Objective two mediation analysis was conducted using Structural Equation Modeling (SEM) to explore the mediating role of the learning environment in the relationship between instructional strategies and student engagement. The analysis involved the development of a

comprehensive SEM model that specified the direct and indirect pathways between the variables and the results are shown in table 11.

Objectives three and four, qualitative data, initially, the responses were transcribed and organized to facilitate a comprehensive review. The researcher then employed an inductive coding process, where recurring content and patterns were identified within the responses. Each response was analyzed to extract key challenges faced by educators, such as resource limitations, lack of training, and student disengagement, as well as effective strategies, including the implementation of interactive learning activities and fostering a supportive classroom environment. The coded data were then grouped into broader themes that reflected common issues and successful practices highlighted by participants. This systematic analysis allowed for a nuanced understanding of the specific challenges teachers encounter and the strategies they believe can enhance student engagement, providing valuable insights for future instructional improvements.

Table 2:
Correlation Coefficient

Value of r	00 -. 1.9	.20- .39	.40 - .59	.60- .79	.80- 1.0
Description	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

Source: primary data (2024)

Ethical consideration

The researcher ensured that the dignity of the respondents was protected by keeping maximum confidentiality and showing them respect during the interactions.

The researcher was able to seek informed consent from the participants such that they were informed of their rights before the study started and assured the respondents that whatever information they gave would be kept confidential and that their names would not appear anywhere in the work produced since they were given codes to protect them.

Permission to conduct the study was obtained from the DEO through a written application, as well as from head teachers of selected schools before the research was conducted. Finally, the sources of all materials such as journals, Newspapers, Reports, Books, and Book chapters used in the study were at all times acknowledged.

Chapter Four Results

Introduction

This chapter covers the presentation, analysis, and interpretation of the study results. The results of the questionnaires and interviews are simultaneously presented in order of the study objectives, starting with the demographic characteristics. Distribution tables and verbatim quotes are respectively employed for the quantitative and qualitative findings.

Response Rate

Table 3
Response Rate

Tool (s)	Expected response	Actual response	Response rate (%)
Questionnaire	330	310	93.7
Interview guide	4	4	100
Total	334	314	94

Source: primary data (2024)

Out of the 330 questionnaires distributed to students, 310 were completed and returned, with a response rate of 93.7% for quantitative data, while for qualitative data, 4 interviews were expected to be done and 4 interviews were carried out contributing to a 100% response rate. This high response rate is considered great, as rates of more than 70% are generally considered acceptable in educational research (Cresswell, Brennan, Barkema, & Wapenaar, 2013). Students who were absent during data collection accounted for 6.3% of the total non-responses. The study's conclusions are more reliable and representative due to their high participation rate.

Demographic characteristics

Demographic information of the participants including gender, age, class, parent/guardian level of education, family financial level, category of schools, state of disability, and the number of students in each stream was obtained and is presented in Table 4.

Table 4

Demographic information of Participants (Students, n=310)

Characteristics	Category	N	%
Gender of student	Male	162	52.3
	Female	148	47.7
Age of Participant	below 15	32	10.3
	15-18	224	72.3
	19-22	54	17.4
class of the Student	S1	72	23.2
	S2	74	23.9
	S3	74	23.9
	S4	90	29.0
Parent/Guardian education level	No formal education	4	1.3
	primary education	70	22.6
	Trained on job	24	7.7
	secondary education	92	29.7
	certificate course	48	15.5
	Diploma course	30	9.7
	University degree	34	11.0
	Master's degree	6	1.9
	PhD	2	.6
Family financial status	Low (Less than UGX 1,000,000/=	244	78.7
	middle (Between UGX 1,000,000/= to 5,000,000/= per month)	62	20.0
	High (above UGX 5,000,000/=)	4	1.3
Category of school	Government /public school	134	43.2
	Community school	28	9.0
	Private school	148	47.7
school location	Rural	206	66.5
	Pri-Urban	102	32.9
	Urban	2	.6
state of disability	Yes	6	1.9
	No	304	98.1
Number of student in the stream	Less than 100 students	284	91.6
	Between 100 to 200 students	24	7.7
	Above 200 students	2	.6

Source: primary data (2024)

Results in Table 3 reflects a balanced gender distribution with slightly more male students (52.3%) than female students (47.7%). The majority of the students (72.3%) were within the 15-18 age range, indicating that most participants were in their mid-teen years, consistent with secondary school attendance. Class distribution shows a fairly even spread across S1, S2, and S3, with S4 having a slightly higher proportion (29.0%). This was because S.4 the first cohort of the curriculum, their sample size were slight above the required normal. Parents or guardians of the students had varied educational backgrounds. A significant proportion (29.7%) had secondary education or primary education (22.6%), while smaller percentages (11.0%) hold higher education qualifications such as university degrees or diplomas (9.7%). The low (1.3%) representation of parents with no formal education suggests a relatively educated parent base overall.

Financially, the majority of students come from low-income families (78.7%), with only a small percentage from middle (20.0%) or high-income (1.3%) families. This indicates a socioeconomic context where most students might face financial challenges.

Regarding school categories, nearly half of the students attend private schools (47.7%), with the rest split between government/public (43.2%) and community schools (9.0%). The majority of students are enrolled in schools located in rural areas (66.5%), while fewer attend pre-urban (32.9%) or urban (0.6%) schools.

The vast majority of students do not have disabilities (98.1%), with only a small fraction (1.9%) reporting any form of disability. Additionally, most classes have fewer than 100 students (91.6%), suggesting relatively small class sizes that could favor more personalized instruction, although a minority of classes have between 100 to 200 students (7.7%) or above 200 students (0.6%).

Table 5

Resources Available at School that Support Teaching and Learning

Resources Available	Rank (%) Std. scores
Functional library	94.8
Functional science laboratory	77.4
Functional computer laboratory	51.6
Support staff like Lib and Lab Assistant	45.2
Arts and creative materials	47.1
Physical education and sports equipment	52.9
Career guidance and counseling service	67.1

Source: primary data (2024)

The data in Table 4 indicates that most of the schools in Manafwa District had essential resources such as functional libraries (94.8%) and science laboratories (77.4%), suggesting a strong support for literacy and scientific education. However, there are notable gaps in the availability of support staff (45.2%) and art materials (47.1%), indicating a need for improvement in these areas. The presence of computer laboratories in just over half of the schools (51.6%) and physical education equipment in 52.9% of schools highlights a moderate level of access to technology and sports facilities. Notably, 67.1% of schools offer career guidance and counseling services, reflecting a significant support system for students' future career development and stress management.

Table 6

Demographic characteristics and Level of instructional strategies used by teachers in manafwa District (cross Tabulation)

Characteristics	Category	Level of instructional strategy		Total
		Low n (%)	Moderate n (%)	
Gender	Male	62(38.3%)	100(61.7)	162
	Female	48(32.4)	100 (67.6)	148
Age of Participant	below 15	20(62.5)	12(37.5)	32
	15-18	76(33.9)	148(66.1)	224
	19-22	14(25.9)	40(74.1)	54
class of the learner	S1	38(52.8)	34(47.2)	72
	S2	38(51.4)	36(48.6)	74
	S3	16(21.6)	58(78.4)	74
	S4	18(20.0)	72(80.0)	90
Parent/Guardian education level	No formal education	4(100.0)	0(0.0)	4
	primary education	28(40.0)	42(60.0)	70
	Trained on job	6(25.0)	18(75.0)	24
	secondary education	36(39.1)	56(60.9)	92
	certificate course	16(33.3)	32(66.7)	48
	Diploma course	4(13.3)	26(86.7)	30
	University degree	14(41.2)	20(58.8)	34
	Master's degree	2(33.3)	4(66.7)	6
Family financial status	PhD	0(0.0)	2(100.0)	2
	Low (Less than UGX 1,000,000/=	80(32.8)	164(67.2)	244
	middle (Between UGX 1,000,000/= to 5,000,000/= per month)	30(48.4)	32(51.6)	62
Category of school	High (above UGX 5,000,000/=	0(0.0)	4(100.0)	4
	Government/public school	56(41.8)	78(58.2)	134
	Community School	4(14.3)	24(85.7)	28
school location	Private school	50(33.8)	98(66.2)	148
	Rural	66(32.0)	140(68.0)	206
	Pri-Urban	44(43.1)	58(56.9)	102
state of disability	Urban	0(0.0)	2(100.0)	2
	Yes	2(33.3)	4(66.7)	6
Number of students in the stream	No	108(35.5)	196(64.5)	304
	Less than 100 students	102(35.9)	182(64.1)	284
	Between 100 to 200 students	8(33.3)	16(66.7)	24
	Above 201 students	0(0.0)	2(100.0)	2

Source: primary data (2024)

The results in Table 5 indicates data of various characteristics of participants and their association with different levels of instructional strategy within the range of Low and moderate. None of the participants reported a high level of instructional strategy used by Facilitators. Out

of 162 male participants, 62(38.8%) experienced a low level of instructional strategy, while 100(61.7) experienced moderate instructional strategy used. The study results also show that 32 participants were below 15 years old, 20 (62.5%) and 12 (37.5%) experienced low and moderate instructional strategy respectively, 224 participants were between 15 to 18 years old and 76 (33.9%) experienced low level of instructional strategy used by facilitators while 148 (66.1%) experienced moderate instructional strategy, and 54 participants were between 19 to 22 years old with 14 (25.9%) and 40(74.1%) experiencing low and moderate level of instructional strategies respectively. All participants were within S.1 and S.4 classes with senior one having 72 participants with 38 (52.8%) and 34 (47.2%) indicating low and moderate use of instructional strategies by teachers respectively, 74 participants from senior two were considered with 38 (51.4%) reporting low utilization of instructional strategy while 36 (48.6%) indicates moderate adoption of instructional strategy by teachers, S.3 participants were equally 74 with 16 (21.6%) and 58 (78.4%) indicating low and moderate use of instructional strategies respectively by teachers and finally, 90 participants were from S.4, with 18 (20.0%) indicating low use of instructional strategy while 72 (80.0%) indicated moderate use of instructional strategy by teachers. The parent/Guardians education level of participants ranged from No formal education to PhD and out of 4 participants whose parent/Guardians had no formal education 4 (100%) experienced low instructional strategy with none experiencing moderate level, Parent/Guardians of 70 participants had primary education level with 28 (40.0%) and 42 (60.0%) experiencing a low and moderate level of instructional strategy use by teachers respectively. Participants whose parent/Guardian had reached secondary education were 92, with 36 (39.1%) and 56 (60.9%) indicating experiencing low and moderate levels of instructional strategy respectively. 48 participants were from parents/Guardians who had done a certificate course and 16 (33.3%) and 32 (66.7%) experienced low and moderate levels of instructional strategies respectively, participants whose parents/Guardians held diploma course

certificates were 30, and 4 (13.3%) of the participant indicated a low level of instructional strategy while 26(86.7%) experienced moderate level of instructional strategy adoption by Teachers. There were 34 participants whose parents/Guardians had university degrees and 14(41.2%) and 26(58.2%) experienced low and moderate instructional strategies respectively. 6 participants reported their parents/Guardians had a master's degree with 2 (33.3%) experiencing a low level of instructional strategy and 4 (66.7%) indicated moderate level while 2 participants indicating parents/Guardians having PhD with all experiencing moderate level of instructional utilization. 244 participants were from families with low financial status 80 (32.8%) and 164 (67.2%) were experiencing low and moderate levels of instructional strategy, 62 participants were from families with middle-income status, 30 (48.4%) were experiencing low instructional strategy while 32(51.6%) experienced moderate instructional strategy, 4 participants were from a family with high incomes status and all (100%) experienced moderate utilization of instructional strategies. 134 participants were from Government/public Secondary school with 56(41.8%) experiencing low instructional strategy, while 78(58.2%) experienced moderate instructional strategy, 28 participants were from community schools with 4(14.3%) indicating low use of instructional strategy while 24(85.7%) experienced moderate instructional strategy, 148 participants were from a private school with 50 (33.8%) and 98 (66.2%) indicating a low and moderate level of instructional strategy respectively.

The results further indicate a high adoption of instructional strategy by teachers in urban areas with 100% of participants indicating moderate use of instructional strategy as compared to 56 (56.9%) indicating moderate use of instructional strategy while in rural areas is quite better with 140 (68.0%) of participants indicating moderate adopting of instructional strategies by teachers.

6 participants with disability were part of the study with 2 (33.3%) experiencing low instructional strategy while 4(66.7%) experienced moderate instructional strategy as compared

to 304 participants with normal disability status with 108(35.5%) and 196 (64.5%) experiencing low and moderate instructional strategies respectively.

The above results showed the variation in the level of instructional strategies used across different school categories, school locations, and the number of students in each class or stream which is also in line with the qualitative interview results. However, they equally had varying opinions about the level of instructional strategies adopted by teachers in their schools. For example, interviewee 01(DOSG Aug.2024) expressed that;

"In our school, Teachers mostly use traditional teaching methods most times because of the large class sizes. Teachers are encouraged to incorporate group work, but it's often difficult due to the lack of space and time, we always try to use student-centered approaches like problem-based learning, but with the teacher-student ratio being very high, it's a challenge. Students respond better when we use group discussions, but managing such sessions is hard with our numbers."

This indicates that implementation of student-centered instructional strategies is hampered by class size despite the numerous training and experience teachers are having policy changes on teaching practices

In line with the above, interviewee 02(DOSP Aug.2024) who expressed that;

"We encourage active learning strategies such as inquiry-based learning and group work. Students seem to enjoy working in small groups where they can discuss and solve problems together. We have invested in ICT tools, so teachers can integrate multimedia presentations and videos into their lessons, which has made a noticeable difference in how students engage."

This clearly shows that the adoption of effective instructional strategies is supported by the class size, and resources available.

In line with the above, interviewee 03 (DOSG Aug.2024) who stated that;

"Most teachers here use teacher-centered methods. Student-centered strategies are hard to implement because teachers lack the training and resources to use them effectively. Some teachers occasionally use project-based learning, but it's not consistent. The students do enjoy practical work, but without proper materials, it becomes difficult, we

have very limited resources. No computers, no modern textbooks. The lack of resources hampers student involvement.”

This still evidenced that the choice and the frequency of instructional strategies usage by teachers are dependent on the availability of the resources and the level of preparation by teachers.

In line with the above, interviewee 04 (DOSPO Aug. 2024) expressed that;

“We use methods like group discussions and project work. The students respond positively to hands-on learning. Our teachers receive continuous professional development, so they are familiar with inquiry-based learning techniques. We emphasize critical thinking and problem-solving.”

This also indicates that the support assistance given to teachers through continuous professional development, benchmarking, or networking with other institutions also strengthens the level of instructional strategy adoption.

Table 7

Descriptive Statistics Showing Instructional Strategies used by Secondary Teachers in Manafwa District

Statistic	N	Minimum	Maximum	Mean	Std. Deviation
Instructional strategies used by Teachers	310	1.58	3.36	2.4878	.34363

Source: primary data (2024)

There is a moderate level of instructional strategy usage by the teachers as reported by students in the lower secondary schools in implementing the competency-based curriculum in Manafwa District. From the above results, the total number of valid responses (N) was 310. The minimum score recorded for instructional strategies was 1.58, while the maximum score was 3.36. The mean score for instructional strategies was 2.4878, indicating that, on average, students rated the instructional strategies used in their learning environment around the midpoint of the scale. The standard deviation for these ratings was 0.34363, reflecting the variability in students' perceptions of instructional strategies.

The qualitative findings strongly supported this. For instance, interviewee 03, a director of studies from one secondary school (DOSEC Aug. 2024) observed that;

“During CBC training we were told that the role of teachers under the new curriculum will change to facilitators meaning learners will be at the center of the learning requires better preparation from teachers to make the lessons more engaging and interactive for learners but what we are seeing these days some teachers are using the old approach of teaching and even giving the learners notes like in the old curriculum way while others even just take the learners book to class and tell the learners to handle abstract activity without proper guidance making the learners complain a lot.”

Interviewee 01 (TRP Aug. 2024) expressed the agreement with other Interviewees. He observed that;

“I always enjoy teaching when using more one teaching approaches and strategy because learners make observation and manipulation which makes the learning active and engaging but the only challenge sometimes it requires materials and early preparation which at times are not possible.”

This indicates that much as there has been training and retooling of teachers in Manafwa and across the region on the required instructional strategies and tools to be used in the implementation of student-centered competency-based curriculum, most teachers are using the confidence approach to select which teaching or instructional approaches to use depending on the preparation level of the teacher and the accessibility of the materials and tools required which justify the fact that none of the students reported a high level of instructional strategy adoption. The analysis of instructional strategy involving cross tabulation with demographic characteristics of students in the lower secondary schools in Manafwa District is shown in Table 7 above.

Table 8

Demographic Characteristics and Level of Student Engagement of Lower Secondary Schools in Manafwa District (Cross Tabulation)

Characteristics	Category	Level of student engagement		Total
		Moderate n(%)	High n (%)	
Gender	Male	58(35.8)	104 (64.2)	162
	Female	40(27.0)	108(73.0)	148
Age of Participant	below 15	16(50.0)	16(50.0)	32
	15-18	68(30.4)	156(69.6)	224
	19-22	14(25.9)	40(74.1)	54
Class of the participant	S1	28(38.9)	44(61.1)	72
	S2	30(40.5)	44(59.5)	74
	S3	22(29.7)	52(70.3)	74
	S4	18(20.0)	72(80.0)	90
Parent/ Guardian education level	No formal education	4(100.0)	0(0.0)	4
	primary education	24(34.3)	46(65.7)	70
	Trained on job	4(16.7)	20(83.3)	24
	secondary education	30(32.6)	62(67.4)	92
	certificate course	18(37.5)	30(62.5)	48
	Diploma course	8(26.7)	22(73.3)	30
	University degree	8(23.5)	26(76.5)	34
	Master's degree	2(33.3)	4(66.7)	6
	PhD	0(0.0)	2(100.0)	2
Family financial status	Low (Less than UGX 1,000,000/=	72(29.5)	172(70.5)	244
	middle (Between UGX 1,000,000/= to 5,000,000/= per month)	26(41.9)	36(58.1)	62
	High (above UGX 5,000,000/=)	0(0.0)	4(100.0)	4
category of school	Government/public school	36(26.9)	98(73.1)	134
	Community school	10(35.7)	18(64.3)	28
	Private school	52(35.1)	96(64.9)	148
school location	Rural	78(37.9)	128(62.1)	206
	Pri-Urban	20(19.6)	82(80.4)	102
	Urban	0(0.0)	2(100.0)	2
state of disability	Yes	0(0.0)	6(100.0)	6
	No	98(32.2)	206(67.8)	304
Number of students in the stream	Less than 100 students	92(32.4)	192(67.6)	284
	Between 100 to 200 students	6(25.0)	18(75.0)	24
	Between 201 to 200 students	0(0.0)	2(100.0)	2

Source: primary data (2024)

Table 7 presents a cross-tabulation of the Manafwa District lower secondary students' demographic characteristics and levels of student participation. In terms of several demographic variables, including gender, age, class level, parent/guardian education level, family financial status, school category, school location, state of disability, and the number of

students in the class stream, the table classifies students' engagement levels as either moderate or high.

The analysis of student engagement levels in lower secondary schools in Manafwa District reveals that female students showed slightly higher engagement than male students, with 73.0% reporting high engagement compared to 64.2% of males. Age-wise, students below 15 were evenly split between moderate and high engagement, while the majority of those aged 15-18 and 19-22 reported high engagement (69.6% and 74.1%, respectively). Engagement varied by class level, with S1 and S2 students showing more moderate engagement (38.9% and 40.5%) compared to S3 and S4 students, where high engagement was more prevalent (70.3% and 80.0%). Students whose parents or guardians had no formal education reported 100% moderate engagement, while those with higher-educated parents/guardians, particularly with university degrees, showed higher engagement levels (76.5%). Financial status also played a role, with 70.5% of students from low-income families reporting high engagement, compared to 58.1% from middle-income and 100% from high-income families. School type showed that students from government/public schools and private schools exhibited similar high engagement levels (73.1% and 64.9%), while community school students had slightly lower high engagement (64.3%). Location-wise, rural school students had a higher proportion of moderate engagement (37.9%), whereas pre-urban and urban students showed higher engagement levels (80.4% and 100%). Additionally, all students with disabilities reported high engagement and smaller class sizes (less than 100 students) were associated with 67.6% high engagement, with streams with over 200 students showing 100% high engagement, though this group had a small sample size.

Table 9

Descriptive Statistics Showing Student Engagement in the Secondary Schools in Manafwa District.

Statistic	N	Minimum	Maximum	Mean	Std. Deviation
Student engagement	310	2.42	5.00	3.8516	.49551

Source: primary data (2024)

The above results are the descriptive data for the participants showing student engagement: 310 valid responses (N). Student engagement was measured using a minimum score of 2.42 and a maximum score of 5.00. With a mean score of 3.8516 for student engagement, it can be concluded that students generally reported being quite engaged. There was some fluctuation in the students' levels of engagement, as indicated by the standard deviation of 0.49551. Qualitative findings strongly support the above findings. For instance, interviewee 04 (DOSPO Aug. 2024) expressed that;

"Students here are generally very engaged. We measure engagement through participation in classroom activities, regular assessments, and even spiritual growth. Teacher-student relationships are strong. We encourage open communication, which helps students feel supported and engaged."

Interviewee 02(DOSP Aug.2024) who expressed in agreement that;

"We measure student engagement through assessments and project work. Students are very motivated, and their participation in group discussions is high. The student-teacher relationship is good, and students feel comfortable asking questions. This open communication has been vital to maintaining high engagement levels".

Interviewee 01(DOSG Aug.2024) expressed that;

"We try to measure student engagement through class participation and group project performance. However, it is hard to give attention to individual students in a crowded environment. Some students do engage, but it's more of a proactive one. Many students sit back, especially those who need more individual support."

This implies that irrespective of the category of the school, and level of student engagement can be determined through classroom activities, regular assessment, and teacher support that cultivate the learning environment.

Table 10

Pearson Product-Moment Correlation Results between Instructional Strategy, Learning Environment, and Student Engagement.

Study variables		1	2	3	4	5	6	7	8	9	10	11	12	13
1. Resource available	Pearson Correlation	1												
	Sig. (2-tailed)													
	N	310												
2. instructional strategies	Pearson Correlation	.097	1											
	Sig. (2-tailed)	.087												
	N	310	310											
3. instructional tools	Pearson Correlation	.207**	.025	1										
	Sig. (2-tailed)	.000	.666											
	N	310	310	310										
4. instructional strategies	Pearson Correlation	.203**	.787**	.636**	1									
	Sig. (2-tailed)	.000	.000	.000										
	N	310	310	310	310									
5. physical comfort	Pearson Correlation	.298**	.029	.199**	.145*	1								
	Sig. (2-tailed)	.000	.607	.000	.010									
	N	310	310	310	310	310								
6. Teacher support	Pearson Correlation	.321**	.207**	-.099	.099	.435**	1							
	Sig. (2-tailed)	.000	.000	.082	.083	.000								
	N	310	310	310	310	310	310							
7. Student Autonomy	Pearson Correlation	.097	.249**	.022	.205**	.264**	.349**	1						
	Sig. (2-tailed)	.089	.000	.702	.000	.000	.000							
	N	310	310	310	310	310	310	310						
8. Student Innovation	Pearson Correlation	.229**	.280**	.039	.241**	.208**	.306**	.291**	1					
	Sig. (2-tailed)	.000	.000	.491	.000	.000	.000	.000						
	N	310	310	310	310	310	310	310	310					
9. School environment	Pearson Correlation	.331**	.296**	.069	.271**	.653**	.699**	.693**	.710**	1				
	Sig. (2-tailed)	.000	.000	.223	.000	.000	.000	.000	.000					
	N	310	310	310	310	310	310	310	310	310				
10. Behavioral engagement	Pearson Correlation	.354**	.147**	.120*	.187**	.358**	.450**	.231**	.309**	.483**	1			
	Sig. (2-tailed)	.000	.010	.035	.001	.000	.000	.000	.000	.000				
	N	310	310	310	310	310	310	310	310	310	310			
11. Emotional engagement	Pearson Correlation	.273**	.256**	-.015	.189**	.302**	.392**	.274**	.394**	.499**	.419**	1		
	Sig. (2-tailed)	.000	.000	.796	.001	.000	.000	.000	.000	.000	.000			
	N	310	310	310	310	310	310	310	310	310	310	310		
12. Cognitive engagement	Pearson Correlation	.121*	.220**	-.124*	.093	.168**	.266**	.305**	.276**	.366**	.340**	.553**	1	
	Sig. (2-tailed)	.033	.000	.029	.101	.003	.000	.000	.000	.000	.000	.000		
	N	310	310	310	310	310	310	310	310	310	310	310	310	
13. Student engagement	Pearson Correlation	.312**	.262**	-.011	.196**	.346**	.465**	.342**	.411**	.566**	.739**	.824**	.808**	1
	Sig. (2-tailed)	.000	.000	.854	.001	.000	.000	.000	.000	.000	.000	.000	.000	
	N	310	310	310	310	310	310	310	310	310	310	310	310	310

Note. **. Correlation is significant at the 0.01 level (2-tailed).; *. Correlation is significant at the 0.05 level (2-tailed).

Source: primary data (2024)

Results in Table 10 indicate a significant positive correlation between the availability of resources and overall student engagement ($r = .312, p < 0.001$). This suggests that better resource availability is associated with higher student engagement levels. Instructional strategy also showed a strong positive correlation with student engagement ($r = .262, p < 0.01$), indicating the importance of instructional strategies in fostering student engagement. While instructional tools were positively correlated with the resources available and instructional strategies ($r = .207, p < 0.01$ and $r = .636, p < 0.01$), there was a weak direct correlation with overall student engagement ($r = -.011, p = .854$), indicating that the presence of instructional tools alone may not significantly increase student engagement.

The results show that physical comfort was found to be strongly correlated with student engagement ($r = .346, p < 0.01$) indicating that students who feel physically comfortable in their learning environment are more likely to be engaged. The results further show that Physical comfort significantly correlates with teacher support ($r = .435, p < 0.01$) and the school environment ($r = .653, p < 0.01$) in line with the school environment, Teacher support was found to be among the vital components of the school environment in fostering student engagement with a significant positive correlation with overall student engagement ($r = .465, p < 0.01$), Teacher support also positively correlated with student autonomy and student innovation ($r = .349, p < 0.01$, and $r = .306, p < 0.01$ respectively) which indicates their vitality as construct of a school environment and this was also evidence by the finding that showed that student autonomy and student innovation positively correlates with overall student engagement which suggests that, supporting students individual or group learning and encouraging innovation can results into higher engagement levels as evident by the significant strong positive correlation between school environment with overall student engagement ($r = .566, p < 0.01$) which suggest that, supportive and conducive school environment is pivotal in enhancing student engagement and as indicated above, the school environment showed strong correlations with physical

comfort, Teacher support, student autonomy, and student innovation which are construct of school environment.

The study findings of student engagement showed that behavioral engagement showed a strong significant positive correlation with overall student engagement ($r=.739$, $p<0.001$) suggesting that, a student who is behaviorally engaged tends to be more engaged overall, while emotional engagement exhibited the highest correlation with student engagement($r=.824$, $p<0.01$) justifying the importance of emotional engagement in teaching and learning process. The cognitive engagement was also strongly correlated with overall student engagement ($r=.808$, $p<0.01$) affirming the role of approaches and conditions stimulating student cognitive engagement in enhancing overall study engagement.

Structural Equation Modeling (SEM) Results

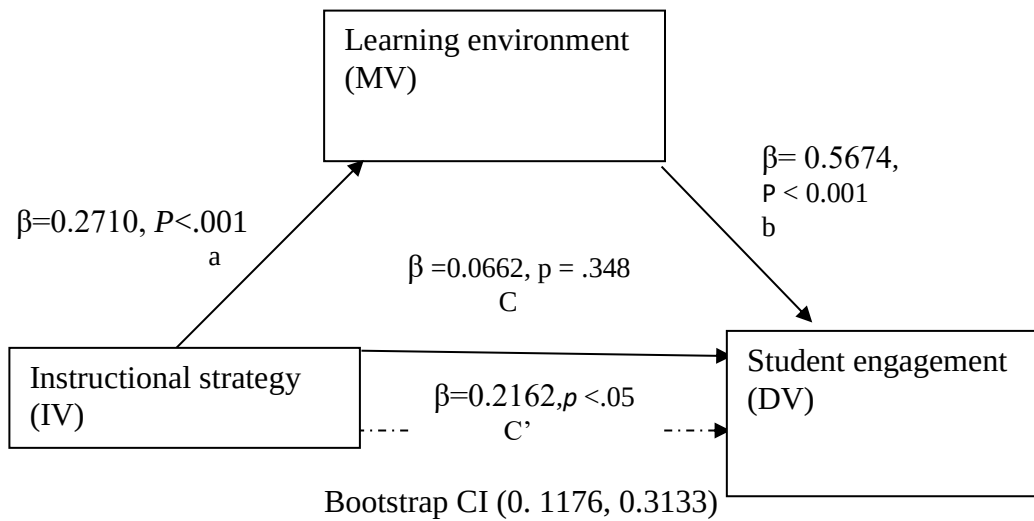
This study presents the findings of structural equation modeling (SEM) results that looked at the mediation effect of the school environment on the relationship between instructional strategies and student engagement. The study was carried out using the PROCESS procedure, specifically Model 4. A sample of 310 participants served as the basis for the analysis.

Table 11

Structural Equation Modeling Results for the Relationships among Instructional Strategy, School Environment, and Student Engagement.

Path	B	SE	B	T	P	95%CI	R ²	F	Df	p model
MV							0.0735	24.42	1308	<.001
IV MV	0.3594	0.0727	0.2710	4.94	<.001	0.2163, 0.5025				
DV							0.3220	72.90	2307	<.001
IV → DV	0.0662	0.0704	0.0000	0.94	=0.348	-0.0724, 0.2047				
MV → DV	0.6017	0.0531	0.5674	11.33	<.001	0.4972, 0.7062				
IV, MV, and DV	0.2162	0.0493	-	-	<.05	0.1176, 0.3133				

Source: primary data (2024)



Source: primary data (2024)

Figure 2

The Mediation Effect of Learning Environment on the Relationship between Instructional Strategy and Student Engagement.

Note; B= unstandardized regression coefficient, SE = standard error, β = standardized regression, CI= confident intervals

The study results in Table 11 and Figure 2 above show the mediation effects of school environment on the relationship between instructional strategy and student engagement. The study found no statistically significant direct influence (Path c) of the instructional strategy on student engagement ($B = 0.0662$, $SE = 0.0704$, $t = 0.94$, $p = 0.348$, 95% CI $[-0.0724, 0.2047]$). This implies that there is little direct influence of the instructional strategy on student engagement when used alone in the lower secondary schools of Uganda. The instructional strategy and the school environment did, however, have a significant connection (path a) ($B = 0.3594$, $SE = 0.0727$, $t = 4.94$, $p < 0.001$, 95% CI $[0.2163, 0.5025]$). This indicates that a successful teaching method has a favorable impact on the school environment, which might then affect other results. Furthermore, there was a positively significant effect of the school environment on student engagement ($B = 0.6017$, $SE = 0.0531$, $t = 11.33$, $p < 0.001$, 95% CI $[0.4972, 0.7062]$). These research findings emphasize how critical a supportive learning

environment is for encouraging student engagement. It was discovered that there was a substantial indirect effect of the instructional strategy on student engagement (path b), mediated by the school environment ($B = 0.2162$, $\text{BootSE} = 0.0493$, 95% CI [0.1176, 0.3133]). This finding suggests that although the instructional strategy may not have a direct effect on student engagement, it does so indirectly by improving the learning environment in the classroom or within the school, which in turn encourages higher levels of engagement from students as well as improving the quality of learning. The model accounted for 32.20% of the variance in student engagement ($R^2 = 0.3220$), which is a substantial proportion, indicating that the predictors used in the model are meaningful contributors to understanding the dynamics of student engagement.

The above findings are supported by the following qualitative findings;

Interviewee 02(DOSP Aug.2024) who expressed that;

"We have smaller class sizes and access to more resources. This allows teachers to employ a variety of teaching methods that keep students involved. Our classrooms are spacious, and we have sufficient learning materials. This has contributed to higher levels of student engagement."

The above was also supported by Interviewee 04 (DOSPO Aug. 2024) expressed that;

"We are fortunate to have better facilities than most schools in the area. Our classrooms are well-maintained, and we have some access to ICT tools, though we still need more. The school environment is structured and supportive. We have smaller class sizes, which makes it easier to focus on each student's individual needs."

Interviewee 03 (DOSC Aug.2024) who stated that;

"Sometimes we have more than 60 students in one room, which makes it hard for teachers to use anything other than lecture methods. We have very limited resources. No computers, no modern textbooks. The lack of resources hampers student engagement."

Interviewee 01(DOSG Aug.2024) expressed that;

"Our school is overcrowded. The classrooms are small, and the facilities are minimal. This directly affects how we can engage students. Often, we are forced to use teacher-centered methods because it's easier to control the class that way. We don't have sufficient ICT tools or modern learning materials. We rely on textbooks, but many students share a single book, which limits their engagement, especially with practical subjects."

The above quantitative and qualitative findings confirmed that there is a correlation between instructional strategies and student engagement and the effect is more pronounced in the engagement of students when the instructional strategies are integrated with a positive learning environment.

Chapter Five

Discussion of Results, Conclusions and Recommendation

Introduction

This chapter consists of a discussion of the results, challenges and mitigation measures, conclusions of the study recommendations, and highlights of possible areas for further research as in the order of the study objectives.

Discussion of results

The purpose of the study was to investigate whether instructional strategy and tools influenced student engagement directly or indirectly through school environment in Lower secondary schools in Manafwa District. The objectives of the study were; (a) To examine the mediating effect of school environment on the relationship between instructional strategy and student engagement. (b) To determine the challenges of student engagement in competency-based curriculum learning. (c) To explore strategies for overcoming the challenges of student engagement in competency-based curriculum learning.

The level of instructional strategy and tools used by teachers in lower secondary schools in Manafwa District

The results in Table 6 indicate that there were only low and moderate level of instructional strategies usage by the lower secondary school teachers in Butiru County in Manafwa District. The results reveal that a higher percentage of female students experience moderate instructional strategies compared to male students. This suggests that female students may be more frequently exposed to more effective instructional strategies than their male counterparts. However, both genders show a significant majority in the moderate category. Gender can influence the effectiveness of instructional strategies, with some studies indicating that female students often engage more with certain types of instructional approaches (El-Emadi, Said, & Friesen, 2019). The fact that female students experience more moderate instructional strategies than their male counterparts may suggest that gendered social dynamics

in the classroom impact how instructional strategies are applied. Females may be more engaged in socially collaborative tasks, making them more receptive to instructional strategies that promote interaction, inquiry, and peer-based learning, which are central to social constructivism (Bishop, 2005).

Considering the age of participants, those aged between 19-22 years old reported the highest percentage of exposure to moderate instructional strategies which also align with the constructivist idea that as learners mature, they become more capable of engaging in complex social interactions and critical thinking tasks that instructional strategies like problem-based learning encourage (Hung, Jonassen, & Liu, 2008). Conversely, students below the age of 15 reported a significantly higher percentage of exposure to low instructional strategies. This trend indicates that as student's age, they are more likely to be exposed to better instructional strategies. This finding aligns with the work of Zimmerman (2002), who found that older students often develop better self-regulation skills, making them more receptive to advanced instructional methods (Zimmerman, 2002).

The results further show that senior four (S.4) participants experienced more instructional strategy as the majority reported experiencing moderate level of instructional approaches by teachers as compared to senior one (S.1) which reported experiencing a low level of instructional approaches which indicates that instructional strategies application by teachers improves as students' progress through their academic levels. This finding is supported by Bloom's taxonomy which suggests that as students advance, they encounter more complex cognitive tasks that require more sophisticated instructional strategies (Bloom, 1956).

There was a notable trend in the results showing that students whose parents or guardians have higher levels of education, particularly a diploma or university degree, are more likely to experience moderate instructional strategies. In contrast, students whose parents or guardians have no formal education were only exposed to low instructional strategies.

According to Coleman (1988) as cited by (Hemminger, 2019) who studied the influence of social capital on education, highlights that parent's education impact on the student education outcomes. The influence of parental education on students' experience of instructional strategies reflects the impact of the "ecosystem" on the learning environment. Students with better-educated parents may have access to enriched learning environments at home, which in turn complements and enhances their ability to benefit from more sophisticated instructional strategies at school which is in agreement with Bronfenbrenner's ecological system theory (Naughton, 2007).

The findings also showed that Students from low-income families predominantly fall into the moderate instructional strategy category, which is also the case for students from middle-income families. Students from high-income families all reported experiencing moderate instructional strategies, though their numbers were very low. This pattern is consistent with findings that posit the impact of socioeconomic status on educational opportunities and access to quality instruction (Duncan & Murnane, 2011). Additionally, students from different socioeconomic backgrounds showing varying levels of exposure to instructional strategies also highlight the role of the broader "macrosystem," which includes socioeconomic structures that shape access to educational resources (Wolfe & Riggs, 2017).

The category of the school plays a significant role, with community school students being the most likely to experience moderate instructional strategies. However, government/public school students were more evenly split into experiencing low and moderate instructional strategies. This result mirrors research by Eyles et al., 2016, which suggests that school type can significantly influence the quality of instruction, often due to differences in resources and teacher quality (Eyles, Hupkau, & Machin, 2016).

Regarding school location, students in rural areas reported the highest percentage of moderate instructional strategies, whereas those in urban areas showed a 100% moderate

instructional strategy usage. This is consistent with study findings that argue that rural schools often face unique challenges that can impact the implementation of instructional strategies and effective teaching and learning (Xiang, Li, & Berridge, 2017). This also suggests that the unique challenges faced by rural schools, such as fewer resources and less teacher support, hinder the full implementation of advanced instructional methods, consistent with the barriers highlighted in Bronfenbrenner's theory.

Students with disabilities were also examined, revealing that the majority experience moderate instructional strategies, aligning closely with the overall trend seen in non-disabled students. This aligns with inclusive education research which emphasizes the importance of adapting instructional strategies to meet the needs of all learners, including those with disabilities (Ainscow, 2005)

Finally, the number of students in a stream impacts the level of instructional strategies. Streams with fewer than 100 students saw the majority experiencing moderate instructional strategies. However, there was a very low number of students in larger streams, making it difficult to draw definitive conclusions. It should also be noted that smaller class sizes can often result in more personalized and effective instructional strategies, supporting these findings (Blatchford, Bassett, & Brown, 2011). Social constructivism supports the idea that smaller groups allow for better social interactions and peer learning, which are critical for student engagement and success (Woo & Reeves, 2007). In support to this was other scholars who observed that in smaller class sizes, teachers have more capacity to offer personalized, student-centered instructional strategies, creating a more conducive learning environment for all students, including those with disabilities, who similarly benefit from more adapted and individualized learning approaches (Basham, Stahl, Hall, & Carter Jr, 2017).

The level of student engagement across the diversity of the demographic within the study sample in Manafwa District.

The finding that female students show higher levels of engagement than male students aligns with research findings that suggest girls often exhibit better classroom behaviors and academic attitudes. For instance, a study found that girls generally outperform boys in behavioral engagement, including participation in class and adherence to school rules. Similarly, other studies suggest that girls are more likely to adopt positive attitudes toward schooling, which may explain the higher engagement levels observed in this study's results (Fredricks, Blumenfeld, & Paris, 2004; Martin & Ruble, 2004).

The increase in the level of student engagement with age observed in this study is consistent with developmental theories such as those proposed by Eccles et al. (1993), which suggest that as students mature, they become more capable of self-regulation and are more likely to value education, thus leading to higher engagement level. Similarly, the study also indicates that older students often take on more responsibility for their learning, which could contribute to higher engagement levels as observed in this study results (Skinner, Furrer, Marchand, & Kindermann, 2008).

The study results further showed pattern of increasing student engagement with higher class levels which can be related to the concept of academic socialization, as discussed by (Hill & Tyson, 2009) which suggest that as students advance through school, they accumulate more knowledge, skills, and familiarity with academic expectations, which can enhance their engagement. In line with Self-Determination Theory, the greater sense of autonomy and purpose in higher grades may also explain this trend (Richard M Ryan & Deci, 2000a).

The relationship between parental/guardian education and student engagement observed in this study is well-supported by existing literature which also observed that higher parental education levels are associated with greater parental involvement in children's education, which often leads to better academic outcomes and higher student engagement

(Davis-Kean, 2005) , in addition to this, further studies highlights that parents with higher educational attainment tend to have more resources and knowledge to support their children's academic endeavors, leading to higher students engagement levels (Sirin, 2005).

The finding of this study which indicated that students from low-income families exhibit relatively high engagement contrasts with some literature that associates low socioeconomic status (SES) with lower academic engagement (Sirin, 2005). However, this finding justification can be explained by the studies that suggest that students from low SES backgrounds may develop resilience and a strong work ethic in response to adversity, leading to high engagement. Moreover, this pattern could reflect the specific context of Uganda, where education is often seen as a critical pathway out of poverty, motivating students from low-income families to engage more fully (Tumwebaze & MacLachlan, 2012).

The results findings which show differences in student engagement levels based on school type and location align with research studies that highlight how resources, teacher quality, and school culture can vary significantly between urban and rural schools, and between public and private institutions(Lareau & Cox, 2011). In another Studies conducted in 2017, the findings suggest that students in urban and better-resourced schools are likely to show higher engagement due to better facilities, more qualified teachers, and supportive learning environments(Venter, 2017).

The high engagement levels among students with disabilities, though based on the study findings, reflect findings from literature that emphasizes the importance of inclusive education practices. According to other related study finding, it was suggested that, when students with disabilities are provided with the necessary accommodations and a supportive environment, they can engage as effectively as their peers without disabilities (Hehir et al., 2016). This agrees with the observed findings in this study.

The observation that smaller class sizes are generally associated with higher engagement aligns with findings from studies such as (Finn & Achilles, 1999; Laitsch, Nguyen, & Younghusband, 2021; Reyes, Brackett, Rivers, White, & Salovey, 2012), which shows that students in smaller classes receive more individualized attention and participate more actively. However, on the other hand, the observed results that some larger classes also had high engagement might be explained by study findings that emphasized the role of effective teaching strategies and classroom management in maintaining student engagement, regardless of class size (Blatchford et al., 2011).

The correlation results between instructional strategy, school environment, and student engagement among the lower secondary school students within Manafwa District

The correlation analysis results in Table 10 reveal a moderately positive relationship between resource availability and student engagement. This finding is consistent with the study, where adequate educational resources have been consistently linked to enhanced student engagement such as (Ní Shé, Ní Fhloinn, & Mac an Bhaire, 2023). While other scholars argue that resource-rich environments foster better engagement, particularly in behavioral and emotional aspects (Finn & Zimmer, 2012). The positive correlations with specific types of engagement such as behavioral, emotional, and cognitive underscore the vital significance that resources play in creating a conducive learning environment that motivates students to actively participate in their learning process.

The analysis also indicates a significant positive correlation between instructional strategy and student engagement. Effective teaching strategies are critical in maintaining student interest and motivation, especially in settings where the study was conducted where educational challenges are prevalent. This is consistent with study findings, which emphasize that the quality of instructional strategies directly impacts student engagement (Dovale, Aponte, Canales, & Tejeiro, 2020). The strong correlation between instructional strategies and

instructional tools further supports the notion that teachers need to use the right tools/resources to implement their instructional strategies effectively.

Results analysis of Physical comfort which is a construct of the Learning environment shows a significant correlation with both the learning environment and student engagement. This finding is particularly relevant for lower secondary schools in Manafwa District, where the infrastructure issue is challenged. The importance of a comfortable learning environment is supported by a study conducted in 2014 which asserts that the physical conditions of classrooms, including aspects like seating, lighting, and ventilation, are important for maintaining student focus and engagement (Cleveland & Fisher, 2014).

Analysis of Results also shows that Teacher support is strongly correlated with overall student engagement ($r = .465, p < .01$), highlighting its significance in the Lower Secondary school of Manafwa District. This correlation is supported by the study who found that learner-centered teacher-student relationships are highly effective in promoting student engagement (Cleveland & Fisher, 2014). In Manafwa, where socio-economic factors affect teacher-student dynamics, the importance of supportive teachers cannot be overstated. Its' correlations with behavioral ($r = .450, p < .01$) and emotional engagement ($r = .392, p < .01$) further emphasize the impact of teacher support on student engagement in learning activities.

The positive correlations between student autonomy ($r = .342, p < .01$) and innovation ($r = .411, p < .01$) with overall student engagement suggest that fostering autonomy and encouraging innovation are critical in engaging Lower secondary school students in Manafwa District. This is also in line with self-determination theory, which posits that student autonomy is an important factor in motivating students and promoting engagement (Richard M Ryan & Deci, 2000b). In environments where students are given control over their learning and are encouraged to innovate, engagement levels are likely to rise, leading to better educational outcomes.

The comprehensive influence of these factors on student engagement is evident, with the highest correlations observed between student engagement and emotional ($r = .824$, $p < .01$) and cognitive engagement ($r = .808$, $p < .01$). This highlights the importance of addressing the emotional and cognitive needs of students to achieve full engagement. The combined effects of resources/tools, instructional strategy, teacher support, physical comfort, and fostering autonomy and innovation suggest that these areas should be prioritized in efforts to enhance student engagement and improve the learning quality in lower secondary schools of Manafwa District.

Structural Equation Modeling Results for the relationships among instructional strategy, school environment, and student engagement.

Vygotsky's Social Constructivism emphasizes that learning is a social process in which students develop knowledge via interactions with their environment and peers. In this context, a well-structured educational environment that promotes collaboration and communication has the potential to greatly increase student engagement (Amineh & Asl, 2015). Resource-rich instructional strategies that promote active learning enable students to connect more effectively with their surroundings and peers, resulting in deeper engagement (Wilson & Novak, 2017). This is consistent with the study's findings, which suggest that the learning environment enhances the effect of instructional tactics on engagement. As a result, Instructional strategies in Manafwa District that promote social learning can indirectly contribute to student engagement by improving the school atmosphere.

The analysis results of the learning environment, with a correlation coefficient $\beta=0.5674$, $p < .001$, show a strong and significant impact of school environment on student engagement, confirming its role as a mediator in the relationship between instructional strategy and student engagement. This finding is in line with the conclusions drawn from a study that asserts that the quality of the school environment significantly influences student engagement

by providing a physical and psychological setting conducive to learning (Cleveland & Fisher, 2014). In Manafwa District, where resources and infrastructure, tools and resources vary significantly due to the diversity of school settings and establishment, enhancing the school environment can be a pivotal strategy for improving student engagement.

The analysis reveals that the direct effect of instructional strategy on student engagement is not statistically significant ($P = 0.348$), implying that when the Learning environment is accounted for, the direct relationship between instructional strategies and student engagement diminishes. This suggests that the Learning environment plays a critical role in influencing how instructional strategies influence student engagement. The 95% confidence interval (CI) for this direct effect ranges from -0.0724 to 0.2047, indicating that the influence could be either slightly positive or negative, but overall, it appears to be minimal. This finding aligns with existing study that emphasizes the importance of contextual factors such as the learning environment in shaping the effectiveness of instructional techniques (Eccles & Roeser, 2011). Therefore, enhancing the school environment can be a key factor in maximizing the effectiveness of instructional strategies in promoting student engagement.

In the lens of Bronfenbrenner's Ecological System Theory, individual development is impacted by their interactions with diverse environmental systems (Härkönen, 2001). In this study, the learning environment is considered a microsystem that has a direct impact on student engagement. The substantial association between the learning environment and student involvement reveals how contextual elements such as classroom design, availability of learning materials, and teacher-student relationships influence student behavior and motivation.

The findings therefore support the Self-Determination Theory, which contends that a supportive environment that meets students' requirements for autonomy, competence, and relatedness increases intrinsic motivation (Orsini, Evans, & Jerez, 2015). A positive learning environment can provide these psychological demands, increasing students' motivation and

engagement in their studies. Thus, strengthening the Learning environment helps to improve the link between instructional practices and student involvement by creating a climate in which students feel capable, connected, and autonomous.

Conclusion

Based on the findings above, the study, therefore concludes that there are generally moderate levels of instructional strategies adopted by the teachers of lower secondary schools in Butiru County, Manafwa District. This therefore, implies that Teachers are occasionally utilizing more than one instructional approaches during their teaching as a results limited instructional tools and resources available in a range of schools in Manafwa District.

The findings also emphasized the significance of providing instructional tools and resources because of the strong contribution to instructional strategy as well as providing a suitable environment for student engagement. However, the study also observed that, having instructional tools and resources without integrating them into instructional strategy do not make a significant contribution to the student engagement among the lower secondary school students in Manafwa District. This could be attributed to situations like having Laboratory equipment which are not being utilized by teachers and students, a Library without a Librarian to supervise student revision, non-functional computers, and dysfunctional facilities that may not contribute to student learning engagement.

There was no statistically significant correlation between instructional strategy and student engagement meaning implementation of instructional approaches like inquiry-based learning, problem-based learning, peer teaching, project-based learning, group work learning, role play, and others without an established supportive environment would not be sufficient to stimulate student engagement which sight the relevancy of controlling the environment circumstance under which these is done

The learning environment had a significant positive effect on student learning engagement in the lower secondary schools in Manafwa District. The study shows a high effect of Teacher

support, physical comfort, student autonomy, and student involvement which are component of school environment on student learning engagement which justify the fact that instructional strategy used by the teachers should aim at strengthening these construct of the school environment in order to improve the student learning engagement. This finding reinforces the need for comprehensive educational strategies that address both instructional quality and environmental factors to optimize student outcomes in Manafwa District. Future interventions should consider these factors holistically to ensure sustained improvements in student engagement.

The study findings reveal a significant relationship between instructional strategies, school environment, and student engagement in lower secondary schools in Manafwa District, Uganda. While the direct impact of instructional strategies on student engagement was not statistically significant, the school environment emerged as a critical mediator, significantly enhancing student engagement. This underscores the importance of a supportive and resource-rich school environment in effectively translating instructional strategies into meaningful student outcomes. The results align with educational theories that emphasize the interplay between environmental factors and pedagogical practices in fostering student engagement and learning. Therefore, for the competency-based curriculum to achieve its intended outcomes, particularly in the Ugandan context, there must be a concerted effort to improve the school environment alongside teacher training and instructional development. To make sure that the educational reforms result in noticeable increases in student involvement and overall educational quality, a comprehensive strategy will be essential.

Challenges encountered in implementing student learning engagement in the classroom

The study revealed several challenges faced by teachers in promoting student learning engagement in lower secondary schools in Manafwa District. A significant issue identified was the low participation of some students in activities such as assignments, group discussions,

project work, and role play. This disinterest was particularly prevalent among day scholars who spend limited time at school, making it difficult for teachers to provide the necessary individual attention and support. The large class sizes further exacerbated this challenge, reducing the overall effectiveness of engaging students in the learning process.

Another major challenge was the lack of adequate instructional materials. Teachers reported a shortage of up-to-date textbooks aligned with the Competency-Based Curriculum (CBC), as well as insufficient access to ICT tools and other essential teaching aids. This inadequacy limited the application of student-centered approaches, as students often lacked the necessary resources for research and active participation in both classroom and extracurricular activities.

The high teacher-student ratio emerged as a common issue, with teachers indicating that large class sizes hindered their ability to effectively manage learner-centered activities such as project monitoring, role play preparation, and group work supervision. This ratio also affected the quality of instruction, as teachers struggled to provide personalized feedback and adequate support to individual students.

Additionally, limited access to ICT tools, including computers, projectors, and reliable internet connectivity, was a significant barrier to integrating technology into the learning process. Many schools lacked these resources, restricting opportunities for more interactive and engaging learning experiences.

Lastly, the study highlighted that teachers were not sufficiently trained to implement the new curriculum effectively. The lack of continuous professional development and inadequate support from the government left many teachers ill-prepared to adopt the required student-centered instructional strategies, resulting in inconsistent implementation across schools.

Recommendation to improve the implementation of student learning engagement

Based on the findings and conclusions, this study recommends the following;

The study recommends that the government through the Ministry of Education and Sport and other education stakeholders should prioritize the recruitment of more teachers to reduce the teacher-to-student ratio, especially in rural areas. This will enable teachers to manage their classes more effectively and provide the necessary attention which ranges from teaching preparations, and supervision, to the provision of feedback to each learner to monitor and support their learning engagement.

The study recommends that there is an urgent need for the government through the Ministry of Education to supply schools with sufficient instructional materials, including updated textbooks on CBC-required competencies, ICT tools, and other learning aids. These resources are critical for facilitating active learning and enabling students to engage fully with the learning processes

The study recommends that the Government through the Ministry of Education and Sports should prioritize organizing regular professional development programs and re-tooling workshops for teachers. These programs should focus on equipping educators with the necessary skills and knowledge to effectively implement the student-centered curriculum. Teachers need ongoing support to adapt to modern instructional strategies, such as project-based learning and inquiry-based approaches. By regularly updating their skills, teachers will be better positioned to engage students and improve learning outcomes.

The study also recommend that in order to modernize the learning environment, the Ministry of Education and Sports, in collaboration with local governments, must ensure that all schools are equipped with essential ICT infrastructure, including computers, projectors, and reliable internet connectivity. Additionally, ensuring that schools have access to electricity is crucial for fostering interactive and engaging learning experiences. Integrating technology into

teaching will enhance research capabilities, promote digital literacy, and allow for more dynamic and engaging learning experiences for students.

The study recommends that the Ministry of Education and Sports, along with school administrations, should implement motivational strategies to support and encourage teachers. Providing incentives, such as allowances, professional recognition, and performance-based rewards, can help boost teacher morale and commitment. A motivated teaching workforce is more likely to embrace new instructional strategies and create a conducive learning environment. This, in turn, will stimulate greater student engagement and improve learning outcomes across the district.

The study finding reveals that there is a need to prioritize addressing the individual needs of students from disadvantaged backgrounds. This could be achieved by encouraging students to engage in subject-based projects that can generate income, thereby helping to finance their education. Furthermore, providing scholarships or financial aid to students who struggle to pay fees or afford necessary learning materials is essential. Ensuring that all students, regardless of their economic background, have access to quality education will foster consistency in attendance and engagement in school.

Based on this finding, the study encourages every stakeholder involved in the education department of Manafwa District such as teachers, students, parents, and the community for a cooperative effort to improve the student learning environment which is aimed at improving student involvement that is more significant and long-lasting.

The study emphasized that educational policymakers in Uganda ought to give top priority to allocating resources in a way that facilitates student-centered learning. This should involve investing heavily in infrastructure and educational resources in addition to providing teachers with training. In addition to textbooks and facilitator manuals, schools also require other resources to provide a more engaging and practical learning environment. Examples of

these resources include interactive learning tools, Modern teaching aids, and facilities that promote hands-on learning. This all-encompassing strategy will guarantee an efficient and long-lasting improvement in student engagement and results.

Areas for further research

Further research could explore the long-term effects of different instructional strategies on student engagement, especially in varying school environments. This would help in understanding how these strategies influence engagement over time.

Since the school environment showed a significant impact on student engagement, more studies could be carried out to investigate the specific construct of the school environment such as physical comfort, teacher support, student autonomy or student involvement as a moderator of the relationship between instructional strategy and student engagement.

Research could be conducted in different educational contexts within Uganda, including rural vs. urban settings, to determine if the findings hold true across diverse environments and to identify context-specific factors.

Limitation of the study

The study encountered the following limitations;

Manafwa District may not be a suitable representative of all districts in Uganda, especially considering the diversity in school environments, socioeconomic conditions, and cultural contexts. Thus, the findings might not be easily generalizable to other regions. Future studies will need to replicate this research in various districts, including urban areas, to test the applicability of the findings in diverse contexts.

Schools in Manafwa District may have varying levels of resources, which could influence the effectiveness of instructional strategies and student engagement. Limited resources could also affect the implementation of the study, such as difficulties in accessing necessary materials or facilities for data collection. Schools were categorized based on available resources, and these differences were factored into the interpretation of how

instructional strategies impacted student engagement, allowing for a more nuanced understanding of context-specific influences.

Teachers and students may have provided responses that they perceived as socially desirable, rather than reflecting their true experiences and opinions. This could have led to biased results, particularly in self-reported measures of engagement or instructional strategy effectiveness. Clear instructions emphasizing the confidentiality of the responses were provided to encourage honest feedback.

Manafwa District is relatively rural, and logistical challenges such as poor road networks, limited access to some schools, and inadequate communication infrastructure could have hindered timely and comprehensive data collection. This included scheduling visits to schools that were more difficult to access and using local networks to facilitate transportation and communication.

Since the education system was recently transitioned to a competency-based curriculum, there may be inconsistencies in how well teachers are trained and how effectively they are implementing the new instructional strategies. This variability could have affected the study's outcomes. Efforts were made to include both experienced and less-experienced teachers to capture a broad range of perspectives on the effectiveness of the instructional strategies.

External factors such as weather conditions, local economic activities, or political events could have influenced both the school environment and student engagement, introducing variability that the study may not have fully accounted for. Data collection was carried out over an extended period. This helped to balance any potential disruptions and reduce the impact of temporary external influences on the school environment and student engagement.

The tools or methods used to assess instructional strategies, school environment, and student engagement might not fully capture the complexity of these constructs, leading to

potential measurement errors or oversimplification of the relationships being studied.

Adjustments were made based on pilot feedback to improve the accuracy and reliability of the instruments used.

The sample size was small or not diverse enough, this could limit the statistical power of the study and the ability to detect significant relationships. Additionally, it could lead to challenges in ensuring that the sample accurately reflects the population of lower secondary schools in Manafwa District. Stratified random sampling was used to ensure the schools selected for the study represented a range of school types, including government-aided, private, and community schools.

There may have been other unmeasured variables, such as parental involvement or student motivation, which could have influenced the relationship between instructional strategies, the school environment, and student engagement, potentially confounding the study's findings. Qualitative data from open-ended questionnaires and interviews were collected to explore broader contextual influences that may not have been captured by the quantitative measures.

References

- Abd Majid, R., Ali, M. M., Salleh, N. M., Alias, A., Kanapathy, R., & Hashim, K. S. (2018). The dynamic holistic development of human potentials and wellbeing: Implication on educational policies. *Journal of ICSAR*, 2(1), 88-93.
- Adams, P. (2006). Exploring social constructivism: Theories and practicalities. *Education*, 34(3), 243-257.
- Ahlam, E., & Gaber, H. (2014). Impact of problem-based learning on students critical thinking dispositions, knowledge acquisition and retention. *Journal of Education and Practice*, 5(14), 74-83.
- Ahmed, A. K. (2013). Teacher-centered versus learner-centered teaching style. *Journal of Global Business Management*, 9(1), 22.
- Ainscow, M. (2005). Developing inclusive education systems: what are the levers for change? *Journal of educational change*, 6(2), 109-124.
- Akcay, B. (2009). Problem-based learning in science education. *Journal of Turkish science education*, 6(1), 28-38.
- Alamri, H., Lowell, V., Watson, W., & Watson, S. L. (2020). Using personalized learning as an instructional approach to motivate learners in online higher education: Learner self-determination and intrinsic motivation. *Journal of Research on Technology in Education*, 52(3), 322-352.
- Alshahrani, K., & Ally, M. (2015). *eLearning in Higher Education: From Teacher-centered to Learner-centered Design*. Paper presented at the FINAL CONFERENCE PROCEEDINGS.
- Amineh, R. J., & Asl, H. D. (2015). Review of constructivism and social constructivism. *Journal of social sciences, literature and languages*, 1(1), 9-16.
- Amutabi, M. N. (2019). Competency based curriculum (CBC) and the end of an era in Kenya's education sector and implications for development: Some empirical reflections. *Journal of Popular Education in Africa*, 3(10), 45-66.
- Anand, P., & Ebrahim, P. (2024). An Application of Bronfenbrenner's Bioecological Theory to the Assessment of Academic Literacies: Reflections From a Teacher Training College. In *Improving Literacy Through Home, School, and Community Partnerships* (pp. 1-32): IGI Global.
- Anderson, L. (2018). Competency-based education: Recent policy trends. *The Journal of Competency-Based Education*, 3(1), e01057.
- Asava, J. K. (2021). *Influence of Teacher Pedagogies on Implementation of Competency-based Curriculum in Public Primary Schools in Westlands Sub-County, Nairobi City County, Kenya*. University of Nairobi,
- Awandu, M. (2023). *Influence of Constructivist Pedagogical Approaches on Implementation of Grade Three Competency Based Mathematics Curriculum in Public Primary Schools in Kisumu Central Sub-county, Kenya*. University of Nairobi,
- Awori, S., Sekiwu, D., Ssempala, F., & Naluwemba, F. (2020). Ecology of schooling: Enabling school environment for student engagement in Uganda's Universal Secondary Education. *International Journal of Educational Policy Research and Review*.
- Basham, J. D., Stahl, S., Hall, T., & Carter Jr, R. A. (2017). Establishing a student-centered environment to support all learners. In *Handbook of research on classroom diversity and inclusive education practice* (pp. 155-182): IGI Global.
- Bernard, J. S. (2015). Student engagement: a principle-based concept analysis. *International journal of nursing education scholarship*, 12(1), 111-121.
- Bishop, C. (2005). The social turn: Collaboration and its discontents. *Artforum*, 44(6), 178.

- Blasco-Arcas, L., Buil, I., Hernández-Ortega, B., & Sese, F. J. (2013). Using clickers in class. The role of interactivity, active collaborative learning and engagement in learning performance. *Computers & Education*, 62, 102-110.
- Blatchford, P., Bassett, P., & Brown, P. (2011). Examining the effect of class size on classroom engagement and teacher–pupil interaction: Differences in relation to pupil prior attainment and primary vs. secondary schools. *Learning and instruction*, 21(6), 715-730.
- Bloom, B. S. (1956). Taxonomy of. *Educational Objectives*.
- Brophy, J. (1988). Educating teachers about managing classrooms and students. *Teaching and Teacher education*, 4(1), 1-18.
- Burton, J. K., Moore, D. M., & Magliaro, S. G. (1996). Behaviorism and instructional technology. *Handbook of research for educational communications and technology*, 46-73.
- Chan-Anteza, T. K. (2020). Management of a Conducive Classroom Environment: A Meta-synthesis. *Management*, 11(26), 54-70.
- Chang, H.-Y., Wang, C.-Y., Lee, M.-H., Wu, H.-K., Liang, J.-C., Lee, S. W.-Y., . . . Hsu, C.-Y. (2015). A review of features of technology-supported learning environments based on participants' perceptions. *Computers in human behavior*, 53, 223-237.
- Charles, K., Song, Z., & Khaing, T. (2022). Factors Affecting the Implementation of Competency-Based Curriculum in Lower Secondary Schools In Uganda: A Systematic Literature Review.
- Chatmon, C., Chi, H., & Davis, W. (2010). *Active learning approaches to teaching information assurance*. Paper presented at the 2010 Information Security Curriculum Development Conference.
- Chew, S. L., & Cerbin, W. J. (2021). The cognitive challenges of effective teaching. *The Journal of Economic Education*, 52(1), 17-40.
- Christensen, J. (2016). A critical reflection of Bronfenbrenner s development ecology model. *Problems of Education in the 21st Century*, 69(1), 22-28.
- Cleveland-Innes, M., & Emes, C. (2005). Principles of learner-centered curriculum: Responding to the call for change in higher education. *Canadian Journal of Higher Education*, 35(4), 85-110.
- Cleveland, B., & Fisher, K. (2014). The evaluation of physical learning environments: A critical review of the literature. *Learning environments research*, 17, 1-28.
- Cresswell, E., Brennan, M. L., Barkema, H., & Wapenaar, W. (2013). A questionnaire-based survey on the uptake and use of cattle vaccines in the UK. *Veterinary Record Open*, 1(1), e000042.
- D'Agostino, T. (2023). Examination reform for higher order thinking: A case study of assessment-driven reform in Uganda. *International Journal of Educational Development*, 103, 102918.
- Datzberger, S. (2018). Why education is not helping the poor. Findings from Uganda. *World development*, 110, 124-139.
- Davis-Kean, P. E. (2005). The influence of parent education and family income on child achievement: the indirect role of parental expectations and the home environment. *Journal of family psychology*, 19(2), 294.
- Davis, H. A. (2003). Conceptualizing the role and influence of student-teacher relationships on children's social and cognitive development. *Educational psychologist*, 38(4), 207-234.
- Deci, E. L., & Ryan, R. M. (2012). Self-determination theory. *Handbook of theories of social psychology*, 1(20), 416-436.
- Declaration, I. (1999). Framework for Action. *Towards inclusive and equitable quality*.

- Dhivyadeepa, E. (2015). *Sampling techniques in educational research*: Lulu. com.
- Dovale, M. M., Aponte, Y. M., Canales, Y., & Tejeiro, B. (2020). *The relationship between instructional delivery and student engagement in selected classrooms: A cross-case analysis*: The College of William and Mary.
- Driver, R., Asoko, H., Leach, J., Scott, P., & Mortimer, E. (1994). Constructing scientific knowledge in the classroom. *Educational researcher*, 23(7), 5-12.
- Duncan, G. J., & Murnane, R. J. (2011). *Whither opportunity?: Rising inequality, schools, and children's life chances*: Russell Sage Foundation.
- Ebadi, S., Aliabadi, R. B., & Ajabshir, Z. F. (2024). EFL teachers' engagement-promoting strategies in online gamification: an ecological systems theory (EST) perspective. *Current Psychology*, 1-16.
- Eccles, J. S., & Roeser, R. W. (2011). Schools as developmental contexts during adolescence. *Journal of research on adolescence*, 21(1), 225-241.
- Eccles, J. S., & Roeser, R. W. (2015). School and community influences on human development. In *Developmental science* (pp. 645-728): Psychology Press.
- El-Emadi, A. A., Said, Z., & Friesen, H. L. (2019). Teaching style differences between male and female science teachers in Qatari schools: Possible impact on student achievement. *EURASIA Journal of Mathematics, Science and Technology Education*, 15(12), em1800.
- Ertmer, P. A., & Newby, T. J. (2013). Behaviorism, cognitivism, constructivism: Comparing critical features from an instructional design perspective. *Performance improvement quarterly*, 26(2), 43-71.
- Eyles, A., Hupkau, C., & Machin, S. (2016). Academies, charter and free schools: do new school types deliver better outcomes? *Economic Policy*, 31(87), 453-501.
- Finn, J. D., & Achilles, C. M. (1999). Tennessee's class size study: Findings, implications, misconceptions. *Educational evaluation and policy analysis*, 21(2), 97-109.
- Finn, J. D., & Zimmer, K. S. (2012). Student engagement: What is it? Why does it matter? In *Handbook of research on student engagement* (pp. 97-131): Springer.
- Fomiškina, J., Woogen, E., Peiris, A., Abdulrazzak, S., & Cameron, E. (2021). Nurturing Every Learner's Potential: Education Reform in Kenya. *Implementing Deeper Learning and 21st Century Education Reforms: Building an Education Renaissance After a Global Pandemic*, 129-144.
- Fraser, B. J. (2012). Classroom learning environments: Retrospect, context and prospect. *Second international handbook of science education*, 1191-1239.
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of educational research*, 74(1), 59-109.
- Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the national academy of sciences*, 111(23), 8410-8415.
- Galofré-Vilà, G. (2023). The Diffusion of Knowledge during the British Industrial Revolution. *Social Science History*, 47(2), 167-188.
- Gilboy, M. B., Heinerichs, S., & Pazzaglia, G. (2015). Enhancing student engagement using the flipped classroom. *Journal of nutrition education and behavior*, 47(1), 109-114.
- Gillies, R. M. (2023). Using Cooperative Learning to Enhance Students' Learning and Engagement during Inquiry-Based Science. *Education Sciences*, 13(12), 1242.
- Glasgow, N. A., & Hicks, C. D. (2009). *What successful teachers do: 101 research-based classroom strategies for new and veteran teachers*: Corwin Press.
- Good, T. L., & Weinstein, R. S. (1986). Schools make a difference: Evidence, criticism, and new directions. *American psychologist*, 41(10), 1090.

- Gresham, J. D. (2019). *Self-directed learning: Empowering authentic learner autonomy through self-agency in the secondary school learning environment*: California Institute of Integral Studies.
- Griffiths, A.-J., Sharkey, J. D., & Furlong, M. J. (2009). Student engagement and positive school adaptation. In *Handbook of positive psychology in schools* (pp. 197-212): Routledge.
- Grow, G. O. (1991). Teaching learners to be self-directed. *Adult education quarterly*, 41(3), 125-149.
- Han, K. (2021). Fostering students' autonomy and engagement in EFL classroom through proximal classroom factors: autonomy-supportive behaviors and student-teacher relationships. *Frontiers in Psychology*, 12, 767079.
- Harasim, L. (2017). *Learning theory and online technologies*: Routledge.
- Härkönen, U. (2001). The Bronfenbrenner ecological systems theory of human development. In.
- Harzer, C., Weber, M., & Huebner, E. S. (2016). School as a positive learning and working environment.
- Hehir, T., Grindal, T., Freeman, B., Lamoreau, R., Borquaye, Y., & Burke, S. (2016). A Summary of the Evidence on Inclusive Education. *Abt Associates*.
- Hemminger, E. (2019). Coleman (1988): Social Capital in the Creation of Human Capital. *Schlüsselwerke der Netzwerkforschung*, 121-124.
- Hill, N. E., & Tyson, D. F. (2009). Parental involvement in middle school: a meta-analytic assessment of the strategies that promote achievement. *Developmental psychology*, 45(3), 740.
- Hirumi, A. (2002). Student-centered, technology-rich learning environments (SCenTRLE): Operationalizing constructivist approaches to teaching and learning. *Journal of Technology and Teacher Education*, 10(4), 497-537.
- Hoppers, C. A. O. (2001). Indigenous knowledge systems and academic institutions in South Africa. *Perspectives in education*, 19(1), 73-86.
- Hung, W., Jonassen, D. H., & Liu, R. (2008). Problem-based learning. In *Handbook of research on educational communications and technology* (pp. 485-506): Routledge.
- Ion, G., Cano, E., & Cabrera, N. (2016). Competency assessment tool (CAT). The evaluation of an innovative competency-based assessment experience in higher education. *Technology, Pedagogy and Education*, 25(5), 631-648.
- Jackson, C. (2009). *Effects of teacher-directed and student-centered instruction on science comprehension of eighth grade students*: Northern Michigan University.
- Jacobs, G. M., & Renandya, W. A. (2019). *Student centered cooperative learning: Linking concepts in education to promote student learning*: Springer.
- Johnson, L. S. (2008). Relationship of instructional methods to student engagement in two public high schools. *American secondary education*, 69-87.
- Jones, A., & Shindler, J. (2016). Exploring the School Climate--Student Achievement Connection: Making Sense of Why the First Precedes the Second. *Educational Leadership and Administration: Teaching and Program Development*, 27, 35-51.
- Joshi, D. R., Khanal, J., & Dhakal, R. H. (2023). Mediating Digital Devices in Post-COVID-19 Classroom: An Exploration of Teachers' Adaptation Process in Nepal.
- Juvonen, J., Lessard, L. M., Rastogi, R., Schacter, H. L., & Smith, D. S. (2019). Promoting social inclusion in educational settings: Challenges and opportunities. *Educational psychologist*, 54(4), 250-270.
- Kakuba, C. (2014). *Evolution of inequalities in access to secondary schooling in Uganda*. Université René Descartes-Paris V,

- Kidega, C., Song, Z., Ugochinyere, I. C., James, O. A., & Ndikubwimana, F. (2024). Confronting Challenges Facing Teachers in Implementing Competency-Based Curriculum in Uganda: A Case of Secondary Schools in Gulu City. *East African Journal of Education Studies*, 7(2), 112-129.
- Kisa, S. (2021). *Comparative study of teachers' expectations, instructional practices and learners' competence in mathematics in Uganda*. Kyambogo University,
- Kozulin, A. (2003). Psychological tools and mediated learning. *Vygotsky's educational theory in cultural context*, 4(6), 15-38.
- Laird-Fick, H. S., Solomon, D. J., Parker, C. J., & Wang, L. (2018). Attendance, engagement and performance in a medical school curriculum: early findings from competency-based progress testing in a new medical school curriculum. *PeerJ*, 6, e5283.
- Laitsch, D., Nguyen, H., & Younghusband, C. H. (2021). Class size and teacher work: Research provided to the BCTF in their struggle to negotiate teacher working conditions. *Canadian Journal of Educational Administration and Policy*(196), 83-101.
- Lareau, A., & Cox, A. (2011). Social class and the transition to adulthood. *Social class and changing families in an unequal America*, 134.
- Li, Y., & Lerner, R. M. (2013). Interrelations of behavioral, emotional, and cognitive school engagement in high school students. *Journal of youth and adolescence*, 42, 20-32.
- Ma'dan, M., Ismail, M. T., & Daud, S. (2020). Strategies to enhance graduate employability: insights from Malaysian public university policy-makers. *Malaysian Journal of Learning and Instruction*, 17(2), 137-165.
- Manqele, C. M. (2017). An evaluation of learner-centred teaching as part of curriculum delivery in under-resourced schools. *Unpublished doctoral dissertation, University of South Africa, Pretoria*.
- Martin, C. L., & Ruble, D. (2004). Children's search for gender cues: Cognitive perspectives on gender development. *Current directions in psychological science*, 13(2), 67-70.
- Matthews, M. R. (2020). Philosophical Problems with Constructivism: Some considerations for student-centered learning and teaching. In *The Routledge International Handbook of Student-Centered Learning and Teaching in Higher Education* (pp. 47-64): Routledge.
- Mayer, R. E. (2002). Rote versus meaningful learning. *Theory into practice*, 41(4), 226-232.
- Mbelani, M. (2013). *An investigation into the development of knowledge and strategies for the teaching of visual literacy in under-resourced Eastern Cape schools*. Rhodes University,
- Mbiydenyuy, N. E. (2020). Teaching and Learning in resource-limited settings in the face of the COVID-19 pandemic. *Journal of Educational Technology and Online Learning*, 3(3), 211-223.
- Meskell, L., & Brumann, C. (2015). UNESCO and new world orders. *Global heritage: A reader*, 22-42.
- Millican, J. (2014). Higher education and student engagement: Implications for a new economic era. *Education+ Training*, 56(7), 635-649.
- Mlambo, D. N., Mubecua, M. A., & Mlambo, V. H. (2023). Post-colonial Independence and Africa's Corruption Conundrum: A Succinct South African Critique Post-democratisation. *Insight on Africa*, 15(2), 184-202.
- Mohammed, S. H., & Kinyó, L. (2020). The role of constructivism in the enhancement of social studies education. *Journal of critical reviews*, 7(7), 249-256.
- Mosweunyane, D. (2013). The African Educational Evolution: From Traditional Training to Formal Education. *Higher education studies*, 3(4), 50-59.

- Muwaya, S. (2018). Effect of teaching methods on students' performance in secondary schools: a case of secondary schools in Namutumba Town Council Namutumba District.
- Mwita, E. (2023). *Assessment Of Teachers' Preparedness On The Implementation Of The Competency-Based Curriculum In Public Primary Schools In Migori County*. Kisii University,
- Nakabugo, M. G., & Siebörger, R. (2001). Curriculum reform and teaching in South Africa: making a paradigm shift? *International Journal of Educational Development*, 21(1), 53-60.
- Namaziandost, E., Kargar Behbahani, H., & Heydarnejad, T. (2024). Like coloured pencils in a pencil case: A portrayal of the connections between learning style preferences, needs satisfaction, academic motivation, and psychological well-being from the window of self-determination theory. *European Journal of Education*, e12715.
- Namubiru, A., Kitembo, M., Kasiita, T., Kagambe, E., & Kasiita, T. (2024). Perceptions of Teachers on the Implementation of the Competence-Based Curriculum in Secondary Schools in Bundibugyo and Ntoroko Districts, Uganda. *East African Journal of Education Studies*, 7(3), 13-27.
- Nannyonjo, H. (2007). *Education inputs in Uganda: An analysis of factors influencing learning achievement in grade six*: World Bank Publications.
- Naughton, I. E. (2007). *Home school and the socialization of middle school children: Parental perceptions*. Walden University,
- Ní Shé, C., Ní Fhloinn, E., & Mac an Bhaird, C. (2023). Student engagement with technology-enhanced resources in mathematics in higher education: A review. *Mathematics*, 11(3), 787.
- Njai, S., & Nyabuto, E. (2021). Technology Enhanced Learning Environments: Reflecting on the 21st Century Learning. *East African Scholars Journal of Education, Humanities and Literature*, 4(4), 202-208.
- Njogedde, J. (2023). *Sustainable learning strategies for improving students' participation in biology teaching and learning processes: a case of Luteete secondary school*. Kyambogo University [unpublished work],
- Nolan, E. A. (2017). *Elementary second-stage teachers: exploring career decisions and the conditions that influence those decisions*. Boston University,
- Nombo, U. (2022). Competency-based curriculum in the teachers colleges: The challenges. *European Journal of Alternative Education Studies*, 7(1).
- Odebero, S. O. (2011). Education inequalities and opportunities in the east African region. *East African Integration*, 51.
- Olivier, C., & Burton, C. (2020). A large-group peer mentoring programme in an under-resourced higher education environment. *International Journal of Mentoring and Coaching in Education*, 9(4), 341-356.
- Orsini, C., Evans, P., & Jerez, O. (2015). How to encourage intrinsic motivation in the clinical teaching environment?: a systematic review from the self-determination theory. *Journal of educational evaluation for health professions*, 12.
- Page, L. (2023). The scaffolds that comprise the tool can be broken down into four different categories. These structures can be described as follows: 1) Scaffolds, like the data capture camera tool, that enable the user to move smoothly between the two environments (the main investigation software and the reflective inquiry support tool), select and copy selected information from the one environment and paste it in the other (Figure 2, A). *Computer Support for Collaborative Learning: Foundations for A CscL Community (cscl 2002 Proceedings)*, 228.

- Pianta, R. C., Hamre, B. K., & Allen, J. P. (2012). Teacher-student relationships and engagement: Conceptualizing, measuring, and improving the capacity of classroom interactions. In *Handbook of research on student engagement* (pp. 365-386): Springer.
- Pistorio, M. I. (2010). A blend of CLIL and cooperative learning creates a socially constructed learning environment. *Latin American Journal of Content & Language Integrated Learning*, 3(1).
- Radelet, S. (2010). *Emerging Africa: How 17 countries are leading the way*: Brookings Institution Press.
- Reed, M. S., Evely, A. C., Cundill, G., Fazey, I., Glass, J., Laing, A., . . . Raymond, C. (2010). What is social learning? *Ecology and society*, 15(4).
- Reeve, J. (2009). Why teachers adopt a controlling motivating style toward students and how they can become more autonomy supportive. *Educational psychologist*, 44(3), 159-175.
- Reeve, J. (2012). A self-determination theory perspective on student engagement. In *Handbook of research on student engagement* (pp. 149-172): Springer.
- Reeve, J., & Lee, W. (2014). Students' classroom engagement produces longitudinal changes in classroom motivation. *Journal of educational psychology*, 106(2), 527.
- Reeves, C. (2019). Project-Based Learning with Student-Developed Models in the NGSS Curriculum.
- Reigeluth, C. M., Aslan, S., Chen, Z., Dutta, P., Huh, Y., Lee, D., . . . Tan, V. (2015). Personalized integrated educational system: Technology functions for the learner-centered paradigm of education. *Journal of Educational Computing Research*, 53(3), 459-496.
- Reyes, M. R., Brackett, M. A., Rivers, S. E., White, M., & Salovey, P. (2012). Classroom emotional climate, student engagement, and academic achievement. *Journal of educational psychology*, 104(3), 700.
- Rudasill, K. M., Snyder, K. E., Levinson, H., & L Adelson, J. (2018). Systems view of school climate: A theoretical framework for research. *Educational psychology review*, 30, 35-60.
- Ruzek, E. A., Hafen, C. A., Allen, J. P., Gregory, A., Mikami, A. Y., & Pianta, R. C. (2016). How teacher emotional support motivates students: The mediating roles of perceived peer relatedness, autonomy support, and competence. *Learning and instruction*, 42, 95-103.
- Ryan, R. M., & Deci, E. L. (2000a). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary educational psychology*, 25(1), 54-67.
- Ryan, R. M., & Deci, E. L. (2000b). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist*, 55(1), 68.
- Ryan, R. M., & Deci, E. L. (2016). Facilitating and hindering motivation, learning, and well-being in schools: Research and observations from self-determination theory. In *Handbook of motivation at school* (pp. 96-119): Routledge.
- Sadler, D. R. (2014). Beyond feedback: Developing student capability in complex appraisal. In *Approaches to assessment that enhance learning in higher education* (pp. 45-60): Routledge.
- Salleh, S., & Yusoff, N. M. (2016). TEACHERS' ATTITUDES AND BELIEFS TOWARDS THE USE OF STUDENT-CENTRED LEARNING IN ENGLISH LANGUAGE CLASSES. *Proceedings of The ICECRS*, 1(1), v1i1. 501-v501i501. 501.
- Sanjeev, R., & Natrajan, N. S. (2019). Role of blended learning environment towards student performance in higher education: mediating effect of student engagement. *International Journal of Learning and Change*, 11(2), 95-110.

- Schuh, K. L. (2004). Learner-centered principles in teacher-centered practices? *Teaching and Teacher education*, 20(8), 833-846.
- Sendagire, Y. (2023). *Information and communication technology in the competence based learning in lower private secondary schools of Nakasongola district, Uganda*. Kampala International University, College of education, open distance and e
- Shaukat, S., & Iqbal, H. M. (2012). Teacher self-efficacy as a function of student engagement, instructional strategies and classroom management. *Pakistan Journal of Social and Clinical Psychology*, 9(3), 82-85.
- Shernoff, D. J. (2013). Optimal learning environments to promote student engagement.
- Singh, R. B. (2024). *“Challenges and Coping Strategies of Teaching English in an Under-Resourced Context: A Narrative Inquiry”*. APPROVED B. Kathmandu University School of Education,
- Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of educational research*, 75(3), 417-453.
- Skinner, E., Furrer, C., Marchand, G., & Kindermann, T. (2008). Engagement and disaffection in the classroom: Part of a larger motivational dynamic? *Journal of educational psychology*, 100(4), 765.
- Soigi, P. (2018). Factors influencing low academic performance of students in rural secondary schools in Uganda (a case study of Nyero Subcounty-Kumi District).
- Stefanou, C. R., Perencevich, K. C., DiCintio, M., & Turner, J. C. (2004). Supporting autonomy in the classroom: Ways teachers encourage student decision making and ownership. *Educational Psychologist*, 39(2), 97-110.
- Sterret, W. L., Parker, M. A., & Mitzner, K. (2018). Maximizing Teacher Time: The Collaborative Leadership Role of the Principal. *Journal of Organizational and Educational Leadership*, 3(2), 1.
- Strachan, R., & Liyanage, L. (2015). Active student engagement: The heart of effective learning. *Global innovation of teaching and learning in higher education: transgressing boundaries*, 255-274.
- Subotnik, R. F., Olszewski-Kubilius, P., & Worrell, F. C. (2023). The role of insider knowledge in the trajectories of highly accomplished scientists. *Annals of the New York Academy of Sciences*, 1527(1), 84-96.
- Tabulawa, R. (2013). *Teaching and learning in context: Why pedagogical reforms fail in Sub-Saharan Africa*: African Books Collective.
- Tang, K. H. D. (2023). Student-centered Approach in Teaching and Learning: What Does It Really Mean? *Acta Pedagogica Asiana*, 2(2), 72-83.
- Tesla, N. (2023). Second Industrial Revolution Encounters Information. *Birth of Modern Facts: How the Information Revolution Transformed Academic Research, Governments, and Businesses*, 27.
- Tomasello, M., Kruger, A. C., & Ratner, H. H. (1993). Cultural learning. *Behavioral and brain sciences*, 16(3), 495-511.
- Tumwebaze, C., & MacLachlan, M. (2012). Motivating the teacher workforce in Uganda. In *Humanitarian work psychology* (pp. 166-181): Springer.
- Van Der Stuyf, R. R. (2002). Scaffolding as a teaching strategy. *Adolescent learning and development*, 52(3), 5-18.
- Venter, H. (2017). *The Role of Teacher Engagement in Creating a Positive Learning Environment in Poorly Resourced Schools*: University of Pretoria (South Africa).
- Voorhees, R. A., & Bedard-Voorhees, A. (2016). Principles for competency-based education. In *Instructional-Design Theories and Models, Volume IV* (pp. 33-64): Routledge.

- Voronkova, V., Vasyl'chuk, G., Nikitenko, V., Kaganov, Y., & Metelenko, N. (2023). Transformation of digital education in the era of the fourth industrial revolution and globalization.
- Wang, M.-T., & Eccles, J. S. (2013). School context, achievement motivation, and academic engagement: A longitudinal study of school engagement using a multidimensional perspective. *Learning and instruction*, 28, 12-23.
- Wang, M.-T., & Holcombe, R. (2010). Adolescents' perceptions of school environment, engagement, and academic achievement in middle school. *American educational research journal*, 47(3), 633-662.
- Wass, R., Harland, T., & Mercer, A. (2011). Scaffolding critical thinking in the zone of proximal development. *Higher Education Research & Development*, 30(3), 317-328.
- Weimer, M. (2013). *Learner-centered teaching: Five key changes to practice*: John Wiley & Sons.
- Wijayati, P., & Andriyanti, E. (2019). The significance of teacher's talent in improving students' engagement in EFL classroom. In *English Linguistics, Literature, and Language Teaching in a Changing Era* (pp. 243-250): Routledge.
- Wilson, B. G., & Novak, K. (2017). Constructivism for active, authentic learning. In *Trends and issues in instructional design and technology* (pp. 99-111): Routledge.
- Wolfe, B. A., & Riggs, E. M. (2017). Macrosystem analysis of programs and strategies to increase underrepresented populations in the geosciences. *Journal of Geoscience Education*, 65(4), 577-593.
- Woo, Y., & Reeves, T. C. (2007). Meaningful interaction in web-based learning: A social constructivist interpretation. *The Internet and higher education*, 10(1), 15-25.
- Wurdinger, S. D. (2005). *Using experiential learning in the classroom: Practical ideas for all educators*: R&L Education.
- Xiang, Y., Li, M., & Berridge, G. (2017). Chinese Migrant Children in Crisis. *International Journal of the Whole Child*, 2(1), 6-15.
- Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into practice*, 41(2), 64-70.

Appendix A
Letter of permission to collect data

 **BUSITEMA UNIVERSITY**
Pursuing Frontiers

Plot 15, Area 200, Kampala, Uganda
Tel: +256 434 543 456
Fax: +256 434 543 457
Email: info@busitema.ac.ug
www.busitema.ac.ug

OFFICE OF THE DEAN FACULTY OF SCIENCE AND EDUCATION

Date: 15/04/2024

Your Ref: _____

Our Ref: BU/NAG/1001/1

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: OOLA JAMES (GS22/MEP/8)

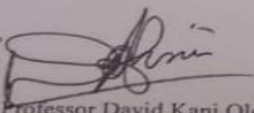
The above named is a student of Busitema University pursuing a Master Degree in Educational Psychology (MEP) at Faculty of Science and Education (FSE).

In partial fulfilment for the award, he/she is conducting a research on
Instructional Strategies, School Environment
and Student Engagement among learners
in the lower secondary competency based
curriculum in Manafwa District.

The purpose of this letter is to formally request you to allow him/her collect data from your organization which is relevant to this research. This is purely an academic research and therefore any information collected will be treated with utmost confidentiality in accordance with the research ethics principles.

Any assistance accorded to him/her in this regard will highly be appreciated.

Thank you.

Sincerely, 

Associate Professor David Kani Olema
FACULTY DEAN

RECEIVED
Frank
30th
DISTRICT EDUCATION OFFICER
30 APR 2024
MANAFWA DISTRICT LOCAL GOV'T
P.O. BOX 216, MSALE

Telephones:
District Chairperson
C&D
Deputy C&D
Chief Finance Officer
District Education Officer

0782544742
0772679484
0782044573
0772926813
0782943745



MANAFWA DISTRICT LOCAL GOVERNMENT
Office of the District Education Officer
P. O. Box 916
Mbale

In any correspondence on
this subject please quote No:

THE REPUBLIC OF UGANDA

9th May, 2024

The headteacher

Secondary school

RE: MR. OOLA JAMES (G522/MEP/8)

This is to introduce Mr. Oola James a student of Busitema University pursuing a Masters in Educational Psychology (MEP) at Faculty of Science and Education (FSE).

He is conducting research on "Instructional strategies, school environment and student engagement among learners in the lower secondary competency-based curriculum in Manafwa District". (See attached)

By copy of this letter you are requested to accord him the assistance required to collect data and complete his course.

Yours in-service


Nambuya Rachel



DISTRICT EDUCATION OFFICER

Cc. Chief Administrative Officer, Manafwa

Cc. File

Appendix B
Consent form
Busitema University
Faculty of science and education
Department of Educational Psychology

Participant consent form

I Agree to participate in this research study whose purpose to investigate the relationship between instructional strategies, school environment, and student engagement of the lower secondary schools in Manafwa District, Uganda.

1. I understand that the decision to participate in this study is entirely up to me and that even if I agree to participate now, I may withdraw my participation in the study at any time without any consequences of any kind.
2. I understand that I qualify to participate in this study by being one of the teachers/students of a lower secondary school within Manafwa District and I have sufficient information about my experiences with its teaching and learning.
3. I understand that my participation in this study is purely voluntary without direct benefit.
4. I understand that I am free to contact any of the people in this research to seek clarification and information

Name of participant:

Signature of participant:.....Date

Name of researcher:signature

Appendix C
Questionnaire for students

Dear student,

I am a postgraduate student at Busitema University. You have been selected to participate in the study “**Instructional Strategies, School Environment and Student Engagement among Learners in the Lower Secondary Competency-Based Curriculum in Manafwa District.**” This study is for academic purposes and the results will not be used for any other purposes. The researcher would like to assure you that your responses will strictly remain confidential and that the responses will never be personalized. You are thus kindly requested to read this questionnaire and complete it as honestly as possible. Your participation in this study is very crucial and your responses will be highly appreciated and valued. Thank you in advance.

Participant ID number:

School code

Section A. Demographic information

a) Your details (please note that this information will remain confidential)

i. Gender; Male ☐ Female ☐

ii. Age; Below 15 years ☐

Between 15-18 years ☐

Between 19-22 years ☐

Above 22 years ☐

iii. Your class

S1 ☐

S2 ☐

S3 ☐

S4 ☐

iv. What is your primary language spoken at home?

.....

v. How many people live in your home/household?

vi. What is the highest level of education completed by your parent(s) or guardian(s)?

No formal education ☐

Primary education ☐

Trained on job ☐

Secondary education ☐

Certificate course ☐

Diploma course ☐

University degree ☐

Master's degree ☐

PhD ☐

Specify if any;

vii. How would you describe your family's financial situation?

Low-income level (less than UGX 1,000,000/= per month)

Middle-income level (between UGX 1,000,000/= to UGX 5,000,000/= per month)

High-income level (above UGX 5,000,000/= per month)

viii. Which type of school did you attend before joining this one?

Government/Public school ☐

Community School ☐

Private school ☐

ix. Do you have any disabilities or impairments that affect your learning?

Yes ☐

No ☐

If yes, please specify the type of disability or impairments and share with us your experience with the CBC teaching methods.

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

b) Institutional details;

I. Identify the location of your school.

Rural ☐ Pri-urban ☐ Urban ☐

II. What category of school do you study/learn in?

Private school ☐

Community School ☐

Government/Public school ☐

III. Approximately how many students are you in your stream?

Less than 100 students ☐

Between 100 to 200 students ☐

Between 201 to 300 students ☐

Above 300 students ☐

IV. Which of the following resource(s) are available in your school? (you can select more than one option here)

Functional library ☐

Functional science laboratory ☐

Functional computer laboratory ☐

Support staff like Lib and Lab Assistant ☐

Arts and creative materials ☐

Physical education and sports equipment ☐

Career guidance and counseling services ☐

Please give any specific comment for the above if present;

.....
.....

SECTION A: INSTRUCTIONAL STRATEGIES

Please indicate the extent to which your teachers always use the following instructional strategies in teaching you. Choose from the following response options;

1 – Never or Rarely, 2- Occasionally, 3- Sometimes, 4- Frequently, 5- Always

s/n	Instructional strategies	1	2	3	4	5
1.	Inquiry-based learning eg exploration					
2.	Problem-based learning					
3.	Peer teaching					
4.	Project-based learning					
5.	Group work learning					
6.	Question and answer					
7.	Student-Led discussions					
8.	Role-playing					

Please indicate the extent to which your teachers use the following instructional tools/resources in teaching you;

1 – Never or Rarely, 2- Occasionally, 3- Sometimes, 4- Frequently, 5- Always

s/n	Instructional tools/Recourses	1	2	3	4	5
1)	Interactive whiteboards/ smart board					
2)	Multimedia presentations eg. PowerPoint					
3)	Educative software /applications					
4)	Online learning platforms eg Google class					
5)	Digital simulations/virtual labs					
6)	Mobile devices like smartphones, tablet					
7)	Visual aids eg charts, diagrams					
8)	Experimentation apparatus					

Section B: Suitability of the School Environment in Supporting Learning

The questions in this section are about your school environment. Using the rating scale below, Please indicate your degree of agreement with each item by placing a tick in the appropriate coding box in the response option.

1 – Never or Rarely, 2- Occasionally, 3- Sometimes, 4- Frequently, 5- Always

Serial		1	2	3	4	5
SLE1	In this school, classrooms are physically safe and conducive to learning.					
SLE2	Classrooms are equipped with adequate facilities and resources to support student learning needs.					
SLE3	Classrooms are clean and well-maintained, providing a conducive environment for learning.					
SLE4	Students have sufficient access to instructional materials and resources, including textbooks, workbooks, and other learning materials.					
SLE5	Students have sufficient access to instructional technology, including computers, tablets, and Internet access.					
SLE6	Students receive adequate training and support to effectively use instructional technology for learning purposes.					
SLE7	Students have access to support personnel such as counselors, librarians, and ICT specialists to assist with their learning needs.					
SLE8	Students feel that their parents/guardians are involved in their education and supportive of their learning endeavors.					
SLE9	Classroom rules for student conduct are consistently enforced by teachers and school administrators.					
SLE10	Teachers and school administrators support students' efforts to maintain discipline and uphold behavioral expectations.					
SLE11	Students understand expectations for their conduct and academic performance in the classroom.					
SLE12	Students are encouraged to participate in decision-making processes and problem-solving activities in the classroom.					
SLE13	Students have opportunities to collaborate and learn from their peers.					
SLE14	Students feel supported by the community in which they learn.					
SLE15	Parents/guardians actively participate in supporting students' educational goals.					
SLE16	Students have access to opportunities for personal and academic growth through professional development programs.					
SLE17	Professional development programs are tailored to meet the individual learning needs of students.					
SLE18	Professional development programs enhance students' ability to utilize effective learning strategies and techniques.					
SLE19	School leadership ensures a conducive learning environment by minimizing disruptions and distractions.					
SLE20	School leadership consistently reinforces behavioral expectations and provides feedback to students for improvement.					

- SLE21 School leadership actively seeks input from students to improve teaching and learning practices.
- SLE22 Overall, I feel that my school provides a positive and supportive environment for learning.

SECTION C: STUDENTS ENGAGEMENT LEVEL

Please indicate your level of agreement with each statement by selecting the most appropriate response.

Behavioral Engagement, Emotional Engagement, and Cognitive Engagement

Please indicate the extent to which you engage behaviorally, emotionally, and cognitively in the following instructional activities:

1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5 Strongly Agree

		1	2	3	4	5
BE1	I actively participate in class discussions and activities.					
BE2	I complete assigned tasks and activities on time					
BE3	During instructional sessions, I actively listen and concentrate on the material being presented.					
BE4	I collaborate with my peers during group work or projects.					
EE1	I feel excited and passionate about learning during these activities.					
EE2	I feel a sense of enjoyment and satisfaction when participating in these activities.					
EE3	I actively participate and contribute to task-based activities, finding enjoyment in the learning process.					
EE4	I feel motivated to put effort into these activities.					
CE1	I actively think about and analyze the content being taught.					
CE2	I make connections between new information and my prior knowledge.					
CE3	I create personal examples to facilitate my understanding of key concepts outlined in the learning outcomes.					
CE4	I am curious and eager to explore concepts further.					

Additional Comments:

As students, what are your observations and insights regarding the effectiveness of the instructional strategies used in promoting your engagement in class? Specifically, can you highlight the strengths of each strategy employed?

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SECTION D: CHALLENGES AND RECOMMENDATIONS

1. What are the main challenges you are encountering in implementing learner-centered learning in your classroom?

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2. What recommendations do you have for improving the implementation of learner-centered learning in Uganda's lower secondary education?

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THE END

Appendix D
Interview Guide
Busitema University
Faculty of science and education
Department of Educational Psychology

Interview Guide for Study on Instructional Strategies, Learning Environment, and Student Engagement

Purpose

This interview guide aims to gather qualitative insights into how instructional strategies and the learning environment influence student engagement in lower secondary schools in Butiru County, Manafwa district.

Section 1: General Information

1. What is your role in the school? (Administrator)

Section 2: Instructional Strategies

1. How would you describe the teaching methods commonly used in your school? What specific teaching strategies do you employ to engage students in their learning? Can you provide examples?
2. Are there any student-centered approaches like group work, problem-based learning, or inquiry-based learning used in your classroom? How effective do you find them in enhancing student participation?
3. What challenges do teachers face in implementing these student-centered teaching strategies?

Section 3: Learning Environment

1. How would you describe the overall learning environment in your school? Do you think the learning environment supports or hinders the instructional strategies you're trying to implement?
2. What resources (e.g., ICT tools, learning materials) are available in your school to support effective learning? Are they sufficient?
3. How do classroom conditions (e.g., class size, space, and facilities) affect your teaching methods or your engagement as a student?

Section 4: Student Engagement

1. How do you measure student engagement in your classes? What signs indicate that students are actively engaged?
2. Are there specific teaching methods or aspects of the learning environment that enhance or reduce student engagement in your opinion? Why?
3. In your experience, what role do teacher-student relationships and peer interactions play in student engagement?

Section 5: Suggestions for Improvement

1. What do you think could be done to improve instructional strategies to better engage students in this school?
2. How can the school environment be improved to foster better student participation and learning outcomes?
3. (For Teachers/Administrators) In your view, how can the government or educational stakeholders support schools in improving student engagement?

Closing Questions:

1. Is there anything else you would like to add regarding instructional strategies, the learning environment, or student engagement in your school?
2. Do you have any suggestions for educational policymakers about how to enhance the learning experience for students?

THE END



Appendix E

Krejcie and Morgan Table for determining sample size from a given population

<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	100000	384

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

Source: Krejcie & Morgan, 1970

Appendix F Model summary

School environment

Model Summary

	R	R-sq	MSE	F	df1	df2
p	.2710	.0735	.1930	24.4212	1.0000	308.0000
	.0000					

Model

	Coeff	se	t	p	LLCI	ULCI
Constant	2.6169	.1826	14.3278	.0000	2.2575	2.9763
Instruct.	.3594	.0727	4.9418	.0000	.2163	.5025

OUTCOME VARIABLE:

Student engagement

Model Summary

	R	R-sq	MSE	F	df1	df2
p	.5674	.3220	.1676	72.8995	2.0000	307.0000
	.0000					

Model

	coeff	se	t	p	LLCI	ULCI
constant	1.5745	.2197	7.1666	.0000	1.1422	2.0068
instotal	.0662	.0704	.9398	.3480	-.0724	.2047
Schenvt	.6017	.0531	11.3327	.0000	.4972	.7062

***** DIRECT AND INDIRECT EFFECTS OF X ON Y *****

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI
.0662	.0704	.9398	.3480	-.0724	.2047

Indirect effect(s) of X on Y:

	Effect	BootSE	BootLLCI	BootULCI
Schenvt	.2162	.0493	.1176	.3133

***** ANALYSIS NOTES AND ERRORS *****

Level of confidence for all confidence intervals in output:

95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:

5000

----- END MATRIX -----